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THE ONTARIO TEACHER:

A MONTHLY EDUCATIONAL JOURNAL.

Vol. 4.

FEBRUARY, 1876.

No. 2.

CHIEF SUPERINTENDENT'S REPORT FOR 1874.

As usual, owing to what is called Parliamentary etiquette, the Report of the Chief Superintendent, which was, no doubt, ready for several months, had to be laid on the table of the Legislative Assembly before it could become public property. We are aware, that in regard to certain documents, the publication of which is discretionary with the printing committee, that such a formality is necessary, but in regard to all departmental reports, that are always submitted in printed form, there is no reason why the public should be deprived of the information they contain, least offence should be given to mere parliamentary routine.

This report, like its predecessors for the last twenty-five years, contains much valuable information. The statistical tables from which we purpose making a few extracts are full, and exhibit the most gratifying progress. Indeed, we doubt very much if there is any indication of our continued prosperity, so cogent and emphatic, as

that of our educational system, and the increased interest taken in the intellectual improvement of society.

Expenditure.—The interest manifested in education may fairly be estimated by the extent to which the people voluntarily submit to taxation for its support. Improvements cannot be made without increased expenditure, and it is a most gratifying indication of the public spirit of Ontario to notice that the expenditure on education, which in 1844 amounted to only \$275,000, increased in 30 years more than tenfold, amounting in 1874 to \$2,865,332. During the last three years alone there was an actual increase of over one million dollars in the amount contributed for the maintenance of our public schools—the total taxation for 1874 amounting to \$3,250,000.

The improvement of school-houses necessarily absorbs a large amount of money. The primitive log cabin, which in its day rendered good service, must give way for more commodious and expensive

structures. Improvements in the internal arrangement and furniture, must also be provided. In the accomplishment of this the New School Act has rendered good service. Disagreeable as it may be to make the admission, it is nevertheless true, that Boards of Trustees are not over anxious to make school-houses comfortable, and many are the instances in which nothing but the legal pressure brought to bear, would ever provide the requisite accommodation. As a proof of this we note the fact, that last year the expenditure upon school-sites and school-houses amounted to \$699,547; the previous year it was \$609,113; and in 1872, \$556,013, or an expenditure of \$1,854,703 in three years. With such liberality we may predict much more comfort, better health, and greater industry in the prosecution of study than prevailed in former years.

Salaries.—Next to our progress in the erection of school-houses, we might place the increased remuneration paid to teachers. It is a fact very much to be regretted that so many of the best teachers abandon the profession for some other vocation of a more lucrative character. Nor are they to be blamed for this. A man, with no capital but the capacity to work and intellect to work intelligently, has a right to sell in the highest market. If that market is found in connection with our public schools, then of course he enters it and remains there. If not, he must seek for his price either in some other profession or in commercial pursuits. Although the rewards, in a pecuniary point of view, held out to the profession are better than they were some years ago, they are certainly meagre enough yet. It cannot, however, be expected, until the profession becomes more permanent, that any great improvement can take place. It is only those who, by experience, have established their claim to a fair reward, that can complain of low salaries. In every

department of labor there are gradations. The apprentice must not complain if he is not as well paid as the journeyman. So the young teacher, who has given no other proof of his capacity than his ability to procure, perhaps, a third class certificate, must not complain if he is not paid as liberally as the man who has given years to the work, and who has qualified himself by hard study to teach the more advanced branches.

The advance in salaries which has taken place in the last few years, may be seen from the following statistics: In 1873 the highest salary paid to a male teacher in a county was \$660; in 1874, \$720; in a city the highest salary paid in 1873 was \$850; in 1874, \$1,000. The average for the last three years, in counties, was as follows:—

	1872	1873	1874
Male teacher...	\$288	\$323	\$348
Female teachers..	216	229	235

The whole amount expended on teachers' salaries in 1874 was \$1,647,750, being an increase of \$127,626 over the preceding year.

The school population is also fast increasing, although the average attendance is yet far below what it should be. The total school population of the Province, as reported by trustees, amounts to 511,603. Those in actual attendance numbered 464,047, leaving a balance of 47,556 who do not attend any school at all. The number returned as not attending any school was 19,321, but this is evidently incorrect, as the true number must be the difference between the *whole* school population and the number reported in *actual* attendance. In 1844 the school population of the Province was only 96,756. The increase during the last thirty years, then, is over 500 per cent. By recent statistics of the schools in England, we noticed the increase during the last *forty* years was only 400 per cent.

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While, as already remarked, the number registered in our Public Schools is very gratifying, it is to be regretted that the average attendance is still so low. Out of a registered school population of 464,047, the average was only 192,898. This shows a deplorable laxity on the part of parents and guardians—a laxity which reduces the actual value of the moneys expended upon education nearly 75 cents on the dollar. It matters little how well teachers are paid, and how liberally the ratepayers contribute for the erection of school-houses, so long as children are allowed to run about the streets. The necessity of enforcing the Compulsory Clauses of the School Act increases with the expenditure of the public funds for educational purposes. If it is right to compel Mr. A to pay taxes for the education of Mr. B's children, then it must be right to *compel* Mr. B, if necessary, to send his children to school. The one is a corollary of the other, and it is not until this is done that we can be said to derive anything like an equivalent for the great expenditure now going on for the maintenance of our schools. So great is this irregularity at the present time that we are told in the report from which we are quoting that 264,115 pupils attended school less than 100 days in 1874.

Of Roman Catholic Separate Schools there were in 1874 166, a decrease of 4 on the year. The total money receipts of all

these from all sources were \$88,363. The teachers in those schools were paid salaries to the amount of \$51,144. The pupils on the roll were 22,786, and the average attendance 11,850. According to the Inspectors' returns for 1874 there were 511,603 children in Ontario between the ages of 5 and 16. Of these, according to the proportion of the Roman Catholic population, at least 75,000 were Roman Catholics. It follows from this that not one-third of the Roman Catholic school population attend Separate Schools. The other two-thirds, even allowing that 10,000 are receiving no education, go to the Public Schools, in which 414 Roman Catholic teachers at least are employed. Yet not one complaint has been made of any attempt at proselytism, or of any interference with religious rights as guaranteed by law. In these Separate Schools there were, in 1874, 942 maps. During the same year \$2,432 were paid for maps, apparatus, prizes, and libraries. In the Public Schools for the same purposes there were expended during the year \$54,989. The attendance at Separate Schools in 1855 was 4,885, while the number at the Public ones was 222,979. In 1874 the attendance at Separate Schools had increased, as we have seen, to 22,786, while the pupils at the Public Schools numbered 441,261.

In another part of the TEACHER will be found a synopsis of the progress made in our High Schools.

THE CHARGES AGAINST MR. BORTHWICK AND THE OTTAWA BOARD OF EXAMINERS.

It is well known to our readers that very serious charges of irregularity were brought against the Ottawa City Board of Examiners, but particularly against Mr. Borthwick, the Inspector. A commission was appointed to investigate the charges on the spot

under oath. This commission after a lengthened investigation reported to the Chief Superintendent. The following correspondence will fully explain the result arrived at. In regard to Mr. Smirle's connection with the matter, we see by a letter

to the *Ottawa Times* that he feels aggrieved, and in justice to Mr. Smirle we publish his letter in full. The only circumstance connected with the whole transaction that surprises us is, that Mr. Borthwick's certificate as Inspector was not suspended as well as his certificate as Examiner :

EDUCATION OFFICE,
Toronto, 3rd January, 1876.

SIR,—I have had under consideration the report of the Commissioners to investigate certain complaints against the Rev. H. J. Borthwick, M.A., Inspector of Public Schools, and member of the Board of Examiners in the city of Ottawa. By virtue of his office of Inspector, he is Chairman of the City Board of Examiners.

It is against Mr. Borthwick's conduct as member of the Board of Examiners, that the complaints were made. It was charged that, among other irregularities, Mr. Borthwick had opened the examination papers received from the Education Department before the appointed hour, contrary to official instructions, which require in all cases that each Chairman of the Board of Examiners, or other presiding examiner, shall open such papers only at the legally appointed hour of commencing the examination of candidates for certificates as teachers, and in the presence of the Board of Examiners and of the candidates to be examined. It was also charged that these and other irregularities had been practiced by Mr. Borthwick from 1871 to 1875 inclusive, whereby certain teachers in Ottawa had received assistance or advantage in their examination not enjoyed by other candidates in the several counties and cities of the Province of Ontario. These complaints having been made to me in proper form by a responsible public school teacher, I felt it my duty—imposed upon me by law—to institute an investigation of them. For this purpose, I appointed three Commissioners, Dr. Hodgins (Deputy Superintendent of Education), Mr. H. L. Slack, M.A. (Public School Inspector of the County of Lanark), and Mr. P. LeSueur (Member of the Ottawa Board of Public School Trustees, and Chairman of their School Management Committee). These gentlemen met in Ottawa on Wednesday, the 1st of December, and had successive sittings during three days

—employing able and reliable short-hand writers to take down fully the evidence and proceedings. The commissioners have presented to me their report, with the evidence, occupying altogether 227 pages of foolscap.

It is obvious from these facts and circumstances that the examinations of candidates for certificates of qualification as teachers of different classes have not been conducted according to law, and with fairness, since 1871; that the certificates thus obtained are inferior in value to certificates fairly obtained in other cities and counties; that injustice is thereby done to teachers in other parts of the Province, if not even suspicion created as to the fairness and thoroughness of examination by county or city Boards of Examiners.

I did not notice minor irregularities complained of, and proved, as to the manner of conducting the examinations in question in the city of Ottawa; nor do I attribute any corrupt motives to Mr. Borthwick, who seems to be very energetic and faithful in his duties as Inspector of the Schools. But he has evidently desired to confer special favor upon teachers and candidates within his own jurisdiction, yet in reality injuring them; and other members of the Examining Board appear to have been consenting, and therefore responsible, parties to several of the irregularities of the chairman in these examinations.

Under the circumstances, I feel myself compelled by duty, but with great pain and deep regret, to decide that Mr. Borthwick cannot any longer be recognized as School Examiner for the city of Ottawa; and, I would respectfully suggest to the Board of Public School Trustees for that city, that they do, for the time being, as did the Board of School Trustees for the city of Toronto some time since, appoint no Board of Examiners for the city, but let the candidates for certificates go before the County Board of Examiners. It seems useless and needless expense for two Boards to meet in the same building, and do precisely the same work; and I suggest it as appropriate for the Board of Public Schools, in the city of Ottawa, to adopt the County Board of Examiners.

I have the honor to be, sir,
Your obedient servant,
E. RYERSON.

Toronto, 20th Dec., 1875.

SIR,—I have the honor to acknowledge the receipt of a minute from the Education Office, in which the opinion of the Central Committee is desired on certain questions connected with the recent investigation at Ottawa.

1. We are asked, *first*, "whether any action is necessary respecting the certificates of the candidates who are shown to have had access to the examination papers before the examination?"

In the opinion of the Committee, candidates who avail themselves of the opportunity afforded them, of becoming acquainted with the contents of the examination papers before the time fixed for the examination, must be held to be accessories to a grave offence, and their punishment should be signal. It is recommended that the certificates which may have been awarded to them at the examination in connection with which the offence was committed, or at any subsequent examination, be at once cancelled, and that the candidates be reduced to the standing which they held as teachers prior to the date of the offence. In the event of their hereafter offering themselves as candidates for First Class certificates they should not be allowed to compete for medals. Any medal which may have been awarded to a teacher guilty of the misconduct above described, but which may have not yet been bestowed, should be forfeited.

2. The opinion of the Central Committee is desired next, in regard to the candidates who are proved "to have been furnished with answers to the problems."

These candidates stand in a very different position from those previously referred to. It is quite conceivable that, when the presiding Examiner wrote the answers to certain questions on the black-board, or furnished the answers on slips of paper, the students thus favored may, without any intention to commit a wrong, have carefully assumed that he had authority for what he was doing. It is a pity that the slips were not refused, and that a protest was not raised against the action of the Examiner in writing the answers to the problems on the black-board; but, to regard the students, who failed to pursue such a course, as having deliberately made themselves parties to a dishonorable act, might, in some cases at least, be a cruel injustice. At the same

time it would be unfair to other teachers to recognize an examination in which the answers to the questions were improperly furnished as altogether valid. The recommendation of the Central Committee is, that the candidates concerned be allowed to hold their present certificates till the next examination of Public School teachers; and that they be required then to submit to re-examination.

3. The opinion of the Central Committee is desired in regard to candidates who may have been assisted in other ways than those already specified.

I presume that what is here referred to is the assistance alleged to have been given to some of the candidates by hints regarding the questions in Physiology. The opinion of the Central Committee is, that the candidates affected by the charge should be dealt with in the same way as those who were supplied with the answers to the problems.

4. We are asked whether, in the event of a re-examination being necessary, it should extend to other candidates than those proved to have been assisted.

This point is one of considerable difficulty. The examinations conducted by the Ottawa Board have been so loose, that a measure of suspicion hangs over all the certificates granted by the Board. At the same time, it would be hard to punish candidates who have earned their certificates fairly, and, as the irregularities are alleged to have extended over several years, it might be extremely inconvenient, as well as unfair, to require a general re-examination of the candidates, in all these years. On the whole the Committee are of the opinion that the re-examination should be limited to the candidates who are shown to have had the answers furnished to them, or to have been otherwise assisted.

I have the honor to be, sir,

Your obedient servant,

(Signed) GEORGE PAXON YOUNG,
Chairman of Central Board.

THE BORTHWICK-MCDOWALL CHARGES.

To the Editor of the Times :

DEAR SIR,—I beg space in your journal to call attention to the unwarrantable censure passed upon me by Rev. Dr. Ryer-

son, in his report on the "McDowall-Borthwick charges," to the Board of Public School Trustees of this city. In section three of said report the following statement is made :—

"It is likewise shown by the evidence, as it might naturally be inferred, that by these helps and promptings the candidates were more or less assisted in preparing their answers; some of them apparently more than others; and one of the candidates (who was awarded by the Central Board of Examiners the highest honors) confesses to have been materially aided in preparing answers to some of the questions by information received the night before the examination, through Mr. A. Smirle, a County Board Examiner, to whom Mr. Borthwick had shown one or more of the examination papers."

I have asked the opinion of at least a dozen competent men as to the meaning of the above quotation, and the answer in every case is, that it admits of but one interpretation, viz: That I was a County Board Examiner at the time this irregularity occurred. Now, sir, this conclusion is absolutely incorrect and inexcusable on the part of Dr. Ryerson, Dr. Hodgins, the Central Board of Examiners, and all concerned, as they cannot help but know that I was not a member of any Examining Board at that time, nor for over two years subsequently. By reference to the evidence given by Miss Anna Living before the Commission, it will be seen that she is the candidate alluded to in the above extract, and that the examination in question, which was her last, took place in December, 1872. At that time I held no higher than a second-class certificate, which shows the absurdity of representing that I acted then as an examiner. In September, 1873, I received my 1st B, and in September, 1874, my 1st A. My certificate as examiner was not taken out until 28th September, 1873, and was issued by the Department, signed "E. Ryerson, Chief Superintendent of Education," and entered in the Register of the Department No. 185. My appointment as a member of the County of Carleton

Board of Examiners was made on February 26th, 1875, and I acted in that capacity for the first time in July, 1875, over two years and a half subsequent to the time, as shown by Miss Living's evidence, at which the irregularity occurred. Had I been an examiner, or even held an examiner's certificate, at the time of this unfortunate occurrence, I would submit willingly to this shame and indignity. Happily for myself, however, I was but a second class teacher, and Mr. Borthwick knew this, as I was then, through his advice, an applicant for admission to the Toronto Normal School, for the express purpose of obtaining a first class certificate, which alone qualifies others than graduates of Universities for the office of Examiner.

Again, to show that there was no betrayal of trust on my part in this matter, I will simply mention that the paper shown me was also shown to Mr. Parlow, and so far as I know, without solicitation and without any injunction of secrecy in the matter. Mr. Parlow and I conversed about the irregularity of the proceeding, as well as of the nature of the paper. Miss Living's sister, who, like ourselves, was not a candidate at the examination, entered the building, and having asked if I had seen any of the papers, received an answer in the affirmative. In the conversation which ensued, I spoke of the paper in a manner somewhat similar to what I had previously done to Mr. Parlow, and as I would very likely have done to any other teacher had they entered the room at that particular time. From these facts, Mr. Editor, I leave your readers to judge as to whether I have received justice at the hands of the educational authorities. I am in communication with Dr. Ryerson on the subject, and hope that he will speedily and publicly undo, as far as possible, the injury done to me in this matter. Thanking you for the opportunity afforded me of vindicating myself before the public,

I remain yours, &c.,

A. SMIRLE.

Central School East,
January 7th, 1875.

HIGH AND PUBLIC SCHOOL ENTRANCE EXAMINATIONS.

BY A HEADMASTER.

The changes in recent years in the High and Public School Laws have been most beneficial to the interests of education, and in the main have been right loyally received by the majority of those whose duty it is to see the law worked out in all its perfection. And although this may be somewhat difficult to do, owing to the multiplicity of laws, rules, and regulations issued by the authority, or caprices, of the governing body at Toronto, still good has resulted; and the man who now enters one of our schools, and thoughtfully compares what he sees with what he knows to have been the situation, say ten years ago, must be at once struck with the wonderful change for the better.

But while this may be the case, there are some who seem to be blind to the good progress made; and these are of two kinds: those who will not see any change, and those who see it and value it too highly. Which of these two classes deserves the greater blame it would be hard to determine, but it is very easy to decide which one of them causes the most mischief. The first croaks away about what he saw when he was at the head of affairs, when things were managed quite different, and when he could do as he pleased without the terrors of an Inspector, or an inquisitor, being suspended over his head, like the sword of Damocles. The second sees everything in the gaudy color of the rainbow, assumes for granted what he wishes to be so, and acting upon that supposition, gives his previous conceptions such a shock, sometimes, as must reduce him to a sense of the fallacy of human reason, basing its conclusions on the improved data of the knowledge in the youthful mind.

The greatest milestone ever passed on

the highway to success, was the inauguration of a uniform system of entrance examinations to our High Schools and Collegiate Institutes. It was a boon long prayed for by the best men in the profession, and the granting of it was hailed by them as an augury of future success. And so it has proved to be, notwithstanding the errors made by some who ought to have known better. The efficient carrying out of the system of examination would pre-suppose an intimate acquaintance with the work of the Public Schools of the country, and yet it is just at this point where the germ of failure would seem to have forced an entrance. From the want of a thorough knowledge of Public School work on the part of the gentlemen comprising the board which issues the questions, a grievous damage has been inflicted upon the High Schools, and upon the Public Schools as well.

In this country, it has always been the aim of educators to give a practical turn to their efforts, and to leave *show*, tricked out in gaudy nothingness, to those who can appreciate and are pleased with such things. Acting upon such a basis, then, the preconceived ideas of many must have been somewhat rudely shocked by the papers submitted last December for the entrance examination. And when attention is drawn to these, it is not with any design of condemning all of them, but chiefly to indicate the paper on Geography alone. The others were most suitable and satisfactory, but the Geography paper must have been prepared with the sole view of being exhibited at the Centennial, or some other big *show*, as a specimen of what Canadian youth are expected to—would that it were possible to say—did do!

GEOGRAPHY.

1. Draw a map of Europe as large as your paper will permit; insert the names of the chief headlands, bays and islands, and show the direction of the chief mountain chains; trace the course of the Danube and Volga, and place Moscow, Odessa, Navarino, Athens, Florence, Lyons, Cherbourg, Adjaccio, Leipsic, Warsaw and Christiania.
2. Name the States of the American Union that border on each of the Great Lakes, those that border on the Gulf of Mexico, and those that lie west of the Mississippi; trace the course of the Mississippi, the Ohio and the Potomac.
3. Name the political divisions of South America, giving their relative positions and the names and positions of their capitals.
4. Name the Presidencies, the principal rivers and the great mountain chains of Hindostan.
5. Describe the position of the following places, and state to whom they belong: Pembina, Halifax, Saratoga, San Marino, Bagdad, Cabul, Hobert Town, Limerick.
6. Name the counties of Canada that border on Lake Erie, and those that lie on the St. Lawrence; trace the course of the Grand River, Red River, Assiniboine, Fraser River and the Saskatchewan.
7. Draw an outline map of Nova Scotia, giving the position of Halifax, Pictou and Yarmouth.

Now there they are, and the ingenious youth of Ontario had just *one hour and a half* to complete the seven questions. The writer is a practical man, and he believes in proving all things. He therefore took one of his pupils, a good penman, and a good drawer, and set him down to *elaborate* the first question. After just one hour and fifteen minutes, the pupil produced an answer to the question which would probably be credited with fifteen marks by a conscientious examiner. How, then, in the name of common sense, were pupils of our public and private schools to gain an ade-

quate percentage on such a paper? As an exhibition of skill on the part of an examiner, it stands peerless; as a practical test in Geography, considering the time allowed for answering it, it is worse than a crime against our Public Schools—it is a libel and a blunder. It cramps exertion, it paralyzes progress, it excites discontent, for the teacher cannot anticipate such work, and it would be folly to attempt it.

But there is something more. The Regulations, blessings on them, they are so *simple!* lay down for the subject of Geography, the maps of Europe, Asia, Africa, Ontario, and Canada generally. Now one would suppose that the outlines of such an amount of work would amply suffice to satisfy an average examiner. But in this case we find that the utmost intimacy is expected; else why put down isolated towns, as Cabul and Bagdad? Again, no mention is made of South America in the whole programme, and yet question three, embracing one-seventh of the whole value of the paper, is on that country.

But we go farther. A dim suspicion crosses our mind that within late years the Imperial Parliament of Great Britain abolished the Presidencies of India, and that now it is ruled by a Governor-General. If this suspicion is correct, how comes it that question *four* gained admittance, and why did not the examiner include Russian America, Upper and Lower Canada in his purview? The Presidencies are mentioned in the authorized Geography, but so do Alsace and Lorraine appear as parts of France, and consolidated Germany is in vain there sought after.

The object of this article is not to find fault with an admirable system, but to draw attention to a glaring defect in it. In the whole world there are surely enough questions to be got at without peering into the mysteries of a science which embraces every place on the earth's surface.

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What the teachers of the Province look for is a fair, square paper of outlines, leaving the filling in process for candidates seeking teachers' certificates. As it is now, the procedure is reversed, for we assert, without fear of contradiction, that never in this country has a paper so difficult been given to candidates for third class certificates, and not perhaps more than one or two to the second class candidates.

In all candor, then, we call upon future examiners to dismiss from their minds any notion of exhibition work, centennial or otherwise, and glancing back to the days when they were young, frame from their inner consciousness such questions as, while outline in character, will be a fair test of knowledge and ability. The field is wide, boundless and illimitable, and the young hearts of future candidates will be rejoiced, and the public benefitted. It is

too bad to find the work of an honest teacher marred by an injudicious examination, and this article would not have been written were it not that the writer knows of more than a dozen good, faithful and zealous teachers whose work has been blamed because their pupils have failed in passing the examination on this subject. It is in their interest, and in the supreme interest of our educational welfare that these remarks have been offered, under the buoyant hope that future examiners will scan the field of study more carefully, and not disgrace the character and standing of our schools by holding up before them a perfection to which they may in future attain; but which is now tantalizing, because beyond the reach of only the happy few whom the examiner must have had in his mind's eye when he sat down to produce such a miracle of misplaced confidence.

THOUGHTS ON TEACHING.

BY R. M'CLELLAN, ESQ., TEACHER, ST. CATHERINES.

(Continued).

MESSRS. EDITORS:—As my reasons for the delay in furnishing the continuation of the article on the above subject, I submit the following programme of my daily duties:

- 9 to 4—Public School.
- 4 to 6—Book-keeping and accounts.
- 7 to 9—Private lessons.
- 9 to 10—Sawing and splitting wood.

If the above are not *satisfactory*, I think they are ample: if you can give me the name of any brother teacher who can furnish more ample ones, I will endeavor to do better in future.

The initiation of the pupil into the great work of self-culture, by forming habits of earnest, persevering, and self-reliant exertion, is an important part of the teacher's

work. Labor is the law of life, without which man, with all his high endowments, is a dull mass of inanity. Intellect is evolved by earnest toil; sentiment and affection are elaborated through suffering, sighs, and tears; moral principles struggle into life through conflicts, temptations, and trials.

Is Nature inimical to man, when her winters freeze, and her summers scorch him; when her furious storms and fierce lightnings terrify, and her savage beasts destroy him? Not in hostility does she thus array herself against man, but only to stimulate him to put forth his latent energies, and overcome these antagonisms. Weak and cowering, he quails before her mighty forces; but God bids him arise and subdue the earth and elements; He gave him

"dominion," &c. ; and while he obeys, lo ! God helps him, not by rebuking the raging blast, or draining the pestilential marsh, or by exterminating the wild beasts, but by working in him and through him, ever kindly imparting to him genius and ability according to his own exertions. Thus only, man achieves the conquest of nature, and reduces her to his servitude. Thus only, he makes the elements do his bidding; and, Apollo-like, instals himself a king and priest in Nature's temple.

The same great principles of life and action are constantly manifesting themselves in society. By the alternation of joy and sorrow, health and disease, liberty and oppression, want and abundance, God develops the human soul, ever evolving energy, genius, and ability, in proportion as man exerts himself ; never conferring on him power until he has first demonstrated himself worthy of dominion, by his own indomitable energy and persevering industry.

The heroes and men of genius, in all ages, have not been more indebted to what Nature has done for them, than to what they have done for themselves ; nay, we find that those who had to contend with the greatest obstacles and difficulties generally rose to the highest positions in their sphere of action. Need we refer to a Benjamin West, a Washington, a Franklin, a Lincoln, or a Horace Greely ? By their almost superhuman exertions, close application, and indefatigable toil, Julius Cæsar and Napoleon asserted their supremacy in the conquest of nations, and made themselves arbiters of the world. By earnest, incessant mental effort, Newton and Cuvier raised themselves from obscurity to an eminence more honorable than that of kings. But time would fail to give a tithe of the cases applicable to this point. By self-conquest, and invincible might of faith and love, Daniel and Luther laid hold on Omnipotence, and attained a higher supremacy than that of potentates.

The necessity of obtaining an education by his own efforts; often proves to be the greatest blessings to an indigent youth, by throwing him back upon his own resources, and compelling him to put forth all his own energies. By intense application and persevering diligence, this son of toil and poverty is often better educated than the ease-loving son of luxury and wealth, though the latter is surrounded by every facility, and assisted by the best instructors. Thus self-culture, while it brings out talents, develops also enterprise and perseverance, and so generates true power.

The whole school system is but a preparatory course of training for the great Normal School of life, where friends, (and often enemies), relatives, and promiscuous society are the teachers, and an all-wise Providence and a vigilant conscience, the disciplinarians ; and the whole of life is but a period of self-education for the life to come. The teacher who discharges his duty faithfully, inculcates upon his pupils the necessity of not only doing well in school, but also of doing well through life ; and strives to make them feel the importance of their own earnest exertion and co-operation, if they would acquire an education which will prepare them for the great work of self-culture. Not by mere *memoriter* recitations, but by patient, consecutive thought, is this great end to be attained ; not by a parrot-like learning of words, but by acquiring and arranging ideas, so as to be available for ready use. He will strive to make them feel their own responsibility ; that the best teacher cannot *educate* them, if they will not co-operate with him, and educate themselves ; and that every acquisition, truly valuable and enduring, must be obtained by their own efforts.

Another important branch of the teacher's mission is Discipline. A successful teacher will hold such a supremacy over his pupils as will enable him to sway their minds, direct their energies, and, if necessary,

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subdue their wills. Shall he maintain this supremacy by arbitrary authority, by rewards and punishments, or by moral suasion? Shall he control his pupils by the coercion of an indomitable will, by the magnetic influence of his presence, by the more subtle agency of his moral power, or by teaching them the great lesson of self-control? I say, by each, and all of them, when necessary, and even *mesmeris*, if he possesses that wonderful power; by all means let him maintain his supremacy, and control his pupils. Let him study the natural disposition of each of his pupils, and he will find that one of the above agencies will be sufficient for one pupil, two will be necessary for a second, three for a third, &c.; and perhaps a fifth or a sixth may require *mesmerism*, in addition to them *all*. This has been my experience in teaching for upwards of thirty-one years.

In surveying a school of forty or fifty pupils, we observe a great variety of form, physiognomy, manner, and disposition. The countenance of one is radiant with love and joy, while that of another is like a dark, lowering cloud. One looks gross, another cunning; some are pre-possessing, others repellent. Some are tender and susceptible; others are cold and resisting. Would any teacher attempt to manage such a school by any one of the above methods? If he would, I should say he was more fit for a lunatic asylum than for the position he occupies.

How can we control such a diversity of character, and bring so many discordant elements into harmony with each other and ourselves, except by discriminating individual character, and adapting our mode of discipline to the peculiarities of each case. Genuine love and uniform kindness will convince the *majority* of our pupils that we seek their highest welfare and happiness; and will thus conciliate their regard, and secure their confidence and co-operation. And since a school ever reflects the char-

acter of its teacher, perhaps we most successfully promote good order by a strict adherence to system in all our arrangements. Thus our pupils, while they imitate our example, are convinced that order is a principle and law of life, which would be vain for them to oppose.

I said above, a *majority* may be induced to take this view of matters, but a minority may view things in a different light, and a very *small* minority can destroy the order of a school. In some schools, all things glide on smoothly, without any apparent effort on the part of the teacher, he being the great polar star, towards which all the scholars turn with love and respect; while, like a powerful magnet, he draws them all into his own sphere, and infuses into them his own life, spirit, and will.

But this delightful mode of discipline is a rare attainment, and the school in which it will succeed is, in my opinion, just as rare. Put that same teacher into another school, where there are pupils determined on mischief, and my word for it, "a change will come over the spirit of his dreams." Most teachers must govern their pupils by addressing some predominant principle. One pupil has received good parental training, and may easily be governed by appeals to his or her conscience; and another, by the teacher's love and approbation; while another, of a lower order, who had bad parental training, or none at all, can be moved only by the promise of reward, or the threat of punishment. But, if all these methods fail, then the pupil should be compelled to obey by absolute authority, or, in other words, corporeal punishment. Order must be maintained; and since despotism is preferable to anarchy, it may be well for the teacher to convince his pupils, when circumstances require, that there is a strong reserved force of determined resolution, that *can* and *will* exact perfect obedience, and that any opposition on their part is the height of folly.

As conscience is but slightly developed in young children, it may sometimes be necessary to excite their emulation by a system of rewards, but never until an appeal to higher motives has proved unsuccessful; for well-doing, prompted by a hope of gain, or fear of loss, springs only from self-interest, and is destitute of moral excellence. The teacher who realizes that the best discipline is self-discipline, (as the best government is self-government,) will teach his pupils the great lesson of self-control, which has in it a strong moral power to control others; and will guide them as much as possible, by appealing to their sense of right and wrong, justice and injustice, and thus accustom them to the strong self-governing influence of conscious moral obligations,—the necessity of acting from a principle of duty, and not from selfishness or caprice.

School discipline should always have reference to the child's ultimate benefit; and that only is good discipline which develops good characters for subsequent life. Arbitrary will and ready policy may enforce an external obedience; while a system of rewards, exciting emulation, may stimulate many to high intellectual achievements. The school may be very popular as a model for good order and fine recitations; yet, the child's moral nature being scarcely recognized, he leaves school without having learned the first lesson of self-control. How could he have learned it, since he has ever been

controlled by the eye or voice of his teacher? Having never been taught self-government, he needs, on arriving at manhood, the stringent limitations of the law and the police. A system of rewards has stimulated him to do right in school; and now, because no tangible reward is continually held before him in the great school of life, he ceases to do right. The love of right, as a motive to action, has been superseded by the love of promotion or gain; and he naturally grows to maturity selfish and sordid, the higher life repressed, or stifled out of existence, by the lower. The only reward I would offer in school, is promotion from a lower to a higher division; as the greatest reward which can be offered on earth, is promotion from a lower to a higher existence.

God raised man above the guidance of instinct, to be guided by reason and conscience. Liberty is, therefore, with him an inherent right, and the independent, liberty-loving Saxon *ever* makes it his duty to assert that right. Let us then train our pupils with reference to their innate hostility to arbitrary law, by preparing them to be a law to themselves; and not weaken their self-governing power, and forestall the habit of self-control, by too many external restraints and incentives.

In a future paper I hope to conclude the subject.

NOTES FROM A TEACHER'S JOURNAL.

BY WILL WRIT.

III.

October 13th.

There are many people who look upon teachers as a lazy set of upstarts, who have easy times, and who love to parade their

great attainments before the unlearned. Well, sad to say, there is a class of teachers whose bearing has given too much reason for this feeling, and it behooves teachers as a body to take care of their reputation.

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The teacher should be dignified. Some have, however, mistaken the meaning of true dignity, and have, by their attempted imitation of it, brought contempt upon themselves and their profession.

The teacher, in his intercourse with his patrons, should be a man among men; and should carefully avoid everything like an air of superior wisdom, as well as the least exhibition of any consciousness of their inferiority. In conversation with people we must expect to meet with prejudices, and we must meet them kindly and with that respect which is always due to the opinions of others, whether reasonable or otherwise. For prejudiced people are not made liberal minded by having their prejudices ridiculed. If we want to convince people, we stand a better chance of reaching the head if we first reach the heart.

After five years' trial of the plan laid down in the preface of the First Reader, I am forced to the conclusion that the old way of spelling difficult words is the best one after all. It may be that the fault has been in my not thoroughly understanding the new method; but after a persevering trial the results have been very unsatisfactory.

October 14th.

S— told me of a little girl in his school who was given to falsehood. He gave her a question in the book to work and show to him. When he examined it, it was wrong, and looking among the answers he found that she had attempted to set down the answer given in the book, but had accidentally set down the wrong one. He looked sternly at her and asked: "Did you work that question?" She, not suspecting that he had discovered the trick, boldly answered: "Yes, sir." Then he took her to account.

But I wish to criticise his course. I think it would have been better not to have asked her any questions; for the real lie had already been told, and to get her to repeat it, would only be making it more

unlikely that he could afterwards reach her better feelings, and induce a free confession. I believe I should have said nothing at the time. Such cases cannot be effectually reached by lecturing or punishment. That only makes them more careful in future *not to be found out*. It don't reach the root of the matter. There is a more excellent way.

October 15th.

I think many teachers are apt to overlook little things too much. I do not mean that the teacher should be continually finding fault with every little trifle, but he should keep a strict watch for everything, however trifling apparently, that could be injurious to the formation of the child's character. It may seem a small thing for a boy to torture a fly, or stone a red squirrel, but nothing hardens the young heart more rapidly or effectually than cruelty to animals. I think the giving of unnecessary pain to God's creatures, in their helplessness, ought to be ranked on a level with lying, swearing, or obscenity.

Or, again, it may be a small matter if the pupils are allowed to throw scraps of paper, &c., about the floor; but the habit of untidiness is thereby fostered.

For the same reason, the teacher is inexcusable who does not see to it, that the pupils clean their feet before coming into the school-room.

By attention to the last two points we have for a long time kept the school-room floor clean, by sweeping once in two or three weeks, or, in bad weather, a little oftener.

October 16th.

The evil habit of reading in a drawling tone, may sometimes be broken up by the teacher imitating the fault. Care must be taken, however, not to wound the pupil's feelings, which is almost sure to be done if the mimicry takes place immediately after he or she reads. Better wait till some other time, just *before* reading.

(To be continued.)

SELECTIONS.

PHYSICAL EDUCATION.

A SKETCH OF A PHYSICAL COURSE FOR COMMON SCHOOLS.

The educational system pursued in Common Schools has been greatly wanting in scientific breadth, and not less so in scientific method. It has been almost solely the growth of tradition, and not the result of investigation into the nature of the being that is to be educated. Large sections of our nature have been neglected in our school economy. The æsthetic faculties have been altogether untrained; the moral have received only very slight attention, as far as they are touched by so-called Religious Knowledge; intellectual training has been very partial and one-sided, being almost exclusively confined to the acquisitive powers, and too little applied to the perceptive and reflective; and systematic physical education has been altogether ignored, until quite recently in our Common Schools. But there are good signs that we are beginning to entertain more correct notions of what education is. We begin to have a feeling that the training of children should be broader than it has been, and that it should embrace all the faculties of a child, which should be trained systematically and symmetrically.

It is to one of the parts of our nature ignored in our Common School education that I would seek to direct the attention of the Association—the training of the physical powers. The neglect of Physical Education and of the physical principles that ought to regulate our school premises, furniture, organization and studies, medical men tell us, with strong and concurrent testimony, has resulted in many and grave evils to our children and our people. It has given rise, they show us, to the bent form, the slovenly gait, the unequal shoulders, the contracted chest, and the general want of full physical development so observable in the mass of our people; and it is the source, they conclusively demonstrate, of graver evils and serious diseases, as bent

and curved spines, short and unequal sight, various chest complaints, pains and permanent disorders in after-life, as well as physical exhaustion and want of physical and mental vigor during the period of youth.

But it is pleasing to note the growing attention that is being paid to this important subject, and we have to thank our medical men more than our educationists and teachers, for the interest they have roused in it through their advocacy of its necessity in a thorough system of education, if our children are to be rightly developed and these evils to be prevented. Many works have lately appeared on the subject, text-books have been written on it, our schoolmasters have passed resolutions in its favor, and attempts have been made in some places towards its systematic teaching.

The subject of Physical Education as applied to our schools is much more extensive than might at first sight appear. I can only very briefly indicate the field it includes, and make rapid suggestions in regard to its teaching. These I shall endeavor to make as practical as possible. I shall chiefly confine any remarks to what can and should be done in our Common Schools towards giving the children of the mass of the people Physical Education; and one aim in bringing the subject before the Social Science Association at this time is to lead, if possible, to early practical effort, to have thorough physical training carried on in all our Common Schools, especially now that, in Scotland, we are beginning a new national system of education, and erecting new and superior premises for the education of our children. Our projected educational scheme in Scotland, as sanctioned by Government, includes many elements as necessary parts of our Common School education formerly ignored in elementary education or relegated to and it is to be hoped favorable time

for securing the recognition of Systematic Physical Education in our Common Schools.

Thorough Physical Education may be divided in three parts :—

I. Physical Cleanliness.

II. Physical Development, by training or exercise.

III. Physical Government, or the regulation of the bodily functions.

I. PHYSICAL CLEANLINESS.—This is a first requisite in all Physical Education; and a necessary condition of its being carried on. Our children should be trained to scrupulous cleanliness in person, dress, and habits. To encourage and secure this, there should be a daily careful inspection of the children in all our schools, much of the same nature as that carried out in all "Hospitals" for boys and girls. At this inspection, as regards the person, the state of the skin, hands, head, nails, hair, ears, nose, and teeth should be examined; in dress, the state of the clothes and boots, and the manner of their putting on looked to, defects pointed out, suggestions made for improvement, and care taken that these are acted on the next day. The aim should be to train to cleanliness at home, as the improvement effected in school would be merely superficial where the home practice continues bad. The great endeavor should be to generate a love and spirit of cleanliness that will pervade the school and influence all its members. Dirty children should be sent to the lavatory until reformed habits are secured. But cleanliness of the whole body should be fostered, and not merely of the exposed parts, the children being trained to wash regularly all over. To secure this, bathing should be encouraged, and the teacher should occasionally, and if possible periodically, take the pupils to the neighboring sea, river or loch, to see it done, and to practise swimming, which should be an accomplishment of all our children. Perhaps, some day, when education in all its breadth is understood and secured, we shall have baths for swimming and bathing in connection with all our Common Schools.

Few things require to be impressed more on the nation than the "gospel of soap," and the best pulpit from which to preach it, as also the best field for its exercise and the best centre from which it can spread to the nation, is the school-room, and the best

evangelists of this important truth are the teachers of our Common Schools.

(1) *Games and Amusements.*—There is one kind of muscular exercise common in all schools, and practised, no doubt, since "boys were boys," that is, the exercise given by the games and amusements of the playground, the street, and the field. This is a very important part of Physical Education, and should be valued and encouraged more than it is in our Common Schools. It is not mere "play," it is education of a valuable kind. It is recommended by our medical men as important for physical development, and by educationists as having good mental and moral results. Instead of being curtailed in our advancing education, as there is a tendency of its being by some ignorant Boards and over zealous teachers, it should be extended, by increased facilities for its being more thorough than it is. As is well stated by Mr. Maclaren, of Oxford, one of the best advocates of Physical Education,—"*Nothing* should be taken from playtime, and nothing should be introduced into playtime but play." The great value of games as exercise, if rightly conducted, lies in the spontaneous, self-conducted exertion, and they are, therefore, largely self-educative in firmness, decision, self-sustained effort and arrangement, and like manly qualities. They increase courage and the power of bearing pain. Being spontaneous and pleasant, they produce a racy and healthy flow of the nervous and animal "spirits," which is greatly conducive to health. They have, also, certain important moral results; they exercise in the "give and take," and the thousand elements of social body life, which become very good training for the tear and wear of the greater social life of society and the world.

This suggests another important matter—the time spent in the playground. This should not be grudged; it will not, by a wise teacher. The intervals allowed during the day should be frequent and regular. I advocate an interval of five minutes at the end of every hour. I was educated under the system, and look back with pleasure on the wise and happy practice. It is an excellent system. It gives invigoration and freshness for the next hour's work, which is all the better and brighter, and will be longer retained, from the romp under the

blue heavens in the life-giving air. The oxygen inhaled becomes literally transmuted into physical strength' and intellectual and moral life and sweetness, which amply repay what may seem lost time to men that have not tried it. I hope to see the system universal in our schools.

(2) *Class Drill*.—There is another kind of physical exercise which is carried on more or less in all schools, which I may designate as *Class Drill*. It includes many elements, such as the attitudes of the children at all times, movement in and out of seats and on the floor, class arrangements for all purposes, marching, walking, positions in reading, writing, singing, &c., and the general bearing of the pupil. It is to be observed, that this is not military drill, which, I think, should be avoided in all class work. *Class drill* should be governed entirely by the laws of natural action and taste, and should aim at producing the style and deportment of good breeding and good society. Mistakes are often made in this matter by teachers, and military constraint and unnaturalness substituted for naturalness and ease in manner and movement. I cannot name any book on this important part of Physical Education, which affects school so greatly. A special text-book should be written on the subject. There is abundant material, and it is to be hoped that some competent teacher or other educationist will set himself to furnish it. It would do much good in making our general class movements more easy, orderly, healthy, and graceful in producing greater alacrity, physical and mental, and in saving much valuable time. It should give full directions as to the general attitudes of the children at all times and in all work: in standing, walking, marching, facing, class forming, and in reading, regarding which there are certain well defined principles that are constantly violated; in writing and singing, neglect of physical laws in those exercises leading to certain evils and even diseases; the proper movement in marching, defiling, facing, going in and out of seats, the attitudes at desks and on seats, bad attitudes producing grave evils pointed out by medical men—a special part being a full directory for varied and beautiful infant school and gallery exercises, which should be done to music.

(3) *Military Drill* is another means of

Physical training, and one to be greatly commended for its many good effects in school. It exercises certain muscles, produces an erect bearing, trains to movements at command and to regularity and simultaneity of action, and produces general smartness and activity. Its effects are not only physical, but mental and moral. I have observed, with pleasure, and not seldom with surprise, the brightening and enlivening effects, especially in country children, where military drill has been begun by new teachers. It is peremptory in English schools under inspection, and one is glad to see even this much of physical training demanded by Government. It is not asked in Scotch schools as yet, and no grants are offered for it there

(4) *Systematic Physical Training*.—But military drill is very incomplete as representing physical training. It gives only a very partial exercise of the great muscular system, and almost exclusively of the legs and lower trunk. The extension motions connected with it certainly do exercise other muscles, but they do this only partially at the best. This is the opinion of those able to judge of the system. If physical training is to be scientific and thorough, it must give graduated and sufficient exercise and training to every muscle, and this exercise should be "regular, continuous, and progressive," and should extend over the whole time a child is at school; and this training should be as carefully given, and marked for, as any other. It should, in short, exercise all parts of the body gradually, fully, and scientifically, and so develop the full physical powers of children into manhood and womanhood. There are several expositions of the subject in English. Dr. Roth, of London, has earnestly and persistently advocated *Systematic Physical Educational* for above twenty years, and has written very good text-books expounding the great system of Ling, of Sweden, the founder of *Modern Scientific Gymnastics*. The exposition which is best-known to me, and which seeks to do all this, is that of Mr. Maclaren, of the Oxford Gymnasium, in his "*Physical Education*," published in the Clarendon Press series. It aims at the scientific, gradual, uniform, and universal training of the physical powers by skilfully arranged exercises during the whole school course.

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(5) *The General Manners and Deportment.*—I am sorry that I shall have to dismiss the remaining portions of my subject with the briefest suggestions. Another valuable part of Physical Education is the training of the general manners and deportment of the children. No education can be complete that does not train a child for mixing with ease, comfort, and correctness in society. We must, therefore, give a thorough training in the usages, customs, and manners of good society, and the courtesies of life. And this training in manner is largely physical, for it is a training of the body to certain movements. Our children should be exercised so as to have at all times an erect, free, well-balanced, healthy, and, as far as possible, elegant bearing. The stiffness and constraint of military drill should be avoided, and the manner and style of good society and cultivated people followed.

The general attitudes of the children should, therefore, at all times receive careful attention. The common attitudes in our schools violate the principles of both physiology and taste, deteriorate the general bearing of the people, and injure the health, especially from the evil done to the chest and the spine. Every boy and girl in our Common Schools should leave school able to practice with ease all the courtesies of good society in the street, in the house, at table, and in all the manifold relations of life. Errors in habit that violate good manners should be pointed out, and corrected. Our upper classes rightly place great importance on this training, and to their children receiving it; I should like to see adequate stress put on it in our Common Schools. *By attention to it, our elementary teachers could effect a reformation and improvement of national manners that would be surprising; and no general improvement in the manner and bearing of our people will be effected except through our Common Schools.*

(6) *The training of the Senses and other Physical Powers.*—A most important part of physical education is the full, systematic, and scientific training of the Senses. On this subject I offer a few brief suggestions.

The *Eye* should be educated to distinguish, delight in, and name all varieties of color and form, and in composition, proportion, and symmetry. The observing pow-

ers of children should be carefully trained, so as to give them clearness, correctness and incisiveness of vision, and the power and habit of minute and accurate observation, form and color are well begun in our **Infant School**, but it should be perfected in our **Elementary and Higher Schools** by systematic lessons during the school course. Children should also be taken out to **Nature**, and trained to the right use of their eyes in that wide and wondrous field.

The *Ear* should receive careful and graduated training. Music is the chief agent, and should be taught in all schools, and, where it can be heard, instrumental music should be played to the children and accompany their voices. Reading is another means of training the ear, which should be able to distinguish and appreciate correctness of sound, accent, modulation, expression, and the finer tones of feeling. Reading should be viewed, in part, as a training of the ear. The general speech and utterance of the children should also be heard and appreciated by our children, and they should be taken out to nature to hear and love it.

Touch can also receive training, and it can be educated to accuracy and delicacy of perception in our common children, as well as in the blind. Touch is one of our senses very little developed in our educational system. It can be educated in many ways, by lessons on objects, in which these should be handled, and the facts of touch carefully deduced and expressed. It is sometimes begun to be trained in Infant Schools.

Taste and Smell should receive similar exercise by lessons on things. They are senses little possessed by most people as they should and could be possessed. They may be made the sources of great and even refined pleasure.

In our training of the Senses, we should aim at giving our children correctness, keenness, strength, and delicacy. The senses of most people are rude and uncultivated, and can perceive only the ruder and stronger appeals made to them. We should aim at giving our children wider and firmer possession of their senses, and greater power of using to purpose and profit these "five gateways of knowledge."

Then the *Hand* should receive careful training, so as to give our children full

power over that wonderful organ. It should be trained by writing, figuring, drawing, painting, cutting and carving, and in modeling, digging, gardening, and the use of tools. Technical Education, so much and so deservedly advocated, is in large measure a training of the hand. Our girls should further extend their hand power by all kinds of industrial work, domestic economy and housewifery, and provision should be made for the practical teaching of these subjects.

The *Voice* should also be systematically trained. Music is again the chief agent here. But more care should be bestowed on the general speech and utterance of the children, and on the use of the voice in reading and recitation. Children should be taught to render all shades of strength, modulation, and expression. The scale of speech should receive practice like the musical scale, for the speaking voice has a scale of sounds as complete in its range as the singing voice. The cries of the playground should be encouraged; they are a valuable exercise, and should not be checked, but encouraged; they are a good means of training the voice. As Charles Kingsley says, the enforced silence of our schools in the playground is "an offence against reason."

III. PHYSICAL GOVERNMENT, OR THE REGULATION OF THE BODILY FUNCTIONS.—Even if our children were sent out into the world fully developed by such wide and systematic Physical Training as has been indicated, they would still be wanting in a vital part of Physical Education. They require to be taught and exercised in the regulation of their physical functions, in the principles and practice by which health and physical well-being are to be maintained. By giving them mere physical training, without the principles of physical government, we should give them the possession of a perfect instrument without any instruction or power as to its proper use.

This higher Physical Education may be given in two divisions. We must give instruction (1) in the different parts and action of their organism, and (2) in the principles that produce and maintain the healthy action of that organism—that is, we must give instruction in (1) Physiology, and (2) Hygiene, or Health.

1. *Physiology*.—We ought to have a knowledge, more or less complete, of the various

organs of the body, and the functions they perform, individually and relatively. Happily, the importance of Physiology has been so well advocated by medical men and others that grants are given by government for its teaching, and it is included in the syllabus of the Science and Art Department, and in the New Scotch Code. It is to be hoped that the inducements thus held out will lead to its universal teaching. It promises to be a popular subject. Higher instruction should be given later in life by special classes and lectures, and our young women should have special instruction given to them.

2. *Hygiene, or the Principles of Health*.—But a most important part, in many ways, of our Physical Education still remains to be given. We must be taught how to use our organism rightly, and how to govern it in order to preserve sound health. One would have thought that, whatever subjects were neglected, the subject of Health, so essential to our happiness and work, would certainly not have been forgotten. But so it is, and so it assuredly ought not to be. We should set ourselves to rectify our mistake in this vital matter. Increased attention has of late been paid to this subject, however, and its teaching has been largely and earnestly advocated. Its principles have been systematized for use in schools and families, and text-books have been written by which they can be easily and successfully taught. There is, therefore, no excuse for its neglect, as is the case with many other subjects required for our schools, for which no text-books have been produced. I would mention with special commendation Dr. Andrew Combe's works, Mrs. Bray's "Physiology for Schools" (Longmans), and a more exhaustive work, lately published by Dr. Smith, "Health, a Handbook for Households and Schools" (Isbister).

In order that Physiology and Health may be taught in our schools, proper diagrams and apparatus should be supplied by School Boards. These can be had very good and cheap. The principles of Health, also, require more attention than they have received in the construction of our schoolrooms as to situation, ventilation, lighting, coloring, size, &c. These principles, if acted upon by our teachers, would lead to many changes in the organization

and arrangements of schools. They have the widest application in these matters, and are more violated than those who have not looked into the subject would suspect. Nothing shows more conclusively the importance of the general study and practice of the Principles of Health than the ignorance of them displayed by our teachers, school architects, and school managers, who have the regulation and conduct of our school affairs.

In conclusion, the subject of Scientific Physical Education is one of the very greatest importance, and should command the earnest attention of all educationists, statesmen, and philanthropists. It recommends itself on the pleas of humanity and patriotism. The national loss of health, physique, and mental and moral power, and the prevalence of serious diseases which arise from its neglect, have been proved by many sad

and striking facts. Its principles should enter into and regulate all our educational appliances and methods, which, to an incredible extent violate its laws in premises, furniture, desks, attitudes, and work. These facts have been abundantly demonstrated by our medical men and others. Notwithstanding all its practical value, in a practical country like our own, England is far behind most other countries in regard to this part of education. The wave of reform on this subject, originated in Sweden by Ling, has been felt with more or less strength in most European countries and in America, and has roused them to action, but only the faintest ripples have reached England. We have remained lethargic as a nation, while others have been wisely active, even with so much gain to be achieved and such evils to be cursed.—By *Wm. Folly, H. M., Inspector of Schools, in Educational Times.*

HIGH AND NORMAL SCHOOLS OF ONTARIO, 1874.

In 1842, when the population of Ontario was 486,055, there were 25 County High Schools. For some years after that date there are no reports from which even an approximation might be reached of the number of pupils attending these, or the expense incurred in their support. In 1847, however, we learn that the number of pupils was 1,000. Coming down to 1851, when the population had grown to 950,551, or nearly double in nine years, the County High Schools had increased to 54, with 2,191 pupils. What were the salaries paid and the other expenses incurred cannot be ascertained, as these are included in what was spent on all educational institutions. In 1861, when the population had increased to 1,396,091, the number of High Schools was 86, and the pupils attending were 4,765. The salaries paid are returned at \$71,034. In 1871, when the population was 1,620,851, there were 102 High Schools with 7,490 pupils, and \$113,862 paid to the teachers for salary.

In 1874 the number of High Schools was 108, with 7,871 pupils, and the amount of salaries paid to teachers had risen to \$179,

946. It would be unfair to compare the number of pupils at present in High Schools with what were found in them in earlier days, for now there is a tolerably strict entrance examination, while up to a very recent date all might go who felt inclined. And as a matter of fact there were not a few found in such schools who had done very little more than master the alphabet.

The receipts and expenditure of the High Schools for 1874 were as follows:—Balance from preceding year, \$12,585; Legislative grant for teachers' salaries, \$75,553; Legislative grant for maps, prize-books, etc., \$1,320; municipal grants, \$137,801—an increase on the year of \$41,150; fees, \$19,022; from other sources, \$52,675. In all, \$298,960; an increase of \$52,159.

The expenditure showed such items as the following: Salaries, \$179,946, an increase of \$14,588. Building, rent, and repairs, \$63,684—increase, \$30,744; fuel, books, and contingencies, \$39,639—increase, \$7,125; maps, etc., \$3,323—decrease, \$79. The total expenditure was thus \$286,593, an increase of \$52,378. The number of pupils had decreased 566. It will thus be:

seen that the education of each pupil at our High Schools in 1874 cost \$36.41, though it might be said that the amount spent in building could not be all charged to that year, in which case the *per capita* expense would be considerably less.

Of these pupils 3,942 were studying Latin and 898 Greek. In French there were as many as 3,111, and German 462. It is rather a pity that only 533 were in gymnastics and drill. In English grammar and literature there were 7,777 students, and in other studies just such a proportion as might be expected. It is only what was to be reckoned upon, yet it is at the same time a matter of regret that both in the English and classical courses so few proceed to the higher forms. In the English course, while there were 1,880 pupils in the first form, there were only 110 in the fourth, and 504 in the third. In the same way, in the classical, there were 1,637 in the first, and only 238, or about an average of two per school, in the fourth. The number in the third classical form was 638, which perhaps is as many as could be expected. There is this, however, to be observed, that a very large number seem to take the classical course for a short time, and drop it before they can have derived the slightest advantage.

The value of the school-houses and the extent of the playgrounds vary very much. While the Toronto High School buildings are valued at \$35,000, those of Walkerton are worth only \$300; and while Galt has seven acres of playground some have only one-eighth of an acre.

Of all these High Schools Kingston is the oldest, having been established in 1792. Cornwall dates as far back as 1806, Brockville 1818, and Niagara and St. Catharines 1828. Of the 108 High Schools, 63 used the Bible, and in 100 there were daily prayers. Ninety-nine pupils in 1874 matriculated at some University, 544 entered mercantile life, 319 adopted agriculture as a pursuit, 321 joined the learned professions, and 631 went to other occupations. The number of teachers engaged was 248.

The report of the High School Inspectors testifies to great and general improvement in the quality of the instruction imparted in the schools under their care, and to a steady course of advancement in almost all of them in the character of the school-houses and their equipment.

The amount of the salaries paid has, during the last ten years, greatly increased. The average salary of a High School master was in 1874 \$930, while in 1864 it was only \$691. The average salary given to assistants in 1874 was \$664, while in 1864 it was only \$362. It will thus be seen that the average salary of a male assistant in 1874 was only \$27 less than the average salary of a head master in 1864, while the female assistant can now command \$54 more than the male assistant of 1864. Irregularity in attendance is in the High, as in the Public Schools, a great and grievous evil. There is no column to show the number of days each pupil attended, but the Inspectors say that they have reason to believe that the actual number attending at any time is very much less than might fairly be expected from the numbers on the roll.

The number of High Schools in which no fees are charged is so large that we should suppose in a very short time the free system will be universal. Already 84 are on this footing, and of the rest the fees vary from 75 cents to \$6 per term of three months.

During 1874, 181 students obtained Provincial Normal School certificates. The standard of admission to the Normal School has been raised considerably. Still there are more qualified applicants than can well find accommodation. This want is partially met by the new institution at Ottawa. The number of applicants for admission since the Normal School was opened, up to the 52nd session, was 8,095, of whom 728 were rejected. As we mentioned some-what in detail not a very long time ago, the great majority of the students have always come from the counties in the immediate neighborhood of Toronto. While, for instance, 2,191 or more than a fourth of the whole, have come from the county of York, only some 22 have come from such counties as Russell, and Essex sent only 27.

Of the total number of students, viz. 7,367, there have been 1,286 belonging to the Church of England; 328 Roman Catholics; 2,140 Presbyterians; 2,565 Methodists; 491 Baptists; 274 Congregationalists; 8 Lutherans; 53 Quakers; 4 Universalists; 9 Unitarians; 40 Disciples; and 169 of other denominations. To complete the view of the Educational Institutions

is mentioned that there were in 1874 16 colleges, with 2,700 students and an aggregate income of \$160,000; and also 280

academies and private schools, with 8,443 pupils, 538 teachers, and \$57,000 received in fees.—*Globe*.

TEACHING ALGEBRA.

We desire to say a few words in relation to teaching algebra. The particular point we wish to make is that, as we believe, many teachers make a serious mistake in overlooking the real difficulty of the student, and spend their time and strength on matters of secondary importance. This opinion is formed from an experience of ten years in examining students for admission to college, and in attempting to teach them mathematics after they had entered. From this experience we are compelled to believe that "the language of algebra is too little taught." The teacher, doubtless, thinks that if the student has some general idea of the meaning and use of the algebraic signs and symbols, he may then go on to "the more important" (?) part of the book; and as he will be constantly using these signs, he must become familiar with their use and learn to understand their meaning. This may seem reasonable, but experience does not warrant the expectation, and we are fully convinced that if teachers would spend double the time in practice calculated to illustrate the language of algebra, such as the manipulations of quantities expressed algebraically by the various processes of addition, subtraction, multiplication, division, involution, evolution, and last, but by no means least, the substitution of numerical values for letters in algebraic formulæ, they would gain the time twice over in the later work. In this matter our textbooks are at fault in giving too few exercises, particularly in reduction of complex expression and substitution; but every teacher can provide such exercises for himself, and should not fail to do so.

As a good illustration of the importance of correctly understanding the language of algebra, we may take the signs + and -, of which our books generally give an inadequate and frequently an incorrect idea. As evidence of this we may mention the gener-

al belief that every quantity is either positive or negative intrinsically; the usual method of showing that the product of two negative factors is positive; the difficulty of understanding the negative sign when used with an exponent; and the reversal of the "rule of signs" in the product of imaginary factors.

To get a clear conception of the force of these signs, the student must first understand that they have no reference to the magnitude of a quantity, but only to the direction in which it is taken. This involves an examination of the relation of direction to quantity. It will be seen that the direction of a quantity need not be considered; that is, it is not inseparable from the quantity. The *measure* or *magnitude* of a quantity may be the sole object of inquiry, in which case the answer to the question will contain only that, and will have neither of the directive signs + or -. For example, we ask the distance between Lowell and Boston, and when we are told that it is 25 miles we are fully answered. It is neither +25 nor -25, since the direction is not considered. Moreover, if the answer should be given as +25, it would mean nothing more than simply 25. But if the question be how far one place is east of another, a sign then belongs to the answer. And lines are not the only quantities to which direction may belong. Money may pass to us or from us; time may be reckoned future or past—*i. e.*, forward or backward; changes of thermometer or barometer may be up or down; and all quantities may be added or subtracted—*i. e.*, put in or taken out of a sum. In some of these cases the word "direction" may seem to be used figuratively, but we think it can easily be applied to all quantities with no great stretch of the imagination; and there is great advantage in reducing all the reversals of quantities to one idea, like this:

of direction. Yet those who prefer can omit the use of this word, and speak only of the reversal without stating in what respect the quantity is reversed.

The two opposite directions in which a quantity may be used are called positive and negative; and when the direction as well as the measure of a quantity is under consideration, the proper sign to indicate the direction must be used. But it would be an erroneous, as well as inadequate, explanation of the use of these signs to say + indicates the positive and - the negative direction. While it would explain the use of the positive sign, the negative sign requires a reversal of direction. In military phrase the sign + may be represented by the command "forward!" and may be repeated any number of times without changing the direction of the march; while the sign - is the command "right about face!" and will reverse the direction every time it is repeated. So whatever number of positive signs precede a quantity, they only reiterate the assertion that it is to be taken in that direction which we have agreed to call positive; but each and every negative reverses the direction. Hence the final direction in which a quantity will be left will depend on the number of reversals, an even number leaving it positive and an odd number negative; and it is not a thing to be proved, as is so often attempted, that two negative factors give a positive product. When we speak of multiplying $-a$ by $-b$, we mean that the quantities a and b are to be combined as factors in a product, and the sign of each applied to that product. This will give two reversals of the product; and it does require proof that two reversals must be equivalent to none at all. And whatever the number of forces in the product, it is evident that each pair of negative factors will be equivalent in sign to a positive; hence if the number of negative factors is even, the product will be positive, and if odd, negative. The same principle applied to imaginary factors will determine the sign of the product without resorting to the expedient of reversing the "rule of signs." If we have $\sqrt{-a}$, $\sqrt{-b}$, $-\sqrt{c}$, and $-\sqrt{d}$,

to multiply we shall have, multiplying without regarding the signs, \sqrt{abcd} . If now we count the negative signs we shall find three, each of those under a radical being counted as only $\frac{1}{2}$ a sign, the radical indicating the $\frac{1}{2}$ power of whatever it covers, whether quantity or sign. The number of signs being odd, the product will be $-\sqrt{abcd}$. But suppose the last factor had been $-\sqrt{-d}$. We then find $3\frac{1}{2}$ negative signs, and our rule will not apply, since we have neither an odd nor an even, but a fractional number of negative signs. We may, however, reject the pairs of negative signs (each pair being equivalent to +), and throwing out all the pairs we have left $1\frac{1}{2}$ to be applied to the product, thus, $-\sqrt{-abcd}$. Make the last factor $\sqrt{-d}$, and the negative signs number only $2\frac{1}{2}$, and only $\frac{1}{2}$ a negative sign belongs to the product, thus, $\sqrt{-abcd}$. The "rule of signs," then, that will apply in all cases, is this: *Reject the pairs of negative signs, and apply the remainder to the product.*

The negative exponent is also explained in like manner—i. e., on the principle that a negative sign reverses the quantity to which it is prefixed. An exponent indicates the number of factors used. But factors can be used in two directions: they can be put into a product (multiplication) or taken out (division). These two opposite directions can properly be indicated by the signs + and - before the exponent.

This is exceedingly simple, and may seem too simple to be made much of; but there are too reasons why it deserves attention; though very simple: First, because everything in mathematics is simple when thoroughly and correctly understood, and therefore it should be our aim to make it simple, since only then we make it right; and secondly, because this is one of those "simple things" that ninety-nine hundredths of the students applying for admission to at least one of our colleges know nothing about; and if anybody doubts that statement, we will modify it by including the other hundredth.—*New England Journal of Education.*

MIND YOUR OWN BUSINESS.

The first law of nature should be the first law in every school-room. It is needless to add what that law is. Chaos is a great many things mixed together, making nothing, and a school-room where there is no order is the next thing to chaos. Every teacher has his own particular plan for making and keeping good order. Some believe in the rule of the "ruler," and some believe in the rule of the tongue; while others believe in so many rules that they have not time to keep any of them. Still others believe, parents and theoretic teachers, that children, especially little children, should be subject to no systematic restraint; but should be allowed to caper away from, and back to their tasks, as often as they feel so inclined. They argue that too much restraint breaks a child's spirit, and makes the efforts of intellect automatic rather than willing and natural. The royal road to knowledge has not yet been either invented or discovered, and downy paths make tender feet. If a child is allowed to study fitfully and inattentively while young, he will lack the energy and concentration necessary to work his way through the higher grades, or in the school whose school-room is the world. Order and system should be as strictly observed in the lower as in the higher grades, and our golden-rule of order is, "Mind your own business." It seems to be a natural instinct in children to want to attend to the affairs of other people. They will remember anything you tell anyone else twice as long as they will remember what you tell them. If Johnnie Smith, whom you told to remain in his seat, rises to leave the room with the rest of the pupils, half the hands present will be up to remind you that you told him to stay. Johnnie will have forgotten all about the circumstance, his whole attention having been absorbed in the fact that Bill Brown was eating peanuts in school. Ask the first boy you see whispering what he is whispering about, and you will be sure to get some such answer as, "Well, Tom Jones was whispering too." Now if children were only taught to watch their own actions as carefully as they watch the actions

of others, an orderly school would be the result. It is "tattling," to call it by its good old name, that breeds dissension among pupils, and gives idle children an excuse for not having better lessons. How can one have his lessons, when he has the affairs of thirty or forty schoolmates to attend to? How can good lessons be expected, when at least a dozen pupils are engaged in watching the unfortunate culprit on the platform, in order to tell "teacher" when he makes a face at her? Teachers are in a great measure to blame for this state of things. If children were given to understand at once that anything they had to say with regard to their own affairs would be cheerfully listened to, and that they were never to tell anything of anyone else, unless specially requested to, there would be one great stride made toward good order. Teach them that they do not come to school to superintend their neighbor's education, but to get one themselves. Teach them that they are responsible for their own conduct only, and that their neighbor's delinquencies make up no part of their responsibilities. Teach each one to be his own monitor. Teach them, in short, each and every one, to mind their own business. Now some good people will hold up their hands and cry out: "Would you make stoics of the children? Would you rob them of all natural sympathy with their fellow-humans?" By no means, sir, or madame; we wish to make them self-reliant, self-governed members of society; not idle, meddlesome nuisances, such as they must inevitably become, if encouraged in what is natural to a child, but will grow to a passion in a man.

But others object, "You would make them selfish egotists." We deny it. The most selfish men in the world are not those who attend most strictly to their own affairs. This is paradoxical, if you will, but disprove it if you can. We believe that each man is to himself the most important person in the universe; and assert, in spite of the names egotist and self-admirer that greet such avowals, that self-love is better than self-neglect. We believe that the good old rule, "Do unto

others as you would that others should do unto you," means simply, "Mind your own business." We believe that the man who takes good care of himself does more good for his neighbors than the one who lets his own affairs go to ruin, while he is engaged in giving advice and regulating the conduct of others. If you wish to educate mankind, be yourself all that you think a perfect man should be. Judge and correct yourself, and you will benefit your neighbor more than by judging and correcting him. What kind of music would a band make, if the cornet-man thought it necessary to watch the bass-violinist's notes to see that he played correctly, and the base-violinist

was always occupied with the duties of the man who played the clarinet? Just such discord as meddling busybodies make in the harmony of life. Just such discord as tattling children make in school.

We have seen hanging in school-rooms scrolls bearing such sentiments as, "Love one another." Fiddlesticks! never mind one another. You love your neighbor most when you trouble him least. For our own part, the first scroll we hang in our school-room shall bear this blunt but most invaluable injunction, "Mind your own business."—*Stacia Crowley in National Teacher's Monthly.*

EDUCATIONAL INTELLIGENCE.

CANADA.

—Rev. W. H. Gane, of Exeter, delivered a powerful and eloquent address on "Moral Culture" before the last Exeter Division Teachers' Institute, which was very highly spoken of by the press. We hope to give a synopsis of it in a future issue.

—At a meeting of the teachers of the township of Hamilton, Northumberland County, the subject of competitive examinations was introduced. The Harwood teacher rose to say that he was opposed to the scheme, as it was one of Barnum's notions, and he did not wish to make a "show" of his school. He would stake \$25 on his school against any other school in the township. He preferred gambling to fair competition, no doubt.—*Com.*

—Mr. Goldwin Smith has come out with a farewell address to the Ontario school teachers, as their present representative in the Council of Public Instruction. He defends himself against the charges made by Chief Superintendent Dr. Ryerson, and regrets on two grounds the change that is to take place in the education system. His first reason is that the Council, with all its faults, is beyond the range of political influence. The churches, including the Roman Catholic and other interests, were fairly represented, but could never bring political influence

to bear. His second reason is, that he is convinced that the teachers had suffered as a profession, under Bureaucratic Government which they had been held, and from which representation set them free. The Council from the first showing a tendency to invite their opinion, and to associate with them its deliberations. It was necessary, however, that the Government should adopt one of two alternatives; that it should either require the Chief Superintendent to act in a different manner towards his colleagues, or make up its mind, as it has done, to an entire change. Mr. Smith goes on to say that hard work, strong differences of opinion, and strenuous discussions are not new to him; but brawling, foul language, gross imputations of corrupt life, and disregard of the rules and decencies of official life by men in high positions are. He cannot understand how any one who has no personal object in view can be willing to serve the public under such conditions.

THE EDUCATION ACT.—The following is the full text of Mr. Crooks' Bill for the reorganization of the Education Department:

An Act respecting the Education Department.

Her Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

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1. The functions of the Council of Public Instruction are hereby suspended, and all the powers and duties which the said Council now possess, or may exercise by virtue of any statute in that behalf, shall devolve and are hereby devolved upon the Education Department, which shall consist of the Executive Council, or Committee thereof appointed by the Lieutenant-Governor; and all the functions and duties of the Chief Superintendent of Education are hereby vested in one of the said Committee, to be nominated by the Lieutenant-Governor, and to be designated "Minister of Education"; and whenever in any statute, by Law, regulation, deed, proceeding, matter or thing, the term "Council of Public Instruction," or "Chief Superintendent of Education" (as the case may be), or to the like signification, respectively occurs, the same shall be construed and have effect as if the term "Education Department" was substituted therefor respectively.

2. The said office of Minister of Education may be held by a Member of the Executive Council holding no other office, and notwithstanding any salary attached thereto, he shall be capable of being elected, and sitting and voting as a member of the Legislative Assembly; or such office may be held in connection with any other office held by a member of the Executive Council; and any of the powers and duties of the said office may be assigned for a limited period, or otherwise, to any other of the members of the Executive Council holding any other Departmental office, by name or otherwise.

3. In case a member of the Executive Council holds any one of the five Departmental offices established by the sixty-third section of the British North American Act of 1867, and being at the same time a Member of the Legislative Assembly, resigns his office, and within one month after his resignation accepts the said office of Minister of Education, he shall not thereby vacate his seat in the Legislative Assembly, unless the administration of which such person was a member shall have resigned, and in the interval a new Administration shall have occupied the said offices; or, in case such member of the Executive Council is appointed to hold the said office of Minister of Education in addition to or in connection with one of the said five De-

partmental offices, he shall not thereby vacate his seat in the Legislative Assembly; and in either of the said cases, any increase or change of emolument arising from the said office of Minister of Education shall not cause any vacancy, or render a re-election necessary.

UNITED STATES.

—It is estimated that there are about fourteen hundred young men from the United States pursuing their studies at the universities and colleges of Germany.

—The giving of scholarships at Amherst College is to be on a more critical plan hereafter. All who apply for them must give a full account of their income, including what they earn and receive as gifts, and all their necessary expenses, such as tuition fee, room-rent, etc., and all incidental expenses. They must also pledge not to expend anything for tobacco, liquors, billiards, or dancing lessons.

—It is the opinion of the *Baltimore Gazette* that "it is the greatest of absurdities to call the graduates of colleges thoroughly educated," and that "the mass of matter that is crammed at school into young America, only to lie undigested and useless in after life, is wonderful." It goes on to say that the Society for the encouragement of Home Study for young women is suggestive of what might be done by "an association of young men ambitious of improvement, and whose studies should take a practical direction under some professor capable of laying out a proper course of reading, and ready to explain any points that require elucidation."

BRITISH AND FOREIGN.

—The British Government has declared that the schools at Natal, South Africa, are to be open alike to all, without regard to color.

—A novel plan for promoting habits of economy among children has been in successful operation for several years in the public schools of Ghent, Belgium. By the advice of M. Laurent, Professor of Law in the university in that city, savings banks were established in each of the schools, and the children encouraged to deposit their pennies. The wisdom of the scheme is shown in the fact that at the present time 13,000 of the 15,000 scholars attending the

public schools in Ghent have succeeded in getting themselves accounts opened at the State savings banks, with about \$90,000 to their credit.

—Nature, in announcing with expressions of regret the proposed resignation by Prof. Max Muller of the Chair of Comparative Philology of Oxford University, gives the following as his reasons: "He begins to feel the need of rest, and wishes to be able to devote all his attention to the ancient language and literature of India. He has just finished, he says, the work of his life, the *Editio Princeps* of the text and commentary of the oldest of the sacred books of the Brahmans, the oldest of the Aryan world. It was this which first brought him to England in 1846, and it was in order to be able to stay in England that he accepted the duties of professor."

—A German traveller, M. Gustave Rasch, who has lately visited the country of the Montenegrins, (1874,) gives this account: "During his fourteen years' reign the Prince, Nicholas, has become the civilizer of his people. When he came to the throne there were but three or four schools; in 1872 the number had increased to twenty-seven, and in 1874 there were in Cetinie thirty-seven primary and normal schools, in all of which instruction is gratuitous, and the school materials were furnished by the State. Prizes and scholarships were established, and the teachers receive respectable

pay, with houses and fuel free, besides the guarantee of retiring pensions." To procure proper teachers, there have been established in the capital a normal school for males and high school for females, which compare favorably with similar establishments in other parts of Europe. The best scholars of the primary schools pass to the normal schools, where in addition to instruction they receive board, lodging and washing. M. Rasch thus describes the Normal School of Cetinie: "The scholars then numbered thirty-eight. The school occupied the former palace of the Prince. Three large halls served as dining-room and dormitories. Near to each bed was a chest, and above each bed the arms of a pupil—a breech loading gun, a yatagan, and a pair of revolvers. The instruction given is not merely pedagogic but military; the morning is taken up with lessons in logic, history, religion, natural science, mathematics, languages, pedagogy, geography; the afternoon is devoted to study, writing or exercises, bodily exercises and recreation, and on Sunday they attend to the use of arms, and military exercises. The struggle against the Turks is for the present the important element of life in Montenegro. From the period of their entrance the pupils become the proteges of the state, which provides in the most liberal way for their support until they definitely enter upon their duties as teachers."

CHOICE MISCELLANY.

—To be fossilized is to be stagnant, unprogressive, dead, frozen into a solid. It is only *liquid currents* of thought that move men and the world.—*Wendell Phillips*.

—The fireside is a school of infinite importance. It is important because it is universal, and because the education it bestows, being woven in the woof of childhood, gives form and color to the whole texture of life.

—The most skillful teacher is not one who communicates the most truth to his pupils, but the one who leads them to see the most

for themselves. The faculty of communication is by no means the most important faculty of the teacher.

—I do not think that it is the mission of this age, or of any other age, to lay down a system of education which shall hold good for all ages. Let us never forget that the present century has just as good a right to its forms of thought and methods of culture as any former centuries had to theirs, and that the same resources of power are open to us to-day as were open to humanity in any age of the world.—*Tyndall*.

—Education is the knowledge of how to use the whole of one's self. Men are often like knives with many blades. They know how to open one, and only one: all the rest are buried in the handle, and they are no better than they would have been if they had been made with but one handle. Many men use but one or two faculties out of the score with which they are endowed. A man is educated who knows how to make a tool of every faculty—how to open it, how to keep it sharp, and how to apply it to all practical purposes.—*H. W. Beecher.*

—Teaching is helping to learn. It is never hearing recitations—that is, recitations, or the citing back to present memory something already learned. If the lesson is learned, you can only ask it recited, or called up once more. Some of the best teachers tend to the opposite defect in hearing recitations, using too much time in teaching; but those who only hear recitations never teach.—*N. Y. School Journal.*

—It is vain to call a school "godless" because it is secular. A bank is not "godless"—provided it is honestly managed—even if it is not opened and closed with daily prayer. A shoemaker is not "godless" because he refrains from pronouncing a benediction in connection with the delivery of a pair of boots to his customer. Enough that his leather is good, his thread strong, his work faithful, and,—which, unhappily, is not always the case—his promises are punctually kept. A schoolmaster is not "godless" who teaches arithmetic, reading, and the other branches accurately, and deals with his pupils in a truthful and kind spirit.—*N. Y. Times.*

—There is an incessant clatter about modes of education—how best to teach American boys the classics or sciences or the rules of trade; but when are they taught reticence, decent, grave reserve of thought and speech, that self-control, in short, which makes an ordinary man greater than him who wins many battles? We have our jokes upon the cautious-tongued, canny Scotchman and the taciturn Quaker, but they could teach us lessons which would increase our self-respect and enable us to cut a much more decent figure in the eyes of the world.—*N. Y. Tribune.*

—The career of the man of genius furnishes, step by step, the schooling of his noble

faculties. It is not the case that he can afford to dispense with study. It is not the case that he will not be at a momentous disadvantage, when compared to the plodder, in a matter which the latter has carefully studied and the former has not. The difference lies in the greater rapidity of grasp with which the man of genius seizes what is absolutely necessary for his education; the easy carelessness with which he passes over all that would only dilute or check his actual acquirement of knowledge and of skill; and the highly tempered faculty which allows him to acquire, while appearing to the world as a graduate in his profession, all the minor but necessary details, which he may not have had the opportunity of picking up in the usual preliminary stages.—*Edinburgh Review.*

—Man was not made merely to know. He was made to do as well as to know, and he was made to know in order that he may do. To do, to act, requires strength. A man may know a great deal generally, and yet be a very feeble man; that is, he may have a very feeble mind. It is quite commonly said of such a man that he does not know how to use his knowledge. Knowledge may be compared to a tool. It is not enough that a man has a good scythe. He must have strength to swing it in the right way. A good sledge-hammer will be of little use to the blacksmith unless he has an arm strong enough to use it. You want, not knowledge merely, but mental power. I know it is said, "knowledge is power." It is so in a certain sense. Knowledge is not strength of mind—mental power—though it sustains an important relation to it. It is useful in directing one's strength, and thus rendering it more efficient.—*Dr. Alden, in Hearth and Home.*

—A gentleman met a high-school boy in Troy, and tried to test his knowledge of arithmetic by asking, "Boy, can you tell me how many rods there are in a mile?" "I could," replied the lad, "but I'm in a hurry now to meet a boy and find out what business he had to buy my girl a croquet set." Gallant schoolboy's toast:—"The girls! May they add charity to beauty, subtract envy from friendship, multiply genial affections, divide time by industry and recreation, reduce scandal to its lowest denomination, and raise virtue to its highest power!" First class in geo-

graphy: What is a bay? Father's best horse. What is a sound? A thunder clap. What is a strait? Whisky without water. What is a cape? Something to wear on the shoulders. There is a difference between polish and education. It is easy to polish a stove-pipe, but hard to educate one to fit as it ought to. "Chairmaness" is the latest development of feminine grammar.

A SCHOOL POST OFFICE.—I had a school once, not graded, where I introduced a post office as the property of the school, and found that it was a valuable incentive to the children to learn to write. My plan was this: I had a small box with a locked door, and a place at the top through which to slip the letters. This box or "P. O." was opened only once a week, and that on Saturday. During the week the children were in the habit of writing as many letters as they pleased and on whatever subject they pleased, but all were addressed to myself as teacher, in order to invest the affair with a certain dignity. Finding the numerous letters for me one Saturday, I carefully made a list of the writers, and before another Saturday came around had answered each and all. Each little correspondent knew he or she would find a letter when the precious "P. O." was opened, and many sweet little missives I received to reward me for all the trouble and care it was to me. Some of them could only print but I accepted them as well, for well I knew how hard they tried to learn. It is proper to say that for this interesting "aside" from the inevitable routine of school life, all the writing was done out of school hours, and only the grand culmination, the opening of the "office," was effected during the session.—*Mary F. Colburn, in New England Journal of Education.*

DRAWING A PART OF A LIBERAL EDUCATION.—A liberal education may be described as a clever mixture of what a practical man would call the useful and useless. By the former he would mean those studies which fit a man for success in that part of life which may be called its working day; by the latter, those which during that day will probably lie unused and hidden from sight, like beautiful stars, their light insufficient to enable the laborer to gain the bread that sustains him; but which brighten and glorify his homeward path when his day of

toil is ended. The literary excellence which enabled the school-boy to excel his fellows on commencement-day, may form no part of the ordinance by which he forces from a hard-fisted fate that most necessary of all things, a competency; but the balance at the banker's once obtained, the wealthy man of leisure finds, in his pen a pleasant resource, and has frequently added some of its brightest pages to his country's literature. And what the "making of books" has been to some one of those who have found the burdensome weariness of doing nothing more irksome than the burdensome weariness of doing too much, the arts of drawing and music have been to others. Of these two the former seems to be in some respects the superior, whether we consider its relation to him who practices it, or to those who surround him.

In the first place it is unobtrusive. A grown up family of sons and daughters may object, with some reason on their side, to their father's shattered voice, or to old-fashioned tunes played on his beloved violin. His best efforts in pursuit of harmony may produce only discord by sending a shudder of pain over unstrung nerves and aching head. Drawing or painting being confined strictly to himself, can annoy no one. And, to him, how rapidly pass the otherwise weary hours during which he places upon paper or canvas some conception of his own imagination, or copies the work of a more gifted artist, or depicts in glowing colors nature's handiwork, some lovely view, some gayly-tinted flower, some winged bird or butterfly, some object which time destroys but which his pencil immortalizes. And, to his children, how precious in days to come may be these memorials of his last, well-remembered years. In view of all this, may it not appear, even to those who glory in the thought of being practical men, that the art which seemed almost puerile in the boy's education becomes, in his later manhood, of the very highest importance; preserving him from the most wearing of all occupations "killing time."

As a motive-giver, drawing is in some points superior to music. They both find their votaries in the quiet of home. But music frequently takes them from home to scenes of lightness and folly which are opposed to the highest culture of mind and

heart. To the subject of this paper this objection cannot be made. With all the power of silent eloquence, it makes home attractive. Its best efforts are put forth for household decoration. And, while it makes home charming to the family, it appeals to the nation for its peace and its companion prosperity; for, in time of war, its masterpieces are lost and ruined, its followers scattered and impoverished. The martial music which rouses men to war and bloodshed, finds no counterpart in the works of the great painters; they preferred, as subjects, scenes from the sacred story, or pictures of domestic and pastoral life. As a promoter of individual economy, a taste for this fine art is deserving of notice. He who has been educated to appreciate beauty of form and harmony of color, will seek to procure for his home such works of art as will add to its attractiveness. For this purpose he will reserve the funds which his less cultured brother expends in unworthy amusements and flashy clothing. The painter, the engraver, the author will each receive some portion of his earnings. Thus he adds to the wealth of the industrial classes of the city and country to which he belongs. His culture, given perhaps by the public, becomes a public benefit. He returns with interest the money expended upon him. "Behold," he says with pride, "thy five talents have gained other five." A discriminating public will reply, "Well done, good and faithful servant."

And putting revealed religion out of the question, man's religious views are modified to a great extent by this potent educator. What son of Adam, be he Jew, Turk, Christian, Infidel, or Pagan, fails to anticipate some future place of rest?—some heavenly home, of many attractions, which shall compensate for earthly disappointments. And this ideal home being left to their imagination as to detail, each race makes it the reflex of its mental growth and present aspirations. To the Egyptian bond-slave, ignorant, half-starved, and oppressed, his Canaan was described as a land flowing with milk and honey, a land of olive fields and vineyards. To the Mohammedan soldier, weary of battle, savage, untutored, and longing for repose, heaven was a place of hours and of rest. To the American of our day, according to that popular vision of heaven, "Gates Ajar," a mixed dream of

ease and work. A man's future home is as his mind is. Give him Greek taste, Greek love of art, and it becomes a scene radiant with beauty of form and color, made still more charming by beauty of sound, the haunt of Apollo and the Muses. Give him only ideas of trade and money-making, and it becomes a place of dull rest, of mental and moral atrophy. And his earthly home, sad to say, becomes in its turn the reflex of his heavenly, a place in which he eats and sleeps, dull, uninviting, wearying, truly, to the child brought up in it, as dismal as that one in which he is told "the congregations ne'er break up, and Sabbaths never end."

To conclude, we ask for a place for drawing in a liberal, or, indeed, in any education. Not merely as a means for adding to a nation's wealth, though it does add to it. But as a means for making its recipient's life more full, more rounded, more complete; as a resource in the idle hours of middle life, in the depleted years of old age; as a means, among others, by which a nation of bores may be changed to a nation of critics; a land of huts, to a land of palaces; a people of coarse thought and vulgar aspirations, to a people of refined morals and elevated hopes.

Better fifty years of Europe, than a cycle of Cathay.—*Anne E. Trimmingham, in National Teacher.*

—The folly of comparing schools, and of judging by results alone, of the comparative merits of teachers, is found in this fact, that in some schools it is a rare thing for a six year old child to enter school unable to read, while in others, a child, able to read upon his first entrance in school, would be regarded as a superior being.

—Some teachers worry themselves into their graves or into premature matrimony by an unnecessary feeling of responsibility in regard to their pupils. They reproach themselves because their scholars know so little, and seem to be unable to comprehend the simplest truths. Such teachers should remember that they create neither the bodies, brains, nor surroundings of their pupils. To discharge faithfully and skillfully the duties of the day is all that is expected of the teacher. If the pupils do not learn, the cause is to be found, probably, in the blockheadedness of some ancestor, near or remote, or in the stupidity of the princi-

pal who placed them in a grade beyond their capacity. In either case, the teacher is blameless. To this, however, should be added, that teachers whose divisions make little or no progress, and who never worry about it, should, in all probability, look for the cause of the deadlock in their own indifference and unskillfulness. Herod is not the only person guilty of the blood of the innocents.

—Have the courage to be ignorant of a great number of things, in order to avoid the calamity of being ignorant of everything.

THE OLD SCHOOL-HOUSE.

Whatever else to the night has gone—
The night that shall never know a dawn—
It stands undimmed in my memory still,
The old brown school-house on the hill.

I see the briars beside the door,
The rocks where we played at "keeping store,"
The steps we dug in the bank below,
And the "bear-track" trod in the winter snow.

The corner brick on the chimney lies
Just as it did to my boyish eyes ;
And in dreams I throw the stones again
I threw at the toppling brick in vain.

The names on the weather-boards are part
Of the sacred treasure of my heart ;
Some yet a place with the earth-sounds keep,
And some in the hall of silence sleep.

I hear the growl, from his central lair,
Of the swiftest boy who stood for "bear ;"
And the song brings back the joy and glow
Of the chase around the ring of snow.

Often again in thought I slide
On the stone-boat down the long hillside ;
The breathless speed and the dizzy reel
And the wind in my lifted hair I feel.

Ah me ! There are spots that hold my dead
In a sleep unstirred by memory's tread ;
And many a scene of life's triumph lies
Deep in the mists that never rise.

And things of rapture and things of tears
Are hidden within the veil of years ;
But the old brown school-house on the hill
It stands undimmed in my memory still.

THE OAK AND THE MUSHROOM.

"Ho ! ho !" cries a Mushroom, one morning in June,

"What a wonderful fellow am I ;
What marvellous growth in one day I have gained,

Lifting up my tall head to the sky.

Oh, a wonderful fellow am I,
Soon I'll sweep all the stars from the sky.

"Ho ! ho ! Mr. Oak, pray how old are you now—

Oh you need not look so stiff and shy ;
Be social, for at present rates I shall soon
Head you off on your way to the sky.

Oh, a wonderful fellow am I,
Soon I'll sweep all the stars from the sky."

The sturdy old Oak answered never a word.

The next day, as a bird rose to fly
From her nest in his shade, she heard a faint stroke,

Saw the Mushroom fall over and die.

"Oh, a poor ruined fellow am I,
And the stars will still blot the blue sky."

"Ha ! ha !" sung the bird, "Mr. Braggart has gone,

And the stars will be safe, to my joy ;
For my good friend, Old Oak, though so brave and strong,

Is more ready to build than destroy.

For a short flight my wings I must try,
As the stars have just sunk in the sky.

ANNIE E. TRIMMINGHAM.

TEACHERS' DESK.

J. C. GLASHAN, ESQ., EDITOR.

Contributors to the "Desk" will oblige by observing the following rules :-

1. To send questions for insertion on separate sheets from those containing answers to questions already proposed.

2. To write on one side of the paper.

3. To write their names on every sheet.

CORRECT ANSWERS RECEIVED.

HENRY GRAY, Sombra, 114.

E. T. HEWSON, Garnet, 114.

C. A. BARNES, Ottawa, 113, 114.

H. T. SCUDAMORE, Florence, 116.

ANSWERS TO CORRESPONDENTS.

FLAVEL DAVIS, Binbrook. We do not certainly know what percentages are required for the several grades of First Class Certificates. Address the Central Board.

SOLUTIONS.

(111.) How many rails would be required to enclose a square field with a fence eight rails high and two panels to the rod, so that for each rail in the fence there would be an acre in the field ?

DAVID REID, Troy.

Since there are sixteen rails to each rod all round, there are 64 rails to each rod in any one side, say the front ; hence for each rod of frontage there are 64 acres in the piece. The problem is now reduced to,—A rectangular piece of land one rod wide contains 64 acres, how long is it ? Answer, 10240 rods. Hence the field was 10240 rods on each side ; requiring 655360 rails to fence it.

(112.) Two men took a contract of putting up 300 sq. yds. of wall for \$300, and it was agreed that the one should have 25 cents per yard more for what he did than the other. They each received the same amount of money. How many yards of wall did each build ?

L. WELCH, Mt. Brydges.

Let the one receive \$ x per sq. yd. and the other \$ $(x+.25)$, hence they built $\frac{150}{x}$ and $\frac{150}{x+.25}$ sq. yds. respectively.

$$\therefore \frac{150}{x} + \frac{150}{x+.25} = 300$$

$$\therefore x = \frac{1}{8} (3 + \sqrt{17})$$

$$150$$

$$\therefore \frac{150}{x} = 150 (\sqrt{17} - 3) = 168.4658$$

$$150$$

$$\frac{150}{x+.25} = 150 (5 - \sqrt{17}) = 131.5342.$$

113. A party consisting of twelve persons, men women, boys and girls, stay at an inn. On settling their bill, \$12 in all, the men pay \$4 each, the women \$2 each, the boys \$ $\frac{1}{2}$ and the girls \$ $\frac{1}{4}$ each. How many of each sex were there ?

D. HICKS, Rose Hall.

$$4w + 2x + \frac{1}{2}y + \frac{1}{4}z = 12$$

$$w + x + y + z = 12$$

Omitting zero values the only solution is

$$w = 1, x = 2, y = 7, z = 2$$

This problem seems to have puzzled some who have tried it by Allegation. The solution is simple

\$1

$$\$4 - 3 \dots\dots\dots \frac{1}{2} + \frac{1}{2}$$

$$\$2 - 1 \dots\dots\dots \frac{3}{4} + \frac{1}{4}$$

This gives

$$1M. \text{ to } \dots\dots\dots 6B. \dots\dots\dots = 7 \text{ persons}$$

$$1M. \text{ to } \dots\dots\dots 4G. = 5 \text{ "}$$

$$1W. \text{ to } 2B = 3 \text{ "}$$

$$3W. \dots\dots\dots 4G. = 7 \text{ "}$$

Taking the first two sets and completing with the third we get

$$1M., \quad 2W., \quad 3B., \quad 2G = 6 \text{ persons}$$

$$\quad \quad \quad 2W., \quad 4B. \quad = 6 \text{ "}$$

$$1M., \quad 2W., \quad 7B., \quad 2G = 12 \text{ persons}$$

Taking the last two sets and completing with the first set we get

$$2W., \quad 1B., \quad 2G = 5 \text{ persons,}$$

$$1M., \quad 6B., \quad = 7 \text{ "}$$

$$1M., \quad 2W., \quad 7B., \quad 2G = 12 \text{ persons,}$$

the same solution as before.

(114.) A banker borrows at 3 $\frac{1}{2}$ per cent. payable yearly and lends at 5 per cent. interest payable quarterly. He gains in one year £441. How much does he borrow ?

E. T. HEWSON, Garnet.

$$\£441 \div \{ 1.0125^4 - 1.035 \} = \£27657$$

If the interest was reckoned by commercial discount, he borrowed

$$\pounds 441 \div \left\{ \left(\frac{400}{100} \right)^4 - \frac{200}{100} \right\} = \pounds 27657$$

(115.) Which is the greater—the cube root of 69 or the fourth root of 283? Solve by multiplication.

EDITOR.

The twelfth powers will retain the same relative magnitude as the roots themselves. The twelfth power of the cube root of 69 is the fourth power of 69 itself = 22667121. The twelfth power of the fourth root of 283 is the cube of 283 = 22665187. ∴ the cube root of 69 is the greater. The roots are respectively 4.101566 and 4.101537.

(116.) A heavy uniform beam rests on two given smooth planes, it is required to find the position of the beam, and the pressure on the planes.

SELECTED.

Let the length of the beam be $2l$, its weight W acting at the centre of gravity G . Let the inclination of the planes to the horizon be respectively a and b and the inclination of the beam c . Let R and R' be the pressures of the planes on the beam, the lines of action of which forces are perpendicular to the planes by reason of their smoothness. Hence we have

Horizontal forces; $R \sin a = R' \sin b$

Vertical forces; $W = R \cos a + R' \cos b$

Moments about G ; $Rl \cos(a - c) = R'l \cos(b + c)$

$$\therefore \tan c = \frac{\sin(a - b)}{2 \sin a \sin b}$$

$$R = \frac{W \sin b}{\sin(a + b)}$$

$$R' = \frac{W \sin a}{\sin(a + b)}$$

QUESTIONS FOR SOLUTION.

117. A beetle crawls from one end of a fixed rod to the other end, find in terms of the length of the rod and of the weights of the rod and of the beetle, the consequent alteration of the centre of gravity of the rod and beetle.

C. A. BARNES, Ottawa.

118. Reduce $\frac{1}{7}$, $\frac{5}{13}$, $\frac{7}{19}$, and $\frac{3}{23}$ to decimals using multiplication only.

EDITOR.

119. Find the present value of an annuity to continue n years, allowing simple interest upon each sum from the time it becomes due; and explain why the present value of an annuity to continue forever cannot be estimated upon these principles.

SENATE HOUSE, CAMBRIDGE, 1834.

A person about to purchase the lease of an estate, is able continually to invest money at the rate of four per cent. per annum, receiving the interest half-yearly; show that if the tenant pays his rent half-yearly, the value of the lease to the purchaser is 1.01 times what would be its value if the tenant paid his rent yearly.

DITTO.

There seems to be some unaccountable difficulty in obtaining Abbott's works on grammar. We have been informed that Mr. W. Bryce, London, Ontario, can supply them either through the local booksellers or direct by post, postage prepaid on receipt of price. How to tell the Parts of Speech, 60 cts. How to Parse, \$1. Mr. Bryce has also received a supply of the new History of Canada by Jeffers, 60 cents including postage.

EDITOR'S DRAWER.

—In any case where a teacher fails to get any issue of the "TEACHER" we re-mail it if notified promptly.

—During the four years (1871-1874) upwards of \$2,000,000 have been expended in Ontario, in the purchase or enlargement of school sites, and the erection and repairs of school houses. This certainly speaks well for the educational progress of the country.

—The *Journal of Education* says no books have

been struck off the authorized list except Peck Ganot's Natural Philosophy, Davidson's Animal Kingdom, and Collier's English Literature. The geographical text-books are undergoing revision.

—The new High School Programme, adopted by the Interim Committee of the Council of Public Instruction has been approved of by his Excellency the Lieutenant Governor in Council. The first intermediate High School Examination will be held some time in June next.