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THE ONTARIO TEACHER:

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No. 11.

THIRD CLASS CERTIFICATES.

There appears to be a great diversity of opinion among Inspectors, and others connected with educational matters, in regard to the propriety of continuing Third Class Certificates. By some it is held that the educational status of our Public Schools is so high, and their necessities so great, that the only effect of handing them over to Third Class teachers, is to starve and depreciate them. By others, that both on account of the scarcity of the supply of teachers, and the inferior character of many of our schools, the attainments of a Third Class Teacher fully meet all their requirements. Both of these views deserve some notice,

According to the Programme laid down by the Council of Public Instruction for the Examination of Third Class Teachers, any candidate who is able to make 50 per cent. on the aggregate number of marks assigned in the examination papers is awarded a

Third Class Certificate. The presumption then is, that such a candidate is fully competent to teach all subjects within the limits of his examination. True, the candidate may make less than 50 per cent. in some subjects and exceed 50 per cent. in others, but an average of 50 per cent. is considered a sufficient test. If the certificates granted are below the standard required by our Public Schools, then it must be shown that the subjects taught, and the attainments of the pupils are such, as to demand a *higher* standard of qualification on the part of teachers. And here, let us observe that we are just now discussing this question from a purely literary stand-point. Well, what are the facts?

Table C of the Chief Superintendent's report of last year shows the number of pupils in all the schools of Ontario, on the basis of classification adopted by the Council of Public Instruction. From that

table we learn that the aggregate in the six classes into which our school population is divided, was 460,984, sub-divided as follows:

First Class	182,658
Second Class	99,921
Third do	85,389
Fourth do	63,126
Fifth do	24,029
Sixth do	5,861

From this it will be seen that the pupils in the first four classes, (and these are the classes that do the work which Third Class Teachers are expected to be able to teach) number 431,094, leaving only 29,890 pupils or a trifle over 6 per cent. for the higher grades of the profession.

Turning again to table D which gives the standing of the teachers, we find that they range as follows :--

Provincial First Class	245
do Second Class	839
Old County First Class	654
do Second Class	507
do Third Class	73
New County do	2771
Interim Certificates	553
Total	5,642

Omitting from this table all the Old County Board Second and Third Class Certificates, as being of less value than the New County Third Class Certificates, and also striking out the Interim Certificates we find that while the pupils whose attainments require only Third Class teachers, represent 94 per cent. of our school population, the teachers with minimum qualification for the work to be done, represent only 80 per cent. of the entire teaching staff of the Province. Proportionately then, the teaching supply is higher by 14 per cent. than the educational demand. Or putting the case in another form, while there is only 6 per cent. of our school population requiring the services of any higher grade than the Third Class, 20 per cent. of the teaching power

of the country is engaged in teaching subjects not required by Third Class teachers.

It is tolerably clear then that we have not arrived at that point yet, in which there is a very great necessity for dispensing with Third Class Teachers. We are fully aware it will be urged, that "water cannot rise higher than its level"—that our teachers cannot rise higher than their teachers—that so long as the majority of our teachers are unable to teach anything above Fourth Class work, our schools will not be able to report any more than Third Class work. While this is, to a certain extent true, everybody must admit, that no matter what the attainments of the teacher might be, there is a certain plane beyond which the school cannot be elevated. Inspectors are often painfully apprised of this in their repeated visits. And we venture to say if they refer either to their notes or their recollections, they will agree with us when we say that many schools, now taught by Second Class Teachers, are not able to report a greater number of advanced pupils than they did years ago. The reason of this is clear. The demands for the home services of pupils after they pass the age of twelve or thirteen years, are so great and the attendance at school is so irregular, that anything like real progress, beyond a certain point, is quite impossible.

In regard to the supply of teachers little need be said. According to a statement published by the Education Department, showing the number of applications for certificates at the last July examination we learn the following :—

Number of applicants for 1st Class . .	46
do do 2nd Class . .	709
do do 3rd Class . .	3109
Total	3864

Being a number sufficiently great if all had passed, to supply 70 per cent. of the Public Schools of the Province.

Of those who applied the number passed were as follows :—

1st Class.....	20
2nd Class.....	276
3rd Class.....	1633

Total 1929

While then there is no great probability of there being any scarcity in the supply of teachers on the present basis, it cannot be fairly argued, that were Third Class Certificates entirely abolished there would not be a deficient supply. From the statistics already given in a former part of this article it appears that 2,771 out of a total of 5,642, or very nearly 50 per cent. of the teachers of the country hold Third Class Certificates. If an order was issued that no more Third Class Certificates would be granted, how many of these would be able to attain a higher grade, and thus continue in the profession? And if these were lost to the profession, where was the supply to come from? The present standing of our Public Schools clearly shows that they are not likely to furnish us with a very high grade of learning. And so we are forced to choose between two alternatives—either to close many of our schools for the want of high graded teachers, or to content ourselves with the present standard improved,

amended and developed, according to the progress of the country.

While thus putting in a plea for the continuance of a Third Class Certificate under present circumstances, we trust our remarks will not be construed by any teacher as a justification or even an apology for him to rest satisfied with a *minimum* professional qualification. We have no sympathy with those whose ambition rises no higher than to be *able to teach according to law*. Such a disposition is not a characteristic of the good teacher. A little industry seasoned with a small *quantum* of perseverance, would in the course of three years fit any ordinary person for at least a Second Class Grade B. Indeed it was the original design, and we believe a very wise one, to *force* Third Class teachers into a higher grade, by limiting the duration of their certificates to three years. Should, however, it appear, that from a want of energy and application, there is no *upward* tendency of Third Class teachers then it might become necessary to adopt some other means by which the profession can be relieved of those who evince no desire to qualify themselves for higher usefulness in a work that requires at their hands, honest application and unswerving devotion.

OUR PUBLIC SCHOOL TEACHERS.

ADDRESS READ BEFORE THE EXETER DISTRICT TEACHERS' INSTITUTE, ON SATURDAY, SEPT. 11TH, 1875—BY REV. H. GRACEY, AND PUBLISHED BY REQUEST.

(Continued from October No.)

Demostheness, the Athenian orator, was asked, what is the first great essential in oratory? His answer was, *action*. And what is the second? he was asked; again he replied, *action*. And what is the third essential? His answer was still the same, *action*

Now if I were asked the first great essential in teaching, I would take a hint from the old Athenian and reply *energy*, and the second essential is *energy*, and the third is still the same, *energy*. I do not overlook learning. The more solid, reliable, and

thorough learning a teacher has, the better for him and for his pupils. But if I were given my choice between two teachers, one a great scholar, but lazy, the other an indifferent scholar but active and energetic, I should choose the latter. A teacher of energy may be very little ahead of some of his more advanced pupils in certain branches, and yet carry them right along, because he has energy enough to keep in advance of them. Any teacher who conducts his school in the manner I have indicated, enforcing diligence and activity into all around him, and inculcating by precept and example, habits of painstaking work, will certainly do good. He will prove himself a blessing to his school, and an ornament to his profession. But every such teacher is himself, and necessarily must be, a diligent plodding laborer.

II. In the second place I purpose saying a few words about the teacher's *privileges*. These are numerous and valuable. I cannot name all. But I shall point out a few.

(1.) The aids, which any young man or woman in our land, finds within reach, who wishes to prepare for the work of teaching. All qualifications can be secured without any great expense or inconvenience. There is a free school at the door where one can be carried forward a long way in the course. Then there are in every county Grammar Schools and High Schools, all but free, that can be attended at comparatively small expense. Then there is the Normal School, which gives free instruction specially designed to fit for this work, and along with this instruction practical lessons in teaching and governing a school. There is no profession to which the approaches are more easy and less expensive.

(2.) When the teacher of to-day begins his work in the first school, he is not left to contrive a plan of work, and method of classification for himself, at which he may

arrange and labor for a year or two before he has it in what may be considered successful working order. He has a well-thought-out classification of studies, and method of procedure put into his hand. In short he finds the whole machinery is in working order, and he has only to apply the steam of energy, and the aid of common sense, to have in a week, a well-balanced and smooth running establishment.

(3.) Another advantage he finds in the good school houses which are found in every section through this part of the country; and are becoming the rule in every municipality in the Province. In the modern, and now common structure, teachers and pupils not only find themselves in a more commodious room, and breathing a more healthful air, but they find the whole arrangement conducing to good order, and dispatch and comfort in the performance of every school exercise. To maintain order and push through a lot of work was a practical impossibility in the old school houses, arranged with long benches, where the pupils sat side by side in long rows, with feet dangling six inches from the floor. Whispering, jostling, trickery, confusion, and perpetual discord could not possibly be prevented in such circumstances. The arrangement in these old buildings was usually such that one half the pupils hid the other half from the teacher's view no matter where he would place himself. Boys and girls that could resist the temptation to mischief and idleness, amid such surroundings, are few and far between. This is certain; such boys and girls did not constitute the rank and file of our common schools in the old *regime*, as almost every teacher can testify to his sorrow. But in the new school house arranged according to later methods, each pupil has a comfortable seat, and he has every facility for doing all his work with ease, and without annoyance from his neighbor. The teacher can at any

moment see any pupil in the class room, and know whether that pupil is working or idle. This is certainly a great advantage, and is unquestionably promotive of the best interests of the school.

(4.) Another advantage enjoyed by the teacher is the sympathy of parents, which as a rule is with him. The few parents and ratepayers in a section who don't wish the teacher to succeed are usually so insignificant in numbers and influence, that he need hardly give them a thought. All through this part of the country, at all events, every upright and thorough teacher may count on the well-wishes and sympathy of every good man and woman in the section.

(5.) The teacher has to-day a fair remuneration for his toil. A few years ago this could not be said. But a change for the better has taken place. And while the salary is by no means great, it is fair, and it is sure. No workman in the land is more certain of his pay, when his work is done, than the teacher. The merchant's venture may miscarry, and he get nothing for all his pains. The tradesman's employer may fail or run off, and leave him in the lurch. The minister's congregation may take a dislike to him, and shew it by refusing to pay; or they may get cold and selfish, and withhold his stipend while he has no means of compelling payment. The doctor may go on from month to month and year to year, booking, and booking his fees, but seldom pocketing them. Even a lawyer's client may sometimes give him the slip; though this last is a rare occurrence unless the profession is greatly belied. But a school teacher never fails to get his pay; and get it in hard cash, and get it at the right time. The Finance Minister of the Dominion is no surer of his salary than the humblest teacher in Ontario.

(6.) Further, the teacher has short hours. There is no profession, in the land better off in this respect. Six hours a-day, and five days a-week, and little more than ten

months in the year, are surely not unreasonable demands upon his time.

(7.) Then these Institutes are most useful to the profession or may become so. They can hardly fail to produce good results, if judiciously conducted. You will benefit each other by meeting together and discussing subjects that concern your work. An exchange of opinions tends to enlarge the horizon of your intelligence. It enables you to enjoy the advantage of a wider experience than your own. A teacher should go back to his field of labor, stimulated to greater effort, encouraged amid difficulties, and every way better prepared for his work after such a conference with his co-laborers. Then this institution may prove a very considerable help in efforts at self improvement. Preparing an essay now and then, will give experience in the very necessary accomplishment of placing your thoughts in an orderly and lucid manner upon paper. The criticisms your productions meet with here, will show you your defects much better than you can yourselves discover them. We are all so partial to the results of our own labor, that we cannot rely upon our own judgment. We cannot always distinguish the perishable from the enduring, the dross from the genuine metal in the productions of our own pen. It is said that naturalists, when they want to prepare a skeleton quickly for preservation, sometimes bury it in an anthill, where it is soon stripped of all perishable matter and only the solid parts are left. These Institutes are the anthills where you may with great profit bring for a time your theories, and essays; what comes out unscathed, will as a rule prove more valuable than what has been nibbled off. Then again, you have here a most favorable opportunity for gaining experience and confidence in the art of public speaking. This has always been and will always be a pleasing and useful accomplishment. Every person, should cultivate the habit of saying tersely and effectively whatever he has to say on

any particular subject. This can only be acquired through practice. They say the best way to train young men to speak, is the way they train puppies to swim, "*chuck them in.*" They will splutter, and shiver, and blunder at first, but no matter keep them at it, and they will learn. Let them persevere and all difficulties will be overcome. All great speakers have reached their pre-eminence through practice. The first time Robert Hall attempted to preach he broke down utterly, and was so humiliated, it was with difficulty he could be induced to try again. Yet he lived to be the Demosthenes of his age, and to see the most learned audiences thrilled and carried away by the power of his eloquence. That consummate master of Parliamentary debate, Fox, was asked how he had such readiness and power as an extemporaneous speaker. He replied, by speaking frequently. "I have spoken" said he, "upon every subject debated in the House of Commons during the last twenty years except one, and my only regret is that I did not speak upon that subject too." The whole world looks up to John Bright as a perfect master of eloquence. But how has he attained to that position? By perseverance. He began addressing audiences when a boy in a rude enough way no doubt. But he improved until now the most august of assemblies, listens with delight to his speeches; and all who speak the English tongue are proud of him as its greatest living master. At every college the students have clubs and societies of various kinds where they talk, wrangle and debate; and when properly conducted they prove of great use. The student gets his angles and oddities in thought and habit rubbed off, in these societies, before he goes out into the world, where nobody thinks it worth while to tell him of them. Let every teacher value the Institute, attend it regularly, and try to make it interesting.

(8.) The last privilege enjoyed by the

teacher which I shall at present speak of, is his position in society. His profession is a respectable one; and he is regarded as a gentleman, and receives the consideration due to a gentleman in every section of the Province. The time has been when the dominion was a fair butt for jokes, banter and ridicule. But that day is past. The education, character, and respectability of the profession, together with the greater regard that is now shown to intelligence have put an end to that. And as the profession advances in scholarship, talent and efficiency, and eliminates from its ranks all charlatans and bogus members, it must continue to rise in the favor and esteem of all good people. The high standard required by the Examining Boards, and the care taken to admit none to the profession, whose morality and gentlemanlike deportment are not guaranteed by reliable testimonials, has done a great deal to give teachers that enviable position they hold to-day, in the public estimation. And long may they hold that place. A position of public and social respectability is necessary to a teacher's success. Let him fall from that position and his usefulness in any section of our fair Province is at an end. If parents do not respect him the children will soon dare to treat him with contempt. George III. it is said, once visited a celebrated English school where the sons of the gentry were educated. The master met him at the door of his school with his hat on. The king entered the school without uncovering his head, so did the teacher. These two were the only persons in the room with their hats on. After the king had satisfied his curiosity, he retired. The teacher accompanied him to the door. After it was shut and the teacher was sure none of the boys saw, he took off his hat, and made an apology to the king, for his seeming want of respect. Said he, "I dare not uncover to any human being in the school. For if these boys once got it into

their heads that there was a greater man in England than myself, my control over them would be at an end." The king good-naturedly accepted his apology and commended his discretion. This anecdote illustrates, in probably an extreme way, the fact that respectability is a necessary element in every teacher's qualification.

III. I shall now in conclusion ask your attention to the Teacher's *responsibilities*. He has in hand the care of youth, the training of their minds and the forming of their character. Let no teacher who has charge of a school, no matter how young the children, how few in number, how little advanced they may be—let no teacher think his a trifling and unimportant work. Let him not for a moment cherish the thought, that his duties are not worthy painstaking care, and serious, judicious effort. He has in hand the work of training the intellect to think, reason, remember, and exercise all its high functions. What grander undertaking than this! The man who moulds from a block of marble a statue, the very image of life, does a work that men admire and for which they gladly honor him. The man who places upon canvas, a picture that pleases the eye, or captivates the imagination, and recalls by its life-like design, its beautiful finish and coloring, some noble face, or picturesque scenery, is praised and admired for his genius. But he who moulds, develops, and leads out into powerful activities the heaven-born intellect, that is to grapple with and conquer the intricate problems of nature, surely does a greater and nobler work still. No man deserves better of his country than he who contributes towards making her citizens wiser and better. This every good teacher does in a large degree. And every teacher engaged in the work at all, has an opportunity of doing this. The whole mass of our future citizenship, we may say, is around us in the children of to-day. Their minds are now in the most impressible state. Their affec-

tions, sentiments, principles, are now receiving their bent for life. Their characters are being moulded for good or ill by the thousand influences about them. What they will be hereafter, depends largely on what they see, and hear, and feel now. Who can contemplate this state of things without feeling that the responsibility is great, which rests upon the parents, guardians, and teachers of to-day. Among all the channels through which children are influenced, none after the parents, stands so prominent as the public school teacher. The child learns from his words and from his deeds. No teacher should lose sight of this very important fact. Dr. Arnold of Rugby trained a generation to benefit and adorn their country. And now they and multitudes influenced by them, reverence and bless his memory. It was no small work that he did for England when he labored so successfully to store the minds of his pupils with truth, and their hearts with right principles. Yet this is the noble work which every teacher of the young has an opportunity of doing in a greater or less degree.

I believe no profession in the community, after the ministerial, charged with men's spiritual interests, has resting on it greater responsibilities, than that of the public school teacher. When I think of the 5,000 or 6,000 teachers at work throughout our fair Province training from day to day, more than a quarter of a million of our future citizens, teaching them how to think and what to think, how to reason and how to act, infusing into their minds truth or falsehood, impressing upon their susceptible natures true principles or false principles,—when I think of this I am impressed with the vastness of the agency here at work. I see a power here that may prove like the gentle dew from heaven, refreshing and beneficial in the highest degree; or like the deadly malaria from some rotten lagoon that sows the seeds of disease and death. And whether this mighty influence at work

to-day in our Province, shall lean to the one side or the other depends, we may say, upon the character, the aims, and the efforts of our teachers. If they are good and true, sensible of the obligations resting upon them, anxious and eager to discharge their whole duty in their important office, that not only to their immediate employers and superintendents, but also to the Great Father of All, "They may give in their account with joy and not with grief." If they are thus discharging their duty then we may feel assured our country is here enjoying a benefit that will bless her and make her a blessing. If, however, any malign influence should constrain this mighty agency to deviate from a conscientious discharge of duty—which God forbid; should make it careless about the truth and the right, indifferent in the discharge of duty, indifferent as to the example it sets, who could portray the disasters that might result? and where is the power that could successfully counteract such an influence? All God fearing men and women in our land should pray for our teachers, that an Almighty power may guide them, and make them worthy their mission. No inferior power can do this.

This is all the more necessary because many of our teachers are young—at that period of life themselves when the passions are strong, and temptations have most influence. I do not distrust young teachers. The majority of our teachers are in this category; and it is likely this will be the case with the profession for some time to come. From one cause or another, which I need not here attempt to explain, comparatively few among us enter upon the profession with the view of making it a life work. Many of our teachers are looking and pressing forward to something else. And after spending a few years in the work they pass on, leaving room for others coming after in the same cause. There are many reasons why we might wish more to

enter this as a permanent profession; yet we do not feel disposed to object to these birds of passage, taking a hand at the work. As a rule they have energy and a good character. They have a desire to do well, and an aim for the future that steadies them, and restrains them from many follies. These things are all in their favor as teachers. And the fact is our schools have got a large amount of good service out of such men and women. This fact, that I have stepped aside to notice, accounts for the large number of young people engaged in teaching at the present time. And this large portion of young people, makes it all the more justifiable that the responsibilities of the profession should be brought prominently out, and urged upon the serious consideration of all its members.

(1.) These responsibilities bear upon the teacher's *method of doing work in the school*. It is possible for him to do his work in the school in such a way as that blame can hardly be established against him, while yet he knows, and the children see, and the parents and trustees know well that something is wrong, and little progress is made. A teacher may punctually observe school hours; put in all his time; hear all the classes; and go through all the routine of school work, and still do very little for the advancement of his pupils. But no conscientious and high minded teacher could be satisfied to pursue such a course. He will strive to do his best and aim at faithfulness to his charge every day. He will not slight any part of his own duty, resolving to make it all right at a future time, or hoping his neglect will never be detected. Nor will he rest content with slipshod work on the part of his pupils; for this he knows wastes their time, and tends to give them bad habits, that may mar their usefulness through life. He will aim daily and hourly at efficiency and thoroughness. He will guard against all prejudicing partialities. He cannot entertain precisely the

same regard for all his pupils. He will be attracted by one, repelled by another. Yet no wise teacher will allow these different feelings to show themselves among his pupils, much less will he allow such feelings to yield undue advantages to one, and unjust annoyances to the other.

(2.) These responsibilities rest upon the teacher *as to his whole deportment* in school and out of it. Let every teacher aim at acting the part of a lady or gentleman, as the case may be; not simply in the outward formalities and conventional proprieties of society, which may be well enough in their place; but more especially in the permanent essentials of good breeding and polite behavior. Every person knows that gentlemanlike deportment don't consist in bowings and scrapings, in fine phrases and fulsome compliments. But rather in the natural suggestions of a good heart, carried into action under the guidance of a sound judgment. By such a polite and decorous behavior, exhibiting manliness, and kindness, a teacher will not only secure the esteem and friendship of those who know him, but will also wield such an influence as he should wield, upon the young who look up to him, in favor of a decent, prudent, and becoming life.

(3.) And lastly the responsibilities rest

upon the teacher, not only to exhibit the traits of a gentleman, *but the character of a Christian gentleman*, and this is demanded of him because his influence affects directly and powerfully the morals of his pupils. The special work of the teacher in our Public Schools is not to give religious instruction. Yet the position is such that none will deny that men and women who are themselves Christians, other things being equal, are best fitted to fill it. And while teachers are not directly engaged in spiritual things, they cannot avoid exerting an influence that will be favorable to piety, and morality, or the reverse. The teacher's character and walk should ever be such as that he may be known to be the friend of the pious and the good. In many country sections he is the most prominent person in the neighborhood. The young people beyond school age are largely influenced by him. He has thus an excellent opportunity of exercising in a quiet unostentatious way a vast power for good.

Let our teachers aim conscientiously and continuously at such a course, and I hesitate not to affirm they will yield a power for good in our land not easily surpassed; and they will be the honored instruments, in producing most beneficent, and most enduring results.

SOLUTIONS OF EXAMINATION PAPERS.

NATURAL PHILOSOPHY, JULY 1875—BY J. C. GLASHAN, ESQ.

SECOND CLASS.

1. $3\frac{1}{3}P - 4\frac{2}{3}W = 0$

$P + W - 24 = 0$

$\therefore P = 14, W = 10.$

2. Book-work. (Todhunter's Mechanics for Beginners, page 164.)

3. Yes. When the height exceeds the length of the base. Let $h = 4, b = 3,$

$W = 12. P = 16.$ Some kind of friction grips may be brought under this case; their efficiency then depends on the ratio $h : b$, being a small fraction.

4. Ask him whether the P and the W would balance if the plane were removed. Test for him, his answer by

experiment. If the plane is necessary, why is it so, and what influence can its presence exert? Its presence is necessary to exert force (a force of resistance) and the plane does exert force. Prove by experiment. This experiment can easily be made quantitative, and *should be so made*, [The pupil should long ere this be able to classify *moving* and *resisting* forces, and should also have learned that a *smooth* plane can exert a resistance at right angles to itself, and in that direction only.]

5. Book-work. Note that the lines AB, BC, CD, need not lie in one plane. The general problem is here given.

6. Drop AD perpendicular to BC ($AB + BD + DA$); $A = 0$
 \therefore the forces are represented in magnitude by AD, and a line drawn from A parallel and equal to DB.

Their lengths are $DB = \frac{1}{2}ft$, $AD = \frac{2}{3}\sqrt{3}ft$

[The notation $BD;A$ means a force applied at the point A and represented in magnitude and direction by a line drawn through A equal and parallel to BD, taken from B to D.]

7. The surface of the cylinder is 14×3.1416 ft. In the first case the depth of the centre of gravity is 3ft. Hence the pressure is $3 \times 14 \times 3.1416 \times 1000$ oz. = 2625×3.1416 lbs. In the second case the depth of the centre of gravity is 1ft. or one-third that of former case, hence the pressure will be one-third of former pressure = 875×3.1416 lbs.

$\frac{30}{12} \times 13.6 \times 1000$ oz. = 2125 lbs.

8. Book-work. Note. The air-pump is the same in principle as the suction-pump, with means to make the valves self-acting, and with some additional

mechanism to get rid of the great labor required for exhaustion, where the external air is allowed to press on the piston. This addition is either another cylinder with piston in opposite phase, (Hawksbee's air-pump, the form in common use) or else an additional valve above the piston, Smeaton's and Grove's forms. The latter does away with the internal valves. The Sprengel air-pump virtually acts on the same principle as Grove's. For a description of the Sprengel air-pump used by Prof. Crookes in his experiments on the motive power of light and radiant heat, see Phil. Trans., 1873, vol. clxiii., p. 295 or Phil. Mag. Aug. 1874, p. 81. For means of improving the vacuum of a common air-pump see Nature July 1875, p. 217.

10. Book-work. The principle of construction is the same in the Wurtemberg siphon as in the common one.

11. Book-work. In pumps for deep artesian wells both valves are carried on pistons. By properly timing the motion of the pistons the motion of the water is made continuous, and the pipe is relieved from the enormous strain of intermittent action.

FIRST CLASS.

1. Produce DA to d making $Ad = AD$. Join dB . Since the forces balance dB must be equal and parallel to CA. Hence dB is at right angles to AB and contains with dA an angle equal to one-sixth, ($\frac{1}{2} - \frac{1}{3}$), of a right angle.

$1^\circ Ad^2 - AB^2 = Bd^2$

2° Produce BA to E and draw dE making the angle AdE equal to the angle AdB . Hence the angle BdE equals one-third of a right angle, and we easily obtain $EB = \frac{1}{2}dE$; and since B is a right angle $ED = \frac{2}{3}\sqrt{3}Bd$ and $EB =$

$\frac{1}{2}\sqrt{3} Bd$. But since Ad bisects the angle BdE

$$Ed + dB : dB :: EB : AB$$

$$\frac{2}{3}\sqrt{3} + 1 : 1 :: \frac{1}{2}\sqrt{3} dB : AB$$

$$\therefore AB = \frac{dB}{2 + \sqrt{3}} = (2 - \sqrt{3})dB.$$

But $Bd : AB : Ad :: 1 : m : n$

$$\therefore \text{by } 1^\circ \quad n^2 - m^2 = 1$$

$$\text{by } 2^\circ \quad m^2 = 2 - \sqrt{3}$$

$$\therefore n = (\sqrt{3} - 1)\sqrt{2}.$$

2. Let R be the reaction of the wall, r that of the ground and F the friction along the wall.

$$R + F = r$$

$$\text{But } r + F = W \text{ and } R \cdot BC = (\frac{1}{2}W - F) \cdot AC$$

$$\therefore W = R + 2F \text{ and } BC = \frac{1}{2}AC.$$

3. $AD^2 = AB^2 + BD^2 = 64 \therefore AD = 8$

$$CD^2 = CB^2 + BD^2 = 36 \therefore CD = 6$$

$$AC = 10. \text{ But } 8^2 + 6^2 = 10^2$$

$\therefore ADC$ is a right angle.

Resolve the forces at A and C horizontally and vertically

$$\text{At } A, H = \frac{6\frac{3}{8}}{8} \text{ of } 6 = 4\frac{4}{8}$$

$$V = \frac{4\frac{4}{8}}{8} \text{ or } 6 = 3\frac{3}{8}$$

$$\text{At } C, H' = \frac{-3\frac{3}{8}}{6} \text{ of } 8 = -4\frac{4}{8}$$

$$V' = \frac{4\frac{4}{8}}{6} \text{ of } 8 = 6\frac{2}{8}$$

$H + H' = 0$ or the horizontal components balance. The vertical components are equal to a force of

$$(3\frac{3}{8} + 6\frac{2}{8}) \text{ lbs.} = 10 \text{ lbs. acting at a point distant from } A \frac{6\frac{3}{8}}{3\frac{3}{8} + 6\frac{2}{8}} \text{ of } 10 \text{ ft.} = 6\frac{2}{8} \text{ ft.} = AB.$$

Hence the resultant is a single force of 10 lbs. acting vertically upwards at B and forming a couple with it which acts at 5 ft. from A . To balance these would require a contra-

couple of equal moment, 14. This could be produced by a force of $1\frac{2}{3}$ lbs. acting vertically upwards at A , and an equal force acting vertically downwards at C , giving in effect when combined with the other forces at these points two equal upward forces of five lbs. each at A and C .

4. Let t be the time taken to reach B

$$\therefore AB = 128t - 16t^2$$

Velocity of approach of P and Q .

$$\text{Velocity of } P \text{ at } B = 128 - 32t$$

$$\therefore \frac{1}{2}BC = 128 - 52t$$

$$\therefore AC = 128t - 16t^2 + 2(128 - 52t) = 304$$

$$\therefore t^2 - 4t + 3 = 0.$$

$$\therefore t = 1 \text{ or } 3.$$

5. Resolve the initial velocities horizontally and vertically, Since the particles start simultaneously and afterwards come into collision their vertical components must be equal. B 's horizontal component equals its vertical component, equals A 's vertical component. Hence their rate of approach will be $150(\sqrt{2} + \sqrt{6})$, and from A to B will equal $150(\sqrt{2} + \sqrt{6})$.

6. Volume of Q : volume of P :: $\frac{37}{8}$: $\frac{44}{8}$
 :: elasticity in P : elasticity in Q .

$$\text{Surface of } P : \text{surface of } Q :: \frac{8}{3}(\frac{4}{3} + 4) : \frac{8}{3}(\frac{2}{3} + 3) :: \frac{44}{3} : \frac{37}{3}$$

\therefore entire pressure on P = entire pressure on Q .

7. Let S , s , and $S + \frac{1}{2}$, be the respective specific gravities of A , B , and C . The mass sinks $\frac{1}{3}$ of its depth into the water, therefore its specific gravity is $\frac{5}{3}$. The volumes of A , B , and C , are equal

$$\therefore \frac{1}{3}(S + s + S + \frac{1}{2}) = \frac{5}{3} \text{ or } 2S + s = 2$$

Let d be the depth of the centre of gravity, by equality of moments around the centre of A

$$s + 2(S + \frac{1}{2}) = d(S + s + S + \frac{1}{2}) = 2\frac{1}{2}d$$

$$\therefore d = \frac{3}{2\frac{1}{2}} = 1\frac{1}{5}$$

8. GBF is a right-angle

Bisect GF in O. O is the centre of gravity of GF, and the weight acts in the vertical through O. Draw FH, GH perpendicular to BD and BE respectively. FH and GH are the directions of the reactions of the planes. Transfer the reactions to H and compound them. Since GF is in equilibrium the resultant which passes through H must be along the vertical through O, that is, H is in the vertical through O. But because BGHF is a

parallelogram, B, O, and H are in the same straight line, and as the vertical through O passes through H, it also passes through B, hence BH is perpendicular to BC. Therefore the angle FBH is two-thirds of a right angle.

But FO = BO, BGHF being a rectangle
 \therefore the angle BFO is two-thirds of a right-angle

\therefore the angle BOF is two-thirds of a right-angle

\therefore BF = FO = $\frac{1}{2}$ FG.

(See Prob. 116 of *The Teachers' Desk*.)

SELECTIONS.

A FEW WORDS FROM AN OLD TEACHER.

"He teaches best
 Who feels the hearts of all men in his breast,
 And knows their strength or weakness through his own."

No truer principle was ever laid down for the teacher—none which points more surely to success. Yet practically it is almost ignored, and the great lack of moral power. How, indeed, can we expect to control children otherwise than by brute force, unless there is this golden cord uniting the hearts of the teacher and the taught?

The parent is the natural guardian of the child, and is responsible to the child, to society, and to God, for the manner in which this obligation is discharged. When he takes the child by the hand and leads him to your school-room door, he delegates to you a large portion of his authority, and with it comes an equal share of responsibility. Morally, the relations of teacher and scholar is almost synonymous with that of parent and child, consequently the same qualities which combine to make the kind,

judicious parent should be found in the teacher also.

When the little one, leaving the happy fireside, the loving home circle, takes his seat with your pupils, he should find there the same kind of affection which he leaves behind him, and not only the same in kind, but approaching much more nearly the same in degree than many who occupy the teacher's chair seem to suppose. If, on the contrary, he come to you from a cheerless, loveless dwelling, so much the greater is his need of kindness and affection in the school room; and so shall you cultivate the otherwise uncultivated germ of all that is good in his nature. Love, pure in quality and unstinted in quantity, is the first great want of every child, and he wants it in the school-room as well as at home. If our hearts are not large enough to take in each one of the scores of children whose names are enrolled in our registers—if we can not become for the time father and mother to each, let us pray

God to enlarge our hearts and to increase our love. If the prayer is not answered, we may safely suspect that we have mistaken our calling.

Having, then, this sincere interest in and affection for our pupils, let them be made manifest in our actions. It is a mother's province to watch over her child in tenderness and love, to check every wayward impulse, to shield from temptation so far as may be, to be patient with the many faults or the oft-recurring remissness in duty, and to love through all. So it is also your province, fellow-teachers, and mine. If the judicious father, with gentle firmness, seeks to curb the restless spirit of his boy, and though the child sin a thousand times still forgives, still loves, so should you and I. Let us remember that those parents acquire the strongest influence over their children who obtain most of their confidence. Pupils should be made to feel that their teacher is their friend; that they can go to him with everything that interests them, however trivial in its nature, and find ready hearing and sympathy. Let them feel the same freedom, the same familiarity as with a parent. No more is it right for a teacher by austere demeanor to keep his scholars at a distance, than for a mother to frown away

the chubby arms uplifted to caress her, or for a father coldly to refuse the proffered confidence of his boy. We should not only permit and encourage this confidence in our pupils, but should set ourselves assiduously to work to win it. Some dispositions are naturally reticent: some have been rendered so by the chilling atmosphere in which they have been reared. With such, months and even years of persevering kindness and delicate tact may be needed to draw them out of themselves and induce them to consign to another the key of their hearts. But time thus spent will yield a rich reward. Influence over such a one, once gained, is almost unbounded, and may be used to change the whole current of his life into higher, nobler channels.

Truly may it be said that few teachers live up to their privileges—few wield the mighty power for good which God has placed within their reach. We do not sufficiently realize that the destiny of our scholars for eternity, no less than for time, is to a great extent committed to our hands. Nowhere can opportunities for winning souls be greater than in the school-room; and in no one will a starless crown be more inexcusable than in the teacher.—*Michigan Teacher.*

THE RELATION AND DUTIES OF EDUCATORS TO CRIME.

[From a paper read to the National Teachers' Association, Minneapolis.]

It is hardly too much to say that the American people have been in danger of falling into the error of believing that knowledge is virtue; that to do better it is only necessary to know better; and that intellectual culture is the panacea for moral, social, and political ills. The general establishment of the common school system was both the effect and the cause of this sentiment. Of late there has been some reaction against this one-sided view of the human problem of reform and progress. In the quickened interest in all social questions, together with the increased study of statistics and their application to the solution of the various questions of sociology, education as related to crime has not escap-

ed the students of science, and especially those who are interested and engaged in penal reform. It has been clearly shown that ignorance and crime live in close and sympathetic relation. Criminal statistics have proved that, in proportion to their numbers, there are more criminals among the ignorant than among the educated. Ignorance exposes to crime by diminishing men's self-respect; by limiting men's opportunities or means of livelihood; by restricting the range of pleasure and safe pastime; and by exposing men to the full play of their animal passions.

But while all this is true, and a more extended study serves to deepen the conviction that ignorance is the most fruitful

source of crime, it still remains true that ignorance is not the only source of crime. A deeper study of criminal statistics, and a more careful classification of criminals, brings to light the fact that there are educated as well as uneducated criminals. Forgery, counterfeiting, embezzlement, perversions of trust, and also adulterations of food and drink, are not crimes of ignorance, but rather of knowledge. The same must be admitted of bribery, tampering with the ballot, either by fraudulent naturalization papers, by colonizing voters, or by stuffing the ballot-box. There may be ignorant dupes in all these organized and wide-reaching villainies; but the leaders are neither ignorant nor duped. The man who plans a scheme of counterfeiting is never an ignoramus, whatever may be the true of the "shover of the queer." He has both capital and knowledge. In general, it may be said that between the two great classes of crimes—crimes of passion and those of reflection—crimes of reflection are committed by the intelligent rather than by the ignorant. Animal passions are less active among them, but the higher passions of the mind—covetousness, ambition, the desire to live extravagantly and to keep up appearance and show—are passions which reign among the cultivated rather than the uncultivated; and the crimes to which they lead are not petty larceny and sneak-thieving, but speculation, political jobbery, and ring frauds. The crimes with which the names of Swartwout and Price, Schuyler and Breslin and Tweed stand connected, are not crimes of ignorance but of knowledge—not crimes of animal passion, but of social, political, and intellectual passion.

Education lifts men above the crimes that come from those passions. Education lifts men into a higher plane of action, and so exposes them to the crimes that lie in that higher sphere. An ignorant man will steal your coat or pick your pocket: your educated rogue will work shoddy and devil's dust into the coats of whole armies and pick a nation's pocket. Education does not diminish the force of ambition: it rather strengthens it. Education will abate thieving, drunkenness, licentiousness, dog-fighting, etc.; it will not directly diminish forgery, counterfeiting, and kindred crimes of intelligence, save as it diminishes the field of the

sharper's operations. Dupes will diminish, and so there will be fewer dupers.

In the march of intelligence crime marches *pari passu*. There could be no pocket-picking in Sparta or in an age when there was no currency, nor burglary so long as men had no fixed habitations. Vulgar stealing and false swearing were contemporaneous with only the ruder states of society, while the gigantic swindles of the stock exchanges of London, Paris, Vienna, Berlin, and New York are as far beyond Greek rascality as the Greek drama is beyond the modern farce. Take the Schuyler frauds on the New York and New Haven Railroad, the Credit Mobilier scheme, the Erie management, the Southern Improvement Company's movements, the New York, Philadelphia and Pittsburg Rings, the Indian Ring, the Custom-house Rings, the silk and whiskey frauds, the New York Contract Ring, and the organization of money schemes in oil, coal, and gold—not to mention lobbying;—these are not the plots of ignorance and passion. Somewhere in those huge schemes of fraud and oppression are hidden master-minds of intelligence and administrative ability. It could only be a thoroughly educated rascal who could conceive the plot of "salting" a field with diamonds, in order to place its shares at an advantage.

If the general influence of education is to lessen crime, and yet its exceptional influence is to enlarge the scope of a certain class of criminals, what, under these circumstances, are our relations and duties as educators to crime?

First, we must acknowledge and teach that there are educated criminals, men who use their intelligence as a power to do wrong, taking criminal advantage of this superiority of knowledge over ignorance.

Second, we must teach that this class of criminals are the principal perpetrators of crimes of reflection—crimes, as has already been shown, that are aimed at property rather than persons; crimes, moreover, which attack society in its organized welfare, by debasing the currency, adulterating food, drink, and clothing, manufacturing goods "short," and selling them at standard weight and measure, and by corrupting the channels of legislation, justice, and politics.

Third, it must be held to be the duty of educators to elevate the moral tone of their pupils by showing that many forms of fraud which are not against the statute and which lead to wealth, are more debasing and more injurious than crimes of the most disreputable character. This latter kind of education is carried on more by example than by formal precepts, the educator himself being the example. Next to parents, teachers stand in the closest and most influential relations to the young; and as their toils tend to take persons out of the ranks of illiteracy and put them in the educated class, so the crimes with which they stand most closely connected are the crimes of educated as opposed to uneducated criminals.

It is a fair question to ask whether the atmosphere of the school-room is not sometimes tainted. With a view, perhaps, to disparage the moral influence of Sunday-school instruction, there have at different times appeared in the papers items and paragraphs as to the number of inmates of our penitentiaries and jails who have, at one time or another, been connected with Sunday-schools. In a similar spirit of depreciation a traditional charge has lain against the character of ministers' sons and deacons' daughters; and though this slur has been removed by carefully prepared statistics, as doubtless it could be in the case of Sunday school instruction, it nevertheless remains true that, even from a Sunday-school, a boy might go to the gallows or a girl to the brothel. Educators in Sunday-schools may carry on their professional work by immoral methods. Raising missionary funds by appeals to vanity are immoral. Stimulating children's liberality by fairs, exhibitions, and denominational rivalries, is immoral. Handling any moral means below its moral level is immoral; so that studying the Bible may be a source of deterioration.

There may be and ought to be exerted by educators a direct influence in the repression of crime. When Dr. Arnold said to his pupils that it was not necessary that he should have four hundred boys at Rugby, but it was necessary they should be gentlemen, he expressed the grand truth that a teacher should make his school a reformatory. The proper soil of crime is a low moral tone in society; and when the teachers in our common and professional

schools, our academies, colleges, and seminaries, do not create and diffuse a healthy moral atmosphere, the seeds of crime will germinate despite the intellectual and aesthetic culture of the schools.

In addition to these direct and indirect influences which educators should exert against crime, the time has come when positive instruction in penology is practicable. Sociology is a recognized science, and crime in its causes and origin is one of the departments of sociology. The body politic is liable to diseases. Crime is such a disease; and in our country it is an important part of every young man's education to know that criminals are an integral part of the population, and that they demand wise treatment. What is needed here is knowledge, the knowledge of how men become criminals, how they should be treated, and what results may be looked for. There was a time when criminals were simply ignored by the community, till dragged into light by the arm of justice. For a few days they occupied the court, then disappeared within prison walls, to be forgotten by the outside world. No one stopped to inquire or seemed to care whence they came or whither they went. Were they born convicts? Were they made such by others, or did they make themselves criminals? Still less did the community ask or believe that possibly these men might come out of jail better men. A penitentiary was not, as its name implied, purgatory, but perdition. Elizabeth Fry, Maconochie, Montesinos, and Obermeier, have proved that there is use for this human refuse. Criminals can be reformed—from 50 to 75 per cent. of them. It has been demonstrated that the laws of justice, of industry, and of kindness, when administered by men of faith, are as effective for reform inside of a prison as outside. Onesimus was converted in prison: so was the Philippian jailor. Who can tell what converted jailors and their convicts might not teach us of the power of the gospel wisely applied? Well does Charles Dudley Warner say: "I do not know what might not be done for the viciously inclined and the transgressors, if they could come under the influence of refined men and women. And yet you know that a boy or girl may be arrested for crime, and pass from officer to keeper and jailor to warden, and spend years in a career of vice and imprisonment."

and never once see any man or woman officially who has tastes or sympathies or aspirations much above that vulgar level whence the criminal came." We set a thief to catch a thief, and then employ a rogue or a ruffian, or both, to take care of him. Is it a wonder the criminal does not reform, with such keepers? It is the duty of educators to exhibit such things to their pupils, and to make them feel that criminals have rights, inalienable and indefeasible; that criminal legislation should recognize these rights; and that penal treatment is nothing less than offense itself, if it does not regulate itself by these principles.

It is only necessary in conclusion, to add that the field of penology is a wide field, and one that is worthy the attention of the philanthropist, the legislator, and the scholar.

In the field of prevention and reformatory measures, Elizabeth Fry, John POUND, William Nash, DeMetz, Miss Carpenter, Emily Faithful, have won names of high honor. As prison-keepers and reformers, the names of Hill, Crofton, Maconochie, Pillsbury, Rockway, and Cordier, are known and honored everywhere. In the speculative departments of criminal jurisprudence, Bentham, Beccaria, Quetelet, and Livingston are immortal. Where John Howard has led, no educator need be ashamed to follow. But a greater than John Howard is here—Jesus of Nazareth, who was anointed to preach deliverance to the captives, says to the righteous, "I was in prison, and ye came unto me."—*Rev. F. B. Bittinger, D.D., in Michigan Teacher.*

REWARDS AND PRIZES IN SCHOOL.

Shall I endeavor to increase the interest of my pupils in their studies by offering rewards and prizes for superiority in scholarship and deportment?

This is a question that admits of discussion, and it may well claim our consideration as instructors of youth. In all our efforts in the cause of education we are successful only as we secure the culture and development of mind. To do this we must encourage and sometimes awaken, a desire for knowledge, and then furnish the means of gratifying that desire. As true teachers, realizing the responsibilities of our calling, we cannot but regard with deep interest any method which will make our efforts of greater good to our pupils. This result is intended by the system of "rewards and prizes."

It is supposed to have a two-fold bearing, stimulating the naturally dull and indolent to greater exertion, and rewarding diligent labor. These ends are very commendable, and if the system in question will aid us in securing them, it certainly claims our notice. We are not to assume, however, that the system is wholly proper unless we are satisfied it has no injurious tendencies; for however well we may succeed in arousing an enthusiasm for study, if at the same time

we foster unworthy and improper notions, the good obtained in one direction may be more than overbalanced by the evil in another.

In presenting to the readers of the *Journal* our views upon this subject we would wage no indiscriminate warfare upon old and established usages, nor seek, in a false and perverted spirit of reform, to destroy whatever does not coincide with our own ideas. Some stimulus is in many cases undoubtedly necessary to awaken a thirst for knowledge, and we would heartily commend any plan which is efficient and at the same time entirely healthful in its operations. But to the plan of offering rewards and prizes to the most proficient in scholarship and good behavior—whether these prizes be in the form of money, books or honors—not in the reach of all who still attain a certain grade, but only of those who stand at the head, while those who have, perhaps, labored just as diligently, and have made on the whole, greater advancement, because they are outranked by a very trifle, pass on unrewarded—to such a system we have serious objections.

In the first place, we fail to see that as a means of stimulating to greater effort it is as efficient as would at first appear. Those

who come under our instruction belong to one of the three classes. In some the mental so predominates over the physical that, unless carefully restrained and their physical need properly looked after, they rush on in a feverish course of mental activity, and if they survive at all they are weak and comparatively useless members of society. Premature and too severe brain-work before sufficient strength has been acquired has permanently injured the delicate organism, and the brilliant promise of early youth is clouded. Such need no reward for study. On the contrary, they should judiciously be led to look elsewhere than in books for knowledge. Show them the beauties and wonders of nature; and while thus gathering material for future thought and investigation, they will be unconsciously laying broad and deep the foundations of a healthy and permanent physical constitution.

Others, and the class is a large one, study from the love of it, and equally enjoy a lesson or a play-spell. They are the life of the school-room, the delight of the teacher and the ruling spirits of the play-ground. They enter with zest into every suggestion of their teacher, respond at once to every incentive to industry, and though less brilliant in the recitation-room, usually reach a more advanced position than their meteor-like comrades. Such pupils need no stimulus in the forms of rewards and prizes. They are good students without them; they would be no better with them.

But what of that large number who are naturally dull, indolent and careless? Surely they are influenced for the better by the offering of some reward. But wait a moment. We do not usually, make much effort to obtain that which is plainly beyond our reach; and can we expect that a prize which but one can obtain will be much of an inducement to one to whom study is irksome and difficult, when he sees that there is little or no chance of success? Who are the ones who carry off the prizes? To which of the above class do they belong? Usually the first. The third class are influenced very slightly, if at all, by the promised rewards, and all the teacher's tact and ingenuity are requisite to induce them, by sheer force often, to apply themselves to their books. At best a large number are willingly inferior to their attainments.

Does not this system, then, fail in the very particulars in which so much is claimed for it? Our own observations lead us to this conclusion.

As for rewarding the industrious, so many complaints are made and so much fault is often found with the award of prizes and honors, that it is a serious question whether real merit gets its deserved reward in many cases. A quicker apprehension, a more mature intellect, superior advantages, or greater self-confidence and reliance, may give an undue advantage over those who are really the most industrious and are reaping the best results of their toil; while favoritism and deception not seldom wield much influence.

But we have thus far noticed only the negative objections. We have a further reason for opposing the system in the positive injury it works in those under its influence, believing that it appeals to wrong motives, and by fostering a selfish emulation destroys all true scholarly ambition.

While we do not agree with those who would wholly exclude emulation from the motives to which teachers may rightfully appeal, we insist that to offer a prize which can be attained by but one, instead of promoting a healthful excitement or a generous strife, will incite to a selfish struggle for the first place and stir up jealousies and suspicion. He who is successful is so at the expense of his fellows, and the school-room, under the influence of such means, becomes the field of a feverish race after honors, where every one is for himself. That such is not the result in every case is owing to the fact that other influences and motives are not wholly overlooked.

Frothingham has termed such an appeal to emulation as a "radical disorder in our schools, by which a hateful fire is set running through the fresh growths of the unscorched breast, which scorches, blights and blackens wherever its hot tongue can find a generous feeling to singe."

We need to restrain and hold in check the selfish part of our nature, and how can the result be otherwise than evil if we begin to call into exercise these selfish motives at the outset of a child's education?

The crying evil of our generation is selfishness, and who shall say how much is due to the unfortunate appeal to these motives in early life! Too long accustomed

to the high excitement of the stimulating motives to acknowledge the influence of more moderate hopes, men become unprincipled demagogues, restless intriguers for party power and ephemeral distinction, panderers to prejudices and advocates of error.

This system of prizes is further injurious because it subordinates the moral to the intellectual, rendering those under its influence less susceptible to the higher motives of virtue. Those who are induced to study by such means will soon see no good in exertion where there is no promise of speedy reward, and instead of seeking mental culture as a means of usefulness and enjoyment will labor only for that which will bring the desired honors. In the words of Dr. Olin, "It generates no love of knowledge, no genial aptence for what is beautiful, and

harmonious, and true in the vast field of research, and thought, and spiritual enjoyment, which education, in its best sense stands pledged to open to the expanding mind."

We have thus endeavored to present a few thoughts in opposition to the system of rewards and prizes so prevalent in many schools, hoping that teachers and school officers who may read them will be led to consider the matter in its true light and act as will be for the best interests of those under instruction. At some future time we may characterize some of the methods within the reach of every true teacher by which his pupils may be properly and healthfully stimulated to greater diligence.—*James S. Cooley in N. Y. Educational Journal.*

THE ART OF TEACHING.

The art of teaching, like all other arts, is often marred by unskilful hands. Let the accomplished musician touch the keys of a musical instrument and the sweetest harmony of sound is brought forth, while a novice in the art produces only jarring discords. So there is a music in the human soul the key note of which can be struck only by a master hand, and the loftiest strains of which will roll forth only at the touch of one skilled in the art.

Though all, with practice, may speak and sing tolerably well, yet there are born orators and singers, who, with the same advantages will far surpass others; and it is easy to see that there are some who have a natural tact for teaching, and of course will excel in the art. There are those again, who, with years of practice and preparation, will never make good teachers, I do not intend to say that practice should be lightly esteemed; but I mean that people often mistake their calling. We sometimes see a man in the pulpit or at the bar, when he ought to be on the farm; and we sometimes see a person attempting to mould the minds of the young when it is evident his hand is too heavy for such delicate mechanism;

he would be more in place wielding the blacksmith's hammer and moulding the rough, tough iron.

But because natural adaptation is necessary in the art of teaching, we must not conclude that practical knowledge can be dispensed with. All business requires practice. Who would think of paying an apprentice mechanic as much wages as the master? though the man be a fine scholar in other respects, and the master never entered the walls of a college. What merchant would trust his noble ship to one who has no practical knowledge of navigation, though his head may be filled with the theory? We are slow to trust ourselves in the hands of a physician who has no practical knowledge. Now, of all kinds of business the teaching is the most difficult, therefore his preparation both of science and art should be the most perfect.

As our business just now is with the art of teaching, it will be well to define it. Art is said to be, to arrange, to prepare; the employment of means to accomplish some desired end; the adaptation of things in the natural world to uses of life; the application of knowledge to practical purposes,

any or all of which will apply to the art of teaching.

Now, bearing in mind that an art is the employment of means to attain some desired end, we are led to enquire first what is the end in view in teaching. If a man has no particular object for which to work, he is liable to turn aside into all the high-ways and byways with which he comes in contact. An aimless life accomplishes little. On the other hand, if, for example, the mariner keeps his eye on the north polar star, he has an object in view, he will use all his energy and skill to steer the most direct course to the desired haven. If a man has an aim in life, though it may be very high, yet by keeping his eye continually fixed upon it, he marks out the most direct course to the desired haven. If a man has an aim in life, though it may be very high, yet by keeping his eye continually fixed upon it, he marks out the most direct course, and is enabled the sooner to gain his object. So, when we, as teachers, understand the end in view, we are able to qualify ourselves for and carry on the business of teaching. Indeed it is only by chance we accomplish anything without this knowledge.

The end to be accomplished in teaching is the cultivation and development of the various parts of the child's nature, physical, mental, and moral, in such a way that he may be fitted for the practical duties of life. And no educator can afford to ignore any one of these powers, for they act reciprocally upon each other; for instance, a weakened or diseased body is not capable of much mental activity. Again, a mental prodigy may be a moral pest, doing no good for himself or the world.

Then, if what we have just said be true, how necessary it is for the teacher to have a thorough knowledge of human nature, especially child nature. He should understand mental philosophy, moral philosophy, and physical philosophy; in fact, all the *osophies* and *ologies*. Why, common school teachers should be the wisest persons upon earth. Unless we know something of the nature of the material upon which we work, we are as likely to fail as when we have no intelligent idea of the thing in view. The agriculturist must understand the nature of soils in order that his labors may be profitable; so must the teacher understand

the nature of the soil upon which he works, in order to produce a good harvest.

We are now naturally led to enquire the means best adapted to the end in view in teaching. When a man wants to develop the muscles of his arm, for example, will he tie up the limb and carry it quietly by his side? Will this accomplish his object? No; the arm will become paralyzed, useless; he must exercise it; he must wield the woodman's axe, or the blacksmith's hammer. So it may be said that exercise is emphatically the law of development, and not more so physically than mentally and morally; therefore the teacher must not do the work for the child, but train him to exercise his own powers. It is by this means alone that the end of education is accomplished.

As the state or condition of the body has a great influence upon the mind, the child's physical comfort should be the teacher's first care, in order not only to the healthy and symmetrical development of body, but that there may be nothing to obstruct the free and full activity of the mind. The teacher should see that the children under his charge are comfortably seated; that they sit and stand in proper position: he should give them frequent change of position, as activity of body and mind is their life. They should not be subjected to extremes of heat or cold, and above all they should have plenty of pure air. If the children are physically uncomfortable, they will be incapable of performing mental work, and will become restless, and often mischievous. We see, therefore, that attention to physical comfort aids us, not only in teaching, but in governing.

We will now speak more particularly of the mental powers. There are three ways in which the mind may receive knowledge—by direct statements, oral or written; by observation, and by reasoning. The first is perhaps the most rapid mode of imparting instruction, and, if our education were finished when our school days are ended, it might be the most effective; but who does not know that the great object of school work is, or ought to be a cultivation of the desire for, and a training to the right method of acquiring knowledge, rather than the acquisition of knowledge itself; a leading of the mind to nature, the great source of knowledge, rather than causing it to

drink of the streams muddied by artificial dabbling. The time spent at school is so limited that a very small part of our education can be there obtained; hence we see the necessity of putting into the child's hands the key by which he can unlock for himself the great storehouse of knowledge. The mighty men of this and other ages, whence came they? and where did they obtain their wisdom? Did they come full grown from college? Verily no.

With this view of the subject we will now proceed to examine the order in which the powers of the mind are developed, and how the educator should take advantage of this in teaching; training the child to exercise these powers in such a way that they may be turned to practical account. We find that the first impressions received into the mind come through the senses. A young child is first attracted by something he sees; the next step is to feel objects; then he has a desire to taste everything, this is natural, for there is implanted in the human breast a desire for knowledge, and this is the child's only means of acquiring it, as his reasoning powers are not yet developed, there being nothing for them to work upon. This first dawning power of the mind we call the *observing* or *perceptive faculty*, and it is by this that we obtain most of our knowledge, especially in youth; yet it is not confined to youth, it is of great practical benefit to us all through life. A farmer or mechanic, in order to keep up with the times, must adopt the modern improvements in his business, and to do so he must keep his eyes and ears about him. A mariner is upon the ocean; by the power of observation he sees the coming storm, and prepares the vessel to meet it, otherwise it may become a worthless wreck upon the waters, and the crew and cargo lost. Two travellers may go through the same country, and visit the very same places; the one sees thousands of different things. Well, the one may be naturally more observing than the other; but training to habits of observation goes far to obviate the natural defect. The teacher should, therefore, train the perceptive powers of the child, so that they may be of use to him in after life. And the educator has here also a grand means of imparting knowledge—a means most effective, especially with young children.

The next faculty developed in the mind

is *reason*, by which we infer new knowledge from that already gained, classifying individual objects, and deriving therefrom principles and rules, or tracing principles and rules to their sources in individual objects. This power is perhaps more difficult to train than the last named, and this fact, together with its great utility, makes it necessary that the teacher should take particular care in its cultivation.

Now, it is all very well for the teacher to know the end in view in education, and that it is gained through the exercise of the observational and reasoning powers; but if there is no inclination to learn on the part of the child, his fine theories are useless, he cannot reduce them to practice. It must be the teacher's business, therefore, to awaken and bring into activity, even in the dullest, that desire to know which every one possesses in a greater or less degree, pressing this and the child's love of activity into his service, and using them as a means to effect his purposes. But how is this to be accomplished? There are various means which may be used. And first is the matter presented. What do we all listen to most willingly? Anything that pleases or interests us. It is the same with children; so that the matter presented should be such as will interest them, and through this we can give attention to that which is not so pleasing. And here we see the advantage of having a knowledge of the *mind* of the child, or child nature, in order to present such subjects as will be suitable or agreeable, and in order to be able to judge of the effect produced, for "knowledge is not given until it is received."

Second, the manner of presenting the subject. The matter may be suitable enough, but the manner of presenting it may divest it of all interest; or the matter may be uninteresting in itself, but the manner of dealing with it may make it so pleasing that children will readily listen. To secure the attention of children then is a grand object on the part of a teacher. To do this he must change his tactics so as to adapt himself to the various minds and conditions of mind with which he comes in contact. If he should be a sage with sages he must be a child with children, entering into their feelings and sympathies; he must have an encouraging voice and manner, cheerfulness, good temper and patience, self-possession

activity and tact in dealing with a subject. The teacher must have rare knowledge of and interest in the work, showing himself worthy of confidence, so that the children may have faith in him. And, having the ability to gain and keep the attention he has a lever by means of which he can move his little world; for he not only has the power of imparting instruction to his pupils, but by this means he has also the power of governing them, which is no small part of the teacher's work, and indeed a part which many teachers find so great that it leaves little time for teaching. But we left the children all agape for knowledge, and we must return and attend to them. How shall we begin? They can study and repeat lessons from the text book, which is well enough in its place, that is when they can understand its abstract statement and principles; but to require young children to study in this way is generally a mere exercise of memory and defeats the object we have in view, namely the training of all the powers of the mind. So we find that oral teaching is better suited to gain our object, especially in commencing a new subject; but here too we may fail if we simply tell the children what we wish them to know. Some things indeed must be communicated by direct statement, and here the teacher should judge what he must tell the child, and what the child must discover for himself. It may be laid down as a rule that any knowledge which the child can gain by observation, or by a proof of reasoning, either as a whole or in parts, through judicious questioning on the part of the teacher we should not make known by direct statement. And here I would observe that questioning, when properly managed, is an effective means of imparting knowledge. We wish to communicate certain truths to the child; instead of telling him we put a few examining questions to ascertain what he knows of the subject, and this we use as a basis upon which we build our structure, "Leading him from the known to the unknown;" or, if the child has now knowledge of the subject, we must communicate what we judge is best to lay a foundation for him to build upon, and with the help of guiding or teaching questions he will build up knowledge for himself, just as the builder, who, though he cannot erect a house at a single stroke,

yet by laying one stone upon another the edifice rises and rises till finally the top stone is reached. A stream that the child cannot cross at a single bound he may get over by means of stepping stones. And a subject, the difficulties of which the child cannot grasp as a whole he may surmount step by step, if it be properly separated into parts and made less difficult by questions and illustrations on the part of the teacher. But we should know just when the child should be left to himself, and when he should be assisted. We should not give too much assistance, or the child will not learn to be self-reliant; on the other hand we should not leave the child too much to himself, or he will become discouraged. By thus causing the child to do the work himself, we not only train him to observe and reason, but, by giving expression to his thoughts, he is thereby cultivating language, a very important branch of education; therefore the teacher should insist on full and correctly expressed answers. At the conclusion of a lesson the teacher should see that the children understand and can give the substance of it. He should also assure himself by frequent reviews and other means that the learner has permanent possession of the knowledge imparted,

But infinitely above and beyond the mind and the body every child possesses a soul, whose eternal weal or woe, humanly speaking, depends upon the guiding influence of parents and teachers. The teacher, therefore, should take every opportunity to develop and train the child's moral nature; taking the Bible as his basis he should endeavor to enlighten the conscience by its teaching, so that the child may discriminate between right and wrong, and may be led to choose the right, not only because it is the path that leads to honor, happiness and immortal glory. "'Tis not the whole of life to live, nor all of death to die;" and our education must be a preparation not only for this life but also for that which is to come. Through the child's moral nature too, the teacher has an influence, perhaps the most powerful, which runs through and assists him in every department of school life.

In conclusion, to gather up in a few sentences some of the many essentials in the art of teaching: The teacher should understand that school work comprises organization,

government and teaching; and that in teaching he should have regard to the quantity and quality of what is taught. He should have a clear idea of the end in view, and an intelligent notion of the right method of imparting instruction; he should be able to gain the attention of the children by winning their affections, holding forth inducements to study by showing its value, and presenting suitable subjects in a suitable manner. He should make sure that knowledge is not only given but received and reduced to practice. And, as the pupils will be in a great measure what the teacher is, in more respects than one, he should set a good example in everything and making it subservient to his purposes. He should

take a real interest in, and make thorough preparation for his work, entering heart and soul into his business, not making it a stepping stone to some other profession.

And does the public think that the paltry sum paid to such a teacher is quite enough. perhaps a little too much, remuneration for his services? Not money, or medals, or houses, or lands, or office can fully compensate the teacher, whose life's work has been the successful training of immortal minds for the duties which lie before them. His is a work that will live long after he has mouldered into dust, yea it will bear fruit throughout endless ages of eternity.—*Mary A. Logan in Nova Scotia Journal of Education.*

EDUCATIONAL INTELLIGENCE.

—A meeting was held in the school house, Kingsville, on Saturday, the 16th Oct., to form a Teachers' Association for the South Riding of Essex. Notwithstanding the inclemency of the weather and the short notice given, about twenty teachers were present. On motion Mr. Inspector Bell was appointed chairman, and Mr. Wightman, Secretary *pro tem.* Mr. Richardson then introduced the subject of "Grammar," and after a discussion by the teachers present a short recess was had. After recess, Mr. James McSween read an essay on Arithmetic, and Mr. Wightman explained his method of teaching reduction. Both subjects were criticized by several of the teachers. Mr. McKinnon, then introduced the subject of "Object Teaching" which was also well debated. The following officers were elected for the ensuing year:—President, H. Richardson; Secretary, A. D. McKinnon; Treasurer, Miss McSween; Committee, Messrs. Foster, Bright and Wightman. Messrs. Pearce, McSween, Sadd, Arner and Russell were appointed a committee to draft a Constitution and By-laws. The Association adjourned after singing "God Save the Queen," to meet again in January next.

—The meeting of the Elgin Teachers' Association, held on the 8th and 9th October,

was evidently a complete success. The very large number of teachers present on that occasion indicated the interest felt throughout the county. Mr. Osborne treated the subject of Arithmetic in his usual clear and intellectual manner. Mr. Butler and others spoke, at some length on Object Lessons, showing the importance of this method of teaching particularly in the case of young pupils. Mr. Williams entered heartily in the subject of Spelling, and showed how this usually dry study may be made exceedingly interesting. He was decidedly in favor of writing Spelling, in preference to oral, even with quite young pupils. Mr. Miller, set forth a method of making Grammar more interesting and easily understood by young scholars, a method by which they may be led to analyze at an early stage, and enable the pupil to write composition grammatically. On Friday evening the teachers and others were addressed in the Mechanics' Hall, by Messrs. Macdougall, M.P., and Butler, Inspector. Mr. Macdougall's address was interesting and instructive, and well calculated to inspire and encourage teachers to press on and not to rest content with their present attainments. Mr. Butler's lecture was another that never fails to hold an audience spell-bound. On Saturday Mr. Burdick led the discussion on

Review Lessons. His plan would doubtless insure thoroughness on the part of the pupil. A large number took part in the discussion on Order. After this there should not be a misgoverned school in Elgin. The subject of Competitive Examinations was taken up, and a committee appointed to consider and report at the next meeting of the Association. After voting thanks to Mr. Comfort for the use of his organ, and to the Misses Hughes, Comfort and others, for their excellent music, the meeting closed with singing the National Anthem.

—List of Teachers' Certificates awarded by the Council of Public Instruction, at the July examinations, 1875: First-class A—Solomon M. Dorland, (Gold Medal) Prince Edward; William O'Connor, (First Silver Medal) Middlesex; David McArdle, (Second Silver Medal) Ottawa; William E. Sprague, (First Bronze Medal) Hastings; Joseph Martin, (Second Bronze Medal) Carleton. B—Charles Andrew Barnes, Lambton; James Bruce, Wentworth; John Wesley Cook, Wentworth; William A. Duncan, Ottawa; William B. Harvey, Simcoe; Archibald Lee, Ottawa; Samuel McAllister, Toronto; James McKenzie, Hastings; James McLurg, Perth. C—Cassius Campbell, York; William Clark, Grey; John Cushnie, Grey; Alexander Petrie, Wellington; Albert R. Pyne, York; Neil Robertson, Lanark.

—Pursuant to notice a very successful meeting of the North York Teachers' Association took place on Friday and Saturday, Oct. 1st and 2nd, in the Temperance Hall, Newmarket. The President, D. Fotheringham, Esq., Inspector for the Northern Division, occupied the chair, there being about forty teachers present. After the opening exercises by the President, the minutes of the previous meeting were read and confirmed, and after the reception of communications and the reports of Committees the Association took up the late examination papers of II. and III. Class Teachers on the subjects of Grammar and Arithmetic. Several teachers elucidated their methods of teaching the different subjects of the Public School course. The discussions were entered into quite freely, but in good spirit, and in the best of harmony; the President as well as members of the Association taking part. In the evening of the first day the Association, held an

entertainment consisting of Readings, Addresses, Music, &c., the attendance being quite large. The Association has taken advantage of the 100 per cent. granted by the Ed. Department and secured quite an extensive Professional Library, which is being largely circulated, and which there is no doubt, but will result beneficially to the profession. There is every prospect of the Association being a success.

—The Port Perry High School seems to be in a very efficient condition. At the recent Teachers' Examination, sixteen of the pupils obtained certificates, five Second and eleven Third. The Port Perry *Standard* of a recent date, says:—"From the knowledge we have of our High School in Port Perry, we are satisfied that it answers to what such a school ought to be, and that it is doing its work, in efficiency, second to none in the Province. The progress which the students have made under the regime of Messrs. McBride and Crawford, and the success that has attended all the examinations to which they have been subjected—and they are not a few—give the most ample proof of this. No better test of the efficiency of a school is needed than the fact that its members, when in competition with those of other schools of long and high standing, rank among the best, and in some cases surpass them. Besides the success that has attended our students in the past, in obtaining certificates, &c., another proof of the efficiency of our High School is to be found in the fact that at the recent examinations for matriculation, at McGill University, Montreal, Mr. W. H. Stephens was successful in obtaining the second Exhibition or Scholarship, which entitled him to \$125, cash, and exemption from fees equal to \$80 more. This Exhibition is of equal value as the first, which was taken by Mr. Eadie, of Brantford. Mr. Stephens' marks could, therefore, only have been very few less than those of the best competitor. This fact will be more fully appreciated, when it is remembered that the competitors for these Exhibitions were from the different parts of Ontario, Quebec and Prince Edward's Island. For this examination Mr. Stephens received no special training, but was, as any one knows who has visited the school, one of a number who were just as competent as himself. Mr. Ross, another of the students from our school, has just

gone to Knox's College, intending to enter upon the second year of the course, and no doubt he will be successful."

—In a recent official letter the Chief Superintendent of Education, he thus refers to the subject of Third Class Certificates :— I have no objections to extending the period or rather giving a permit to the third-class teachers to whom you refer, for a period not exceeding twelve months, upon two conditions ; first, that you are personally satisfied of their qualifications ; secondly, that there are not a sufficient number of first and second-class teachers in the Country to supply the Schools. The express object of limiting third class certificates to three years, was to prompt teachers to improve themselves, so as to obtain second-class or life certificates, and, at the same time to prevent such a multiplication of third class teachers as to drive out of the profession, or prevent the employment at a fair remuneration, those who have qualified themselves for teaching all the subjects of the public school programme, by obtaining first or second class life certificates. This great object of advancing the Schools, and the teaching profession is defeated by unduly multiplying (in the way of perpetuating) third class certificates, the subjects embraced in which do not cover more than half the ground of that public school education for which every man in the community is taxed according to his property, and which he has a right to have provided for his children in the public school. There is no authority in the law to prolong a third class certificate ; but on the expiration of it, the Inspector may give a permit to the holder of such certificate for one year, on the recommendation of the Board of Examiners, and at the unanimous request of the Trustees of the School for which the third class teacher is desired, and to which school his or her certificate should be limited, as well as limited to twelve months, or to the next meeting of his County Board of Examiners. Certificates which expire in December next, if granted before 24th March, 1874, will be held as valid till the next July Examination, as there will be no opportunity of undergoing examination in December. Doubts having been expressed as to the power of local boards to exact fifty per cent. of the marks assigned to the subjects of Arithmetic and Grammar from Candidates for

Third Class Certificates, notice is hereby given, that County and City Boards of Examiners may exercise their discretion in that matter. The Regulation provides that :— "In order to obtain a Third Class Certificate, the marks must be *not less than* one half of the aggregate value of all the papers for certificates of that rank." Again, in the qualifications, required for Certificates, the minimum is stated. The Boards may, in their discretion, increase the stringency of these examinations, but they should give due notice of their intention to require more than the legal minimum.

—The quarterly meeting of the Teachers of the East Electoral Division of Middlesex, was held Oct. 22nd and 23rd, in the County Council Chamber, London, Mr. John Dearness, in the chair. There was a fair attendance of teachers, about thirty, of which a considerable proportion were ladies. After Mr. Glass had read the minutes of the last meeting, a discussion ensued on the financial position of the Association, in which the Chairman, Messrs. Lyman, Woodburn, Black and Stock took part. With regard to the conditions of membership, Mr. Sutherland moved that all teachers employed by trustees be considered members of the Association, without the necessity of being balloted for. After a good deal of desultory discussion, the motion was carried. Moved that the present fee of \$1 be reduced to 50c. ; ladies free. Moved in amendment by Mr. McQueen, seconded by Mr. Black, that the fee for males be 50c., and females, 25c. This amendment, after some discussion was carried. The secretary, Mr. M. Glass, then read over the report of the Library Committee, including a list of subscribers and financial statement. Moved by Mr. Black, seconded by Mr. Fawcett, that the thanks of the Association be tendered to the members of the County Council for the assistance rendered by them to the library fund. The Association then adjourned for noon recess. Mr. Dickie commenced the afternoon proceedings by illustrating his method of teaching fractions, demonstrating on the blackboard the manner of instructing beginners. In the course of his accompanying remarks he advocated the use of objects in such teaching. After an extremely interesting and instructive address, he was followed by Messrs. Fawcett and Sutherland, who spoke a few words on

the subject. Mr. Dearness closed the discussion by an able and exhaustive address. On Saturday morning after some routine, Mr. H. T. Sutherland took up the subject of "Corporal Punishment," and advocated corporal punishment as a means (under certain circumstances) of maintaining order in school; but at the same time considered that the real key to good government in school is chiefly owing to an ability of joining kindness and firmness. Rev. Mr. Gordon being present, was requested to give his views upon the subject, and did so in an able and interesting manner, and was applauded upon taking his seat. The President, Mr. Dearness, gave an excellent address, treating of the conduct and general deportment of the teacher in connection with his pupils and also the people of the locality in which he resides. Mr. Robert McTaggart, of the Helmut College, delivered an exhaustive and a particularly interesting address upon the subject of "Singing in Schools." Mr. McTaggart was tendered a unanimous and hearty vote of thanks for his able address. The following persons were, on motion of Mr. Dickie, seconded by Mr. Sutherland, appointed the officers of the Association for the ensuing year:—Mr. Dearness, President; Mr. Woodburne, 1st Vice President; Miss Wilson, 2nd Vice President; Mr. McQueen, Secretary; Mr. Lyman, Treasurer. Mr. A. C. Stewart, retiring Secretary, as also the other retiring officers, were tendered a unanimous vote of thanks. Association adjourned until 1:30 p.m. At the afternoon session the President appointed the following standing committees:—Finance—Messrs. Black, D. Y. Hoyt, A. C. Stewart, and Miss F. McColl. Arrangements—Messrs. J. A. Lyman, W. D. Eckert, H. Sutherland, D. W. McKay, Dr. Campbell, Pres. and Sec. Questions—Messrs. W. O'Connor, M.A., A. McTaggart, and Miss M. Crozier. Resolutions—Messrs. W. D. Eckert, J. Relihan, A. Black, and R. F. Dixon. The President then introduced Mr. J. W. Jones, of Jones and Yerex, Commercial College, who proceeded to illustrate his system of teaching bookkeeping by a catechetical lesson, explaining each step clearly on the blackboard. At the close of the lesson several questions on the subject in hand and method of teaching it were asked, which Mr. Jones answered with clearness. A vote of

thanks was unanimously passed, to which Mr. Jones suitably replied. Mr. R. F. Dixon read an excellent paper on incentives to study. The Western Normal School question was then taken up, and after discussion by Mr. Lynam, the Inspector and others, it was resolved that the Petitioning Committee be instructed to draft papers to lay before the proper authorities, setting forth the necessity of establishing a Normal School in the West, and the advisability of situating it in or near this city. After votes of thanks were passed—one to the County Council for the use of the chamber, another to the Press for the reports of the sessions—the Association closed by singing the National Anthem.

—According to notice, Mr. Theodule Girardot, School Inspector for North Essex, held a Teachers' Convention at Belle River, on Monday and Tuesday, October 11th and 12th, at which the teachers of the Townships of Tilbury West, Rochester and Maidstone attended. Business began at ten o'clock on Monday, and Inspector Girardot was elected chairman. Miss Armstrong was elected Secretary, after which the chairman delivered his opening address. Mr. Shaw then lectured on the best method of teaching Geography, which was followed by a discussion on the merits and demerits of Mr. Shaw's plan, most of the teachers agreeing with him. Mr. Benglet gave a summary of the method of teaching geography practised in the Swiss Normal Schools. Miss Armstrong next exemplified her method of teaching Composition which was discussed by Mr. Morrisette and others, after which an adjournment was had for dinner. On re-assembling at 2 p.m. Mr. McHugh delivered a short lecture on School Organization and Classification of Pupils. An animated discussion followed, which was participated in by Messrs. Shaw, Benglet Milligan, Morrisette and McHugh, some approving and others disapproving of the official time table. Miss King gave a ready and easy solution to the question of how to make school attractive to the pupils, and Miss Surveyer, one of the French lady teachers, presented an essay on the same subject. Mr. Milliken next lectured on the best method of teaching Elocution, and was highly complimented by Mr. Shaw. After a few remarks from the chairman the meeting adjourned till the evening. Mr.

Th. Girardot, the chairman, opened the evening session punctually at seven o'clock. The proceedings were conducted in the French language, as the matter under consideration was principally for the French teachers; and also owing to a large attendance of the most respectable inhabitants of Belle River, who are chiefly a French speaking people. The Rev. Mr. Jean, John Chaland, Reeve of Rochester, F. P. Boutellier, Michael Welsh, and others were amongst those present. Mr. Benglet delivered an able address on the best method of teaching French, and was followed by the chairman who did not fail to interest the audience in a subject with which he is so thoroughly familiar. This closed the evening session, when the teachers adjourned to Mr. Bryson's Hotel, to partake of a substantial and well prepared supper. When ample justice had been done to the various dishes, the chairman proposed with the usual loyal sentiments, the health of Her Most Gracious Majesty Queen Victoria. The toast was drank amid a burst of enthusiasm and was responded to by Mr. F. P. Boutellier. This was followed by "His Excellency Lord Dufferin," responded to by Mr. McHugh; and "The Chief Superintendent of Education for Ontario," responded to by Mr. Shaw; "The Inspector of Schools for North Essex," drew a reply from Mr. Girardot; "The Teachers and Trustees of the Public Schools of Ontario," brought Mr. Benglet to his feet; "The Reeve and ex-Reeve of Rochester" was attended to by Mr. Boutellier, and Miss Armstrong replied on behalf "The Ladies and the Secretary." "The Band" and the "Host and Hostess" were the last toasts of the evening. During the evening Mr. Shaw gave several recitations, Mr. Benglet two French songs, while Mr. Aubin discoursed on the violin. On re-assembling on Tuesday morning Mr. Morrisette lectured on the necessity of promoting the moral development of children and teaching them good manners. Mr. Normandin gave an address on keeping order in the school room. The chairman then spoke at considerable length on the school law and regulations, explaining many ambiguous clauses, and clearly pointing out the duty of the teachers to uphold and preserve discipline, according to the prescribed rules. He also instructed the uninitiated as to the proper filling of that official sheet,

yclept, "The Trustees' Annual Report." A unanimous vote of thanks was tendered by the teachers to Theo. Girardot, their chairman and Inspector, for his untiring efforts in their behalf, unvarying attachment to his teachers, and his careful attention to the interests of the convention. Mr. Girardot, in a few well chosen words, feelingly thanked the teachers for this tribute of their affection, and assured them of what they all know by experience, that he is their friend in every sense of the word. The teachers also thanked Miss Armstrong for acting as Secretary, and complimented her on her report of last year. The majority being in favor of Sandwich, the chairman intimated that all would meet, D.V., in the old Burgh in 1876.

On Monday, the 18th Oct. the second annual convention of the teachers of the South-western townships of North Essex was opened in School House, No. 1, of the town of Sandwich at 9.45 a.m., Mr. Theo. Girardot, Inspector of North Essex in the chair, and Mr. C. H. Ashdown as Secretary. A large number of teachers were present which speaks well for the interest taken by them in their profession. The business of the morning was opened with an interesting and able address by the chairman, in which he expressed his pleasure at meeting so many of the teachers and shewed the benefit resulting from meetings of this nature. He then gave a short lecture in French upon Phonetic reading, and the necessity of teachers making themselves well acquainted with the various studies as laid down in the Programme, Mr. Benglet of Belle River, then delivered an explanative lecture in French upon the best method of teaching reading. In the afternoon Miss Johnson was called upon to read an essay upon "The best method of teaching Composition." The essayist treated her subject in a very able manner. After the essay had been freely discussed, Mr. Irene Gerard, of Amherstburg, gave a good practical lecture upon "How best to secure regular attendance." Mr. James Crawley read a short but good Essay upon "Elocution" which was well received. The evening session was opened by an instructive lecture upon "The best method of teaching Geography" by Mr. Bondy. Mr. Bondy's lecture was followed by one from Mr. Barr of Walkerville upon "School Organization." This lecture

was excellent and elicited a lively discussion. The teachers of the Windsor High and Public Schools were present during this session and the part taken by them in the discussions added much to the interest of the meeting. After a cheering and instructive speech from Mr. J. C. Patterson, M. P. P. and Inspector of the Windsor Public Schools, the Company adjourned to the "Stuart House," and sat down to a first rate supper. The usual toasts were given and responded to. Songs were sung and speeches

made, and the party broke up after spending a most enjoyable evening. The morning session of Tuesday was opened by Mr. Ernest Girardot reading an Essay upon "Politeness," which was followed by a lecture by Mr. Normandin upon "Good Order." After a free discussion upon both subjects, and closing addresses by the chairman and the local member, votes of thanks were passed to Messrs. Girardot and Patterson, and the Convention adjourned to meet next Autumn, in Sandwich.

 CHOICE MISCELLANY.

—Of ten infants destined for different vocations of life, I should prefer that the one who is to study through life should be the least learned at the age of twelve.—TISSOT.

—Wisdom is, I suppose, the right use of knowledge. To know is not to be wise. Many men know a great deal, and are all the more fools for what they know. There is no fool so great a fool as a knowing fool. But to know how to use knowledge is to have wisdom.—SPURGEON.

—Rules frequently suggest evils to the ruled that would not otherwise occur. An anxious mother, leaving home, said, "Children, don't you put beans in your noses." When she came home every nose had a bean in it, of course.

—A shrewd Wisconsin teacher had a "general information class" last year, whose exercises consisted merely of half an hour's reading and discussion of the daily newspaper. It is said that the plan worked admirably. The pupils were kept well informed in current affairs, and showed a greater proficiency in ordinary studies after the class was organized. This is worth trying in all schools where there is time for it.

TEACHING ENGLISH.—There is a genuine revival of interest in the studies that relate to our superb mother-tongue, and some of the finest scholars of the age are engaged in its promotion. The study of English

grammar, so far as the new text-books provide for it, has been practically revolutionized; and there is great improvement in the later readers, spellers, and rhetorics. The spelling epidemic has not only educated the public mind, to an extent, in the singular history and structure of the speech, but has unmistakably improved the public orthography. The Secretary of Wisconsin State Teachers' Association, recently preparing its papers and proceedings for publication, notes better spelling by the writers; and we see improvement in the letters and other manuscripts we receive. A fine opportunity now offers to introduce new methods of studying and teaching the language branches; and we trust every teacher will address himself to the inquiry what he can do, personally and professionally, to improve the next generation in the use of their vernacular. If he do no more than to introduce written instead of oral exercises in spelling, he will start well.

VARIETY.—Children like novelty. They enjoy something new—surprises, fresh songs, stories. Too much excitement is not wholesome for either older or younger pupils; but something interesting, fitted to take away the tedium of everyday work, need not necessarily be exciting. There are schools where they never sing, or draw, or exercise—in short, where nothing is ever done but drill, drill, drill in the various branches taught. The teacher says she has no time to read stories and choice facts to

her pupils—no time for music, or marching, or gymnastics. Believe me, she will be compelled to do one of two things: bring in all these exercises to make everyone happy, to rest and so prepare for hard and continuous work, or take frequent intervals for punishing mischievous or indolent pupils, for explaining recitations that would need nothing of the kind if the children were fairly awake and feeling like study, or for visiting and receiving visits that are not pleasant to either party.

Nothing can take the place of brisk singing in every grade of school.

If pupils are not allowed or taught to draw, they will do all they can stealthily in caricaturing and picture-making; for a child can hardly be a child unless he loves to use a slate and pencil.

If the teacher never talks of interesting things to the pupils, and prohibits all questions and remarks not strictly belonging to school matters, she will be driven to a ceaseless warfare against whispering; for we all love to talk, to enjoy an interchange of mental possessions—a kind of intellectual commerce, we might call it.

—MM. Threinesse and Casse have found that injections of oxygen into the veins neutralize the toxic effect of phosphorus. The gas must be pure, and free from all admixture with air, and must be introduced very slowly. The precise apparatus used is not subscribed; and it appears that the quantity of gas required is very large, several cubic feet being administered to an animal weighing twenty pounds. The results, however, were in each way successful.

—According to M. Constadt, the sea water of the British coasts contains in solution, besides silver, an appreciable quantity of gold—estimated at about one grain to a ton of water. This is separable by the addition of chloride of barium, apparently as an aurate of baryta adhering to the precipitated sulphate, which yields, by assay, an alloy of about six parts of gold to four of copper. Other methods have also been devised, by chemical ingenuity, for separating the metals in question from their solution in sea water, but not, of course, in a manner or to an extent rendering it a practical object. The agent which keeps the gold of the sea in a soluble and oxidized condition is according to M. Sonstadt,

simply the iodine, liberated under certain conditions.

—It is stated that there are eight millions of German-speaking people in the United States, having three hundred newspapers and periodicals in their own language.

—When living insects have entered the ear it is of the first importance to kill them as quickly as possible, after which they may be removed at leisure by syringing, or by the use of forceps if necessary. Killing the insect may be speedily accomplished by pouring into the ear a small quantity of any mild oil or melted lard.

THE SCHOOL-GIRLS.

—oo—

See, in shining bands together
Trooping on through sun and shade,
In the balmy autumn weather,
Many a lovely little maid.
Little school-girls, sweet and merry—
How each eye with gladness glows!
Every lip is like a cherry,
Every cheek is like a rose.
O the winsome little school-girls!

No white lilies, no red roses—
Emblems of their dearer selves—
Bear they, but of dead leaves posies
Fashion now the frolic elves;
For the frost, with fingers nipping,
Garden all of bloom bereaves.
And the school-girls, onward tripping,
Gather up the gorgeous leaves.
O the joyful little school-girls!

Momently the foliage flutters
Down, as soft the south wind sighs,
And it decks the dusty gutters
With a wealth of splendid dyes,
Brighter than the silks of Naples
Or than gems of kings or earls.
With the largest of the maples
Fill their hands the little girls.
O the smiling little school-girls!

These are flowers the fall has brought 'em,
Who are fairer far than they.
Be it long ere life's sere autumn
Sweeps them like dead leaves away!
Theirs is now the dewy morning,
Their young hearts no sad thought
grieves.

And no moral, no harsh warning,
Whisper them the withering leaves,
O the happy little school-girls!

Life and death lie near together;
But they never think of this.
Careless of the coming weather,

Theirs are only dreams of bliss.
Little school-girls, sweet and merry,
How each eye with gladness glows!
Every lip is like a cherry,
Every cheek is like a rose.
O the winsome little school girls!

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.

U. PUGSLEY, Nanticoke, 111.

R. DRINNAN, Elmvalle, 115.

D. HICKS, Rosehall, 113, 114.

ANSWERS TO CORRESPONDENTS.

J. S. DUNDON, Cherrywood. In the answer in the October No. for first issued *English edition* read *last issued English edition*.

CON. O'GORMAN, White Lake. Will write to you shortly.

ANSWERS.

(99.) "The flocks of birds increased and were composed not only of sea-fowl, but of such land birds *as* could not be supposed to fly far from the shore."—4th Reader, page 47.

"The hopes of his companions subsided faster *than* they had risen."—4th Reader, page 46.

Parse the words *as* and *than* in the foregoing sentences.

The usual way to treat the first of the above sentences is to supply words thus, 'of such land birds as those are which could, &c.' Now at first glance this is very enticing, and seems very simple, but a close examination shows that it does not give the exact force of the original, and applying it to other

sentences, instances are soon found wherein it turns good strong sense into nonsense. The meaning evidently is, 'of those (kinds of) land birds which could, &c.' But does the English Language give any authority for supplying *those are which* after *as*, or have we here a confusion of constructions, *as* being used by mistake for 'which.' Turning to page 135 of *Abbott's How to Parse* we find:

As 'In that way,' 'In which way.'

(1) I have not such kind treatment *as* I used to have.

(2) Bring such books *as* you have.

(3) Parse such a sentence *as* this (is)

(4) Such *as* it is I give it you.

The Regular Construction would be (since 'such' means 'so-like' and is the Demonstrative corresponding to the Relative 'which' i.e. what-like):—

(5) I have not such kind treatment *which* I used to have.

Hence, in Shakespeare, we often find 'such' followed by 'which' and 'that' [Relative Pronouns]:

(6) Such an affection *which* cannot choose but branch.

(7) You speak to Casca, and to such a man *That* is no fltering tell-tale.

But (saw II) the Regular Construction in (5) is *confused* with—

(8) I have not kind treatment *as* (i.e. in the way in which) I used to have.

The result is the irregularity in (1) which is now recognized as good English. But while this process of "confusion of constructions" was going on, many idioms were formed that have been discarded,

and are not recognized as good English. We all know that it is vulgar to say—

(9) This is *the* boy as I saw yesterday.

Yet Shakespeare using 'as' for 'that' precisely in this way, writes—

(10) I have not from your eyes *that* gentleness
And show of love *as* I was used to have.

Hence we can explain the use of 'as' in parentheses, as follows:—

(11) So you are late again *as* (is) usual.

(12) *As* I told you before, you must work before you play.

In both (11) and (12) 'as' is used for the Relative Pronoun 'which' while the antecedents must be supplied from the context thus:—

(11) In full, 'So you are late again which (lateness) is usual with you.

(12) In full, 'You must work before you play, which (saying) I told you before.

HOW TO PARSE, Sec. 205--208. -

In connection with the above it must be remembered that *such* was a Demonstrative of kind 1; *this* and *that* (the latter originally a Relative) Demonstratives referring to the individual; *such* then was equivalent to 'of that kind,' 'of those kinds.' It will be seen that the sentence proposed is irregular; we cannot parse the word as it stands, but can merely point out the irregularity and explain how it arose.

Than. This also is a very simple sentence for the 'inner-consciousness' expounders. What simpler than "subsided *at a rate* faster than *was* *he rate at which* they had risen." Certainly nothing simpler except keeping the adverb *faster* for the adverbial phrase *at a faster rate*, and treating the sentence as it stands. (Try *more rapidly* for *faster* and explain the sentence as above.) Turning again to Abbott's *How to Parse* at page 276 we find;

"THAN meaning 'in which degree' 'whereas' may loosely be used like 'whereas,' and join together two sentences in which the *principal verb is not the same*."

The sentence really means

In what degree (whereas) they had risen fast the hopes of his companions subsided faster.

Consult *Mason's English Grammar*, Nineteenth edition, bearing in mind while reading that *that* was originally a relative pronoun, not a demonstrative.

104. The hour, minute, and second hands of a watch revolve uniformly on concentric axes, they are together at noon, how soon will the second hand be midway between the other two? When will the second bisection occur?

The rates of the hands are as 1 : 12 :: 720

Hence the rate of the line bisecting the *internal* angle between the hour and minute hands will be to the rate of the second hand :: $6\frac{1}{2} : 720 :: 13 : 1440$.

Hence the rate of the second hand will be to its gain on the bisecting line :: $1440 : 1427$.

Hence the angle swept over by the second hand in a given time will be $\frac{1440}{1427}$ of the angle it will have gained in the same time on the bisecting line.

But the second hand will be midway (externally) between the others when it has gained 30 second spaces over the bisecting line, it being then in the same straight line with it. This gain it will make while sweeping over $\frac{1440}{1427}$ of 30 second spaces =

$30 \frac{390}{1427}$ second spaces, and since it sweeps out a second space per second of time, these will be swept over in $30 \frac{390}{1427}$ seconds.

The second bisection which will be internal, will occur when the gain is one circumference, or 60 second spaces and this will be made in $\frac{1440}{1427}$ of 60 sec.

$= 1 \frac{13}{1427}$ minutes.

PROBLEMS.

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.

EDITOR'S DRAWER.

—We understand candidates will be admitted at the Ottawa Normal School on the first of January next, on the same conditions as at the opening of the session.

—We give place in another column to a communication from Mr. Ireland in regard to the multiplicity of female teachers. Mr. Ireland seems annoyed that so many female teachers are entering the profession and declares "That it is utterly impossible for a competent male teacher to compete successfully in salary against 3000 girls in their teens." We don't agree with Mr. Ireland in the matter of competition—we believe a *successful* male teacher can compete in salary with all comers whether girls in their 'teens' or boys in their 'teens.'

Proportionally, we believe that males are better paid than females. By Dr. Ryerson's report of last year, the average salary of males in cities was \$695, of females \$251; the average in counties of males was \$323, of females \$229; in incorporated villages of males \$468, of females \$122. The average increase in the salaries of males for the Province was \$35 per teacher and of females \$13. These figures do not show that males were unable to compete successfully with females.

Mr. Ireland objects that the same standard of qualification, is not required of both sexes. Excepting in Geometry the standard for both sexes is precisely the same. The Board of Examiners award certificates to both sexes on precisely the same percentage of work, and there is no "deference paid to sex" as Mr. Ireland would lead us to suppose. Indeed, if any deference is paid to sex at all, it is the males who get the advantage. Many Boards of Trustees readily engage a male teacher at an advance of many dollars per annum over a female, perhaps better qualified, simply because he is a male teacher. We have often seen female teachers imposed on in this way, and obliged to do a male teacher's full share of work on a much lower salary. In regard to the efficiency of female teachers there may be a difference of opinion among educationists, but our experience leads us to the conclusion that there are quite as many male teachers in the Province who do not earn their salaries as females. Incompetency,

we are satisfied is not confined to one sex. We see no reason why there should be a monopoly of salary or professional honors, particularly when there is no monopoly of all the virtues which characterize the good teacher.

—“The following Report from the Central Committee of Examiners, communicated in a letter from the Rev. Professor Young, the Chairman, has been concurred in by the Chief Superintendent of Education, and is published for the information of all parties concerned.

‘In re-arranging the programme for the Normal Schools, so as to adapt it to the new system of annual sessions, the Council of Public Instruction decided, in accordance with a recommendation of the Central Committee, that *English Literature, with its History*, should be substituted for the *History of English Literature*; but, as it is neither possible nor desirable to make a survey of the whole field of English Literature, during a single session, the Normal School course was to consist of a sketch of the literature of peculiar eras, with critical examination of one or more works in Prose and Verse.

‘The Central Committee, though they have received no express instructions on the subject, understand that it is their duty, in their Examination of Candidates for First Class Certificates, to meet the wishes of the Council in this matter, and accordingly they now request that the Chief Superintendent would, for the information of those who attend to compete for First Class Certificates, give public notice of the special eras in the *History of English Literature*, and of the works in prose and verse, which they intend to make the subjects of examination for July 1876.

‘They have selected a part of the works of four eminent authors, each of whom represents a different period in the literary history of England, and they purpose examining candidates for First Class Certificates on these selections as well as on the lives of the authors, and on the literary history of the period in which each author lived, with the causes to which the several periods owed their peculiar literary character.

The following are the works selected:—

- I. The Tragedy of *Macbeth*—*Shakespeare*.
- II. *Il Penseroso*—*Milton*.
- III. Ten Essays from the *Spectator*—*Addison*.
 - (i) No. 18. History of the Italian Opera.
 - (ii) No. 21. Divinity, Law and Physic, overburdened with Practitioners.
 - (iii) No. 68. On Friendship.
 - (iv.) No. 69. The Royal Exchange—Benefit of extensive Commerce.

- (v.) No. 81. Female Party-Spirit discovered by patches.
 (vi.) No. 112. A Sunday in the Country—Sir Roger at Church.
 (vii.) No. 159. The Vision of Mirza.
 (viii.) No. 239. Various ways of Managing a Debate.
 (ix.) No. 281. Dissection of a Coquette's Heart.
 (x.) No. 287. On the Civil Constitution of Great Britain.
 xV. The Lives of Milton and Addison.—*Samuel Johnson.*

While the Committee will attach due weight to a close study of these selections, they will consider it of far greater consequence that candidates should show themselves able to enter into the spirit of the authors read, and to appreciate the beauty of their style. They will prefer a knowledge of important facts and general features to the most minute acquaintance with details, if unaccompanied by an ability to distinguish what is important from what is not. Further, in order to impart a stimulus to the study of English Literature, and to improve the teaching of English throughout the Province, the Central Committee—acting as they believe, in harmony with the spirit of the regulations of the Council—purpose increasing the relative number of marks assigned, in the Examination of Candidates for First Class Certificates, in what may be termed the English branches. In future the number of marks allowed for Algebra, Geometry, and Natural Philosophy, will be 675 in all; and exactly the same number will be allowed for English Grammar and Etymology, English Literature and Composition.

—We commend the action of the Central Examining Committee in the course indicated above, as a step in the right direction. We have on previous occasions called attention through these columns, to the mechanical mode in which English literature was taught in our Normal Schools. The mere memorizing of noted authors and their works was the test of proficiency—a test which did not require anything like a critical knowledge, either of the author's peculiarities of his style, or the beauties or defects of his composition. To know that Shakespeare wrote *McBeth* or that Milton was the author of "*Paradise Lost*" was enough. But what was the plot in *McBeth*, or what were the peculiar beauties of "*Paradise Lost*" was too often lost sight of. We hope that with the design of thus particularizing certain portions of English

literature and imbuing the minds of students with a taste for perceiving what is chaste, beautiful and forcible in the writings of those selected for special study, will be developed a desire among our Public School Teachers for the perusal of the works of the founders of our literature. A great stimulus might be given to reading by early cultivating in our young men and women a love for the beautiful and refined in the composition of such writers as Addison, Shakespeare, Macaulay, &c. It is to be regretted with all the facilities for the acquisition of knowledge furnished by the enterprise of publishers, so much time is wasted, and so little progress made in storing the mind with the thoughts of the "great and the good" who have left the impress of their vast intellectual powers on the age in which they lived.

CORRESPONDENCE.

TOO MANY GIRLS.—It is utterly impossible for competent male teachers to compete successfully, in salary against 3000 girls yet in their 'teens.' Their redundancy is not only affecting men, but is reacting against themselves. Shall we leave the affair in the hands of supply and demand, or, shall we raise the standard of qualification far beyond what primary schools really need, and thereby rescind one-half of them? I believe the supply would continue to increase, till the emolument and dignity attached to teaching would sink below those of scullion girls in city hotels. A Central Board and one standard of qualification for both sexes, are two things needed. For what reason should a woman be allowed to undertake a man's work with less qualifications? If a man's qualifications are necessary for a certain work, how can a woman do it with less? If a woman's qualifications only, are sufficient, why not let her do her work with her qualifications? Why talk about expunging the third class males, while 3000 girls, barely equivalent to as many fifth class men, are permitted to remain? This deference to mere sex may be gallant and courteous, but I fear it is an expensive compliment.

JOHN IRELAND,
 Fergus, Ont.