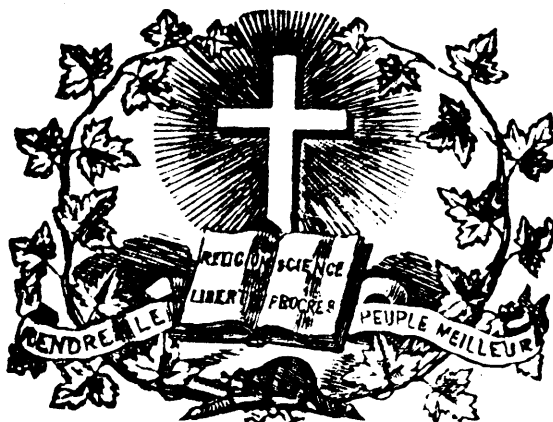


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minate the truths with which they themselves are deeply impressed. They can encourage the election of intelligent, efficient school-directors, who shall make a judicious but liberal use of the people's money. They can largely overcome the antagonism of tax-payers, convincing them that their money, by its wise use, has been transformed into a vital power for good.

Teaching is the most important part of school work; for it is of little consequence that we construct fine school-houses and furnish them with all the modern appliances which facilitate instruction, unless we have competent teachers to use them. We are daily becoming conscious of the fact that we are without any adequate supply of well-qualified teachers. This glaring deficiency is the burden of school-reports from all parts of the Union.

Let me here say that I would by no means disparage the labors of those faithful and conscientious teachers to whom we are indebted largely for all the good that has been accomplished in our schools. These teachers have brought to the profession eminent qualifications both natural and acquired, and natures largely endowed with love and Christian charity. They have struggled against indifference and opposition, and have accomplished a permanent and enduring work.

But if any class of workers in the world will have cause to rejoice in the good time coming, it is that of teachers. Yet among those who are to rejoice, I include none who dislike the vocation; none who teach because they must do something, and this is the least disagreeable employment they can think of; none who teach for purely pecuniary considerations; none who make a convenience of it to eke out college expenses or limited incomes from profitless professions; in short, none of those unlucky fellows, born insolvent to all inherent fitness for any thing, to whom teaching has been a mere make shift. I mean none of these, but only those noble, well-equipped and uncompromising men and women who, having resolved on faithful work, ample compensation, and fair appreciation, are determined to fight it out on that line if it takes a lifetime.

But the deficiency in the number of well-qualified instructors is not entirely the fault of teachers, since the question naturally resolves itself into one of political economy—that of supply and demand. In large portions of our country, a lamentable ignorance or indifference exists with reference to the character and ability

EDUCATION.

Extracts from an Address delivered before the County Superintendents of Iowa, by Hon. A. S. Kissell, Superintendent of Public Instruction.

The supreme work of this hour and of this generation is to create an enlarged public sentiment in the interest of education. How shall it be done? is the important question. Happily, we can all do something, but chiefly school-officers and those in authority can, by addresses and through the press, widely disse-

of the teachers. Any body can teach who can keep the children inside of four walls; and whoever will occupy the time of school-hours for the least money is sure of the position. With these people, education is a mere plaything, something with which to divert their children till they are old enough to be put to some profitable employment. Now what encouragement have such teachers to give time and money and preparation for the school-room? It would bring them no better position as teachers, no social distinction, no increase of salary, and what little income they did receive would be grudgingly given.

What is this but setting a premium upon ignorance? Recently the demand for good teachers is improving. How are we meeting this demand? The great State of Illinois, one of the leading ones in education, will furnish us an example. She is justly regarded as an example of educational progress, and she is certainly in earnest in making provision for better teachers. Her Normal University and County Normal Schools are crowded with teacher-students, who come flocking as doves to their windows, far beyond the capacity to receive them. Yet, we learn from one of her late school-reports that the annual increase in the number of her schools is greater than the annual number of graduates from her different normal schools. She has already 10,000 schools, and, by her own confession, only 1,000 thoroughly-qualified teachers. Now, Illinois employs over 19,000 teachers; deduct the 1,000 good ones, and you have over 18,000 teachers, none of whom are thoroughly qualified. The whole number of pupils drawing public money is over 800,000. This makes, as you will see, one thoroughly-qualified teacher for over 800 children. Only think of it! What a splendid soil for crime and pauperism! What wonder is it that we have so much folly and selfishness and civil strife, when we take so little interest in providing well-qualified instructors for our youth? But what can be done to remedy the evil? You have all heard of a king who, going to war, sat down first and considered whether he was able with only 10,000 to meet him who was coming against with 20,000. Now if this difference of 50 per cent was worth considering, what shall we think of poor Illinois as she goes into this contest against nearly a million with only 1,000 disciplined soldiers and over 18,000 stragglers in the rear? And yet we have faith in these 1,000 teachers. We believe they are the Gideon band that will put the hosts of Philistines to flight. But this is not her only disadvantage. The entire amount paid to her common-school teachers last year was \$3,592,643; allowing the 1,000 to be all male teachers, each receiving the highest monthly compensation paid by the state, \$250, their total salaries would amount to \$2,500,000. Deduct this from the whole amount paid teachers, and we have the round sum of over \$1,000,000, every cent of which was paid to these 18,000 unqualified teachers.

I have represented Illinois in stead of Iowa, because our picture would be too sad a one. For where she counts her good teachers by hundreds, we must count ours by tens. Many of her unqualified ones will compare favorably with some of those in our state who are regarded among our best, and her educational liberality in every department, when compared with our own, augments our insignificance. This being the case, you begin to wonder what you are to do to secure efficient teachers. Where are they to come from? They will come as soon as you are ready for them. When you invite a friend to your house, you do not expect him to eat and lodge with the servants. You do not dread his arrival, and take a long breath when he goes; but you set your house in order, and spread your table with abundance and the choicest of viands, and put your children on their best behaviour. You receive and entertain him with honor, and he goes forth with your benediction. This, is in some sense, what you are to do for your teachers. Enlarge your hospitalities. Establish your normal schools, attach to them ample and convenient living accommodations, secure the most competent instructors for them, and invite your teacher-students to this mental repast. Give them the opportunity of broad and generous culture on as easy terms as they now get homesteads on government lands, and make it

free to all those promising ones whose hearts are in the work, yet whose pecuniary circumstances are limited. Let all these young and ardent persons see that you regard them with respect, and give them the assurance that, as the instructors of your children, if they do their work well, they shall be liberally and amply remunerated. When you have done all this, you need ask for good teachers; you will be justified in *demanding* them.

A fruitful source of poor teaching is inadequate compensation. The income of many teachers, after deducting their expenses, is less than that of a common house-servant. It has been said "We say what grade of qualification we desire by the salaries we pay." Now we know in business that nothing demoralizes good workmen sooner than under-pay. The same principle holds good in teaching. For there is a law of equivalents in the moral as well as in the spiritual world, which will not be forced. If we disturb its harmonies, we produce only discord and confusion. To make the labor of the head and of the hand equal is to do this. It is to degrade the master and exalt the servant. Men of culture feel this, and naturally seek fields of labour where their abilities are recognized and their services remunerated. Our educators are yearly leaving the ranks for remunerative positions, and their places are being filled by those less competent, because, it is said, "we can't afford to pay higher salaries." This narrow policy extends to school-officers and district directors. The latter are required to perform school-duties gratuitously, and many of the former at starving salaries. County supervisors, legislators, county and state officers, constables, jail-keepers, are all liberally compensated; but who ever heard of a salaried school-board? We pay a street-cleaner, and give perquisites to the man who keeps the pound; but to pay a school-board—how absurd! And so through all the range of school-officers, from first to last; they are pinched to actual penury.

Do the people think that the way to keep a man honest is to keep him poor? to make him work without wages? Will dishonesty and bribery be any less a temptation because he owns nothing? Now what is our condition, as the result of this penny-wise policy which we have been practising? Our schools are not gaining in influence, and their progress is constantly retarded. Their moneyed interests are in a state of perpetual panic; for, whatever be the financial condition of the country, with them it is always hard times, and a crisis is for ever impending. Teaching has been driven from the business area and robbed of its professional character by making its labor unprofitable. This has destroyed its stability. Now, the moment you destroy its permanency, you dismiss the best and wisest workers, and open the vocation to adventurers of every kind. More than half of our public schools—nurseries of liberty, we are proud to call them—are to-day in the hands of novices and inexperienced young people. The majority of our population enjoy no other educational advantages than those offered by the public schools; and this business of developing the mental wealth of the nation, this work of laying the foundation of our moral and religious prosperity, we have given over to undisciplined boys and girls whom we would consider incompetent for the common business transactions of life. What do they know about that invisible, intangible power they are set to work upon? How can they discover the secret springs of virtue or the covered avenues where vice lurks? What ability have they to perceive the characteristic through which mind is to be reached? Their idea of the development of a child's mind is very much like their idea of a ball of butter—something to be patted and squeezed and stamped, and got ready for use. But if it be true that the foundation of character is chiefly laid in early life, if the tastes, the affections, are all shaped at the pliant period, if virtue can die and folly ripen even before maturity, if the seeds of right thinking and right living can only be successfully cultivated in childhood, what a terrible waste is all this labor! Its results are every where apparent in the incomplete character and insufficient lives of every one of us.—*Illinois Teacher.*

An English Master's (1) View of School Punishments.

In these days, it is difficult to know whether the subject of punishment should be approached with tears or laughter. There is something so comic in the reaction against the old-fashioned hang-draw-and-quarter-him process, which certainly was no laughing matter, that it is almost impossible to be grave. A school is pictured by some as a troop of little angels, eager to learn, more eager to imbibe goodness, all hanging on the lips of their still more angelic preceptors. If these celestials ever do need rebuke, shame is at once sufficient; and shame is produced by a gentle but piercing glance (all schoolmasters have eyes of forty-angl power): the victim retires to weep in silence, until he is ready to receive the forgiveness the thoughtful teacher yearns to give, and who is only waiting till the fourth pocket-handkerchief is wetted through to give it.

But in sober seriousness, this very difficult question merits the closest attention, is full of practical puzzles, and cannot be disposed of lightly, whatever the conclusion arrived at may be.

As a fact, a great school from time to time receives all the evil of the worst homes, as well as all the good of the best. What is to be done with it? The boys are sent to be trained: the angelic theory obviously will not work. The easy way of getting rid of the difficulty is to cut the Gordian not, and dismiss a boy directly, as soon as he gives real trouble. But if this is done, what becomes of the training? Clearly, the boys who are dismissed are not trained: neither are those who stay behind; for is this summary process likely to have a good effect, when they see every difficult case got rid of instead of conquered? Besides, boys know little of the future, and think less; if the present is unpleasant, they are almost always ready to leap in the dark—that is, bad boys are: and dismissal would soon lose its terrors for the bad in consequence. Moreover, boys are very jealous about justice, and there is a rude rough sense of what is just amongst them, that is seldom far wrong in its verdict. They will not consider this clearing process justice. No boy ought to be dismissed from a great school until he has given cause for judging that the school-power and influence will not reclaim him. The school is a little world of training, because good and evil are in their proper positions in it—good encouraged and predominant, evil discouraged and being conquered,—not because evil is rudely pitchforked out of it. This, if hastily done, destroys the true training power. There is no doubt that the getting rid of a bad boy at once, without trying to train and reclaim him, saves masters a great deal of anxiety and a great deal of loss. If masters consulted their immediate worldly interests, they would get rid of a bad boy at the first opportunity. There is nothing so disastrous at the time as keeping a bad boy. As long as he is in the school unreclaimed, he is putting their best plans and hopes in jeopardy—bringing discredit on his house and class, and risking their reputations. The more so, if he is really bad, more frequently than not, when in the school and after he leaves it, both he and his are vilifying everything there with an animosity that only disappointed evil can supply. All this protracted danger, and occasional heavy loss, is got rid of at once by the dismissal system; for much cannot be said in that case. As a part of ordinary discipline, however, dismissal is out of the question, being no training for those who are dismissed, and giving a wrong idea to those who stay behind. It is not right in a master to escape from a difficulty in this way. And it is a grievous injury to the boy, if dismissal carries with it the disgrace it now does; a grievous wrong to schools, if an abuse of this power makes it cease to be terrible. There would still remain the question where the dismissed are to go, and what Norfolk Island is to receive them, if the practice become common. How, then, is punishment to be inflicted?

The efficacy of all punishment depends, first, on the certainty of its being inflicted; secondly, on its being speedy. Severity

is quite a minor point, and may be very much disregarded in considering the main question. The deterring effect of punishment is by no means proportionate to its cruelty.

Certainty of punishment is the first necessity. On this turns very much the goodness or badness of the government as regards its treatment of its criminals. An uncertain government can never be sufficiently severe: it will proceed from cruelty to cruelty, and nevertheless fail to terrify. Such is human nature; let there be the slightest chance of escape, and ninety-nine men out of a hundred will run the risk, however great, for a very incommensurate temptation... On the other hand, certainty is conclusive. It acts as a complete extinguisher; whereas, great risks sometimes act as a stimulant. The difference between a good and a bad system of punishment, and a good and a bad master, consists in the vigilance with which wrong is detected and dealt with, the certainty of there being no escape for the wrong-doer. If the master is inattentive, no severity will prevent his boys from being idle and undisciplined; or if, being attentive, he is capricious, the result will be the same. *A good master does require to be severe, because he is certain.*

But certainty is not all: quickness of punishment is equally necessary. We need not look far for an illustration: it is certain that all men die; but yet, because the time of death is uncertain, and may be far off, this certainty has not the slightest effect on the lives of most men. They live entirely forgetful and regardless of it. Nay more, we often see during life, men wantonly incur a certainty of protracted wretchedness for a few short years or even hours of pleasure; the spend-thrift, for instance: the short time close to them being more in their eyes than the long time only a little farther off. Neither has the certainty of punishment any effect, in too many cases, if the punishment is not close at hand also. Indeed, cruel and lasting punishment hardens instead of training or reforming its victims, without in any way benefiting society, or deterring others. It is essential that punishment should be certain, speedy, and sharp, not cruel or lasting; for, however cruel or lasting the punishment will be when it comes, if it does not come quickly, a very slight temptation will in many cases entirely overbear all the remoter consequences. There is no accounting for such insanity, but it is the fact. Where fear is the only restraining motive, a severe punishment a little way off is no match for a slight temptation close at hand. There are, then, two great necessities in all forms of punishment. Punishment must be certain. Punishment must be speedy. Severity without this is always useless, and with it always needless—a bungler's attempt to make up for want of power and influence.

These considerations affect schools exceedingly, and in many ways. In their simplest form they amount to this. No school can punish in a satisfactory manner, where faults are likely to be overlooked and unnoticed, and punishment is occasional and capricious in consequence.

Before proceeding further, it will be necessary to see clearly what the object of school-punishment is. Now, school-punishment is not vengeance. Its object is training: first of all, the training of the wrong-doer; next, the training of the other boys by his example. Both he and others are to be deterred from committing the offence again. Hence, if training is indeed the object, no *useless* punishment should be inflicted, that is, no punishment which shall not have something in it beneficial in the doing. But, on the other hand, no punishments can be inflicted which take up much of the master's time. This cannot be wasted on offenders to any great extent. Tried by the first of these laws, the common school-punishment of setting a boy to write out and translate his lessons signally fails. It is not beneficial, but the contrary. It is wearisome without exercising the mind; this not good. It injures the handwriting; this is not good. It encourages slovenly habits; this is not good. It contains no corrective element, excepting that it is a disagreeable way of spending time. But time is very precious: a chief part of right training is the teaching a right use of time; wasting time, therefore, is not satisfactory in a good school. The one

(1) Edward Thring, M. A., Head-Master of Uppingham School.

advantage it possesses, and that is not unimportant, is this, it gives no trouble to masters, and does not take up their time.

Then comes the setting extra work; but this does not reach far. In the first place, if a school is really properly provided with work, there is something inexpressibly absurd in setting a boy to do more work because he can not or will not do the work he has already. This difficulty may, indeed, be partially got over by making the work not strictly additional, but by compelling a boy to spend more time on it. But this is only a partial remedy, for two reasons.

Beyond a certain point, and that a very early one, work cannot be compelled; you can make a boy sit in his room, but you cannot make him work; an idle or obstinate boy soon reaches this point: what is to be done, then? It is, moreover, an absolute necessity of the gravest kind that punishments, as has been stated above, should not take up too much of a master's time. These two reasons soon bring extra work to a standstill in bad cases. Learning by heart, perhaps, is the best form of work-punishment, as the task takes a long time to learn, and a short time to hear, is thoroughly useful, and cannot be evaded if done at all. But supposing it is not done, what then? All work-punishments with an obstinate boy soon accumulate and clog the wheels till everything comes to a dead-lock; the victim cannot do the accumulated heap, but if he does not do it, he is conqueror, and has baffled the master. Thus the range of work-punishments is narrow, and their power soon exhausted in difficult cases. Depriving a boy of part of his play-time is of some use, but health again prevents this being pressed far. For the same reason, depriving a boy of food, or putting him in solitary confinement, are both out of the question. Very heavy punishment, however, can be inflicted in a good school by taking away the privileges and liberties of the offenders. If severity by itself had any great power in punishment, this would be thoroughly effectual, but it has not, as has been shown above; and this kind of punishment labors under the defect of not being speedy enough, but often delayed for some time, till holidays and so forth occur. It is also too protracted; it keeps a boy too long in disgrace, and thus tends to harden. Still, this power of deprivation is very effectual, when wisely and sparingly used.

All kinds of public disgrace cut away the very root of good punishment, destroying self-respect, and making criminals, not mending them. Excepting in rare cases, as a deterrent measure for others, rather than corrective to those who suffer, public disgrace must not be thought of. Any one who studies the question will find that the range of good punishments is exceedingly limited. There are but few to choose from, and those few soon lose their efficacy by repetition; and though effectual enough in dealing with heavy and exceptional cases, they soon break down utterly under the daily wear and tear; and cannot resist the friction of many and constant faults, which are simply inevitable in the complicated difficulties created by many untrained wills and intellects requiring training. It follows, then, from what has been said, that if the school-work is slack and loose, it is easy to punish: a boy who is virtually doing nothing, can be made to do something; or if the beneficial effect of punishment is disregarded, tasks useless but vexatious can very easily be imposed. But if the school-work is sufficient and good, setting more work as a punishment is in theory absurd, and in practice very soon becomes impossible. In all these punishments, also, limited as their range is, there is an entire want of the great element of speed and decisive impression. Lasting torture is no substitute for a single sharp impression, even if it be thought wise to inflict lasting torture. For the above-mentioned reasons, flogging in some form or other is a necessity in a great school. It is certain, it is speedy, it is much feared, and yet is soon over.

The common argument that flogging is a degrading punishment to boys, will not bear investigation..... A school punishment is degrading for one of two reasons. Either it is in itself degrading, or it is degrading on account of the circumstances attending it. If a flogging is in itself degrading, as being an outrage on the person, it is manifest that in any society which considers an

outrage on the person degrading, there will be a total absence of blows, and every kind of personal chastisement. The idea of striking and of personal chastisement is of course utterly foreign to the boy-mind! No blows are ever struck in boy-society; boy never punishes boy by resorting to the ready fist! Now all this may be, and is, in many cases, very wrong; but this does not affect the question under discussion in the least: that question is not whether corporal punishment is wrong, but whether it is degrading in itself apart from the circumstances attending it. Whoever is prepared to say it is, may be a very wise man, but he has never been a boy. No boy ever feels the least mental infliction because he has been struck, or even kicked, by another boy, though the bodily infliction may be considerable, and the feelings with which the inflicter is regarded far from pleasant. The whole boy-life, from beginning to end, is so utterly regardless of inviolability of body, whether in play or in earnest, in fun or anger, that only theorists of mature age could entertain the notion of almost any form of bodily correction being in itself degrading. The circumstances which accompany or cause it, may certainly render it degrading. If received for gross offences, a flogging is obviously degrading; but then it is the offence that degrades not the punishment. This is a distinction often lost sight of, as if disgrace consisted in being found out and punished, and not rather in deserving punishment. It is disgraceful to be in prison, if prison means conviction for theft; but if prison means refusal to betray your country, is it not disgraceful. Whether flogging is disgraceful or not, therefore, obviously depends on the class of faults for which it is the penalty.

There is a general floating notion that flogging should be reserved for grave moral offences, to brand them with ignominy. Let us examine this.

It will readily be granted that every punishment of the young should be inflicted with a view to correct and train either the boy punished, his companions, or both. And still more readily will it be granted that no punishment should be needlessly severe; for, if there was no other reason, it would be a waste of power: and waste of power signifies the employment of means you may want for a great thing in a little thing, so that when the great thing comes there is nothing left to do; or employing the wrong means, as using a pen-knife to cut sticks, so that it will not fulfil its daily duty of pen-mending afterward.

Grave moral offences, lying, theft, and so forth, do not form part of the daily life. This is more important than it seems at first sight, for a daily recurring offence, by frequency, much increases the difficulty of punishing it, as punishment has to be provided not only with a view to a single occasional act, but to meet many acts and their growing power. Again, with the young, grave, moral offences, when detected, are felt keenly and bitterly, sometimes with exceeding bitterness; but in all cases conscience is roused to aid any right corrective, and there is great danger that wrong measures will deaden instead of improve boys fresh to sin. The object in view in all such cases is to assist conscience and the inborn shame, and to keep the impression alive as long as possible; whereas, in ordinary punishment, the direct contrary is the case: the punishment impression should be over as soon as possible, or the effect will not be good. Protracted feeling, instead of sharpness, is wanted in dealing with sin. Unless it is a wrong to society, as well as a sin, which may therefore require public acknowledgment and atonement, what end is served by a sharp and disgraceful punishment in the case of a boy who has sinned? A boy, unless hardened, ought not to have repentance made difficult, almost impossible, by public disgrace. If he is fit to remain in the school at all—for no school is bound to keep a rebel to its laws and spirit—conscience, and the bitterness of inward shame, make the task of punishment easy and utterly forbid public disgrace. A boy ought never to be allowed to think that masters can punish sin as they can intellectual or discipline-faults. Unless the society laws have been broken also, flogging a boy for a sin as a disgrace seems utterly subversive of the right object of punishment, namely repentance; and unnecessary, as quiet and more protracted punishments are

better; and a waste of power, as the first impression is strong enough without it. Ignominy cannot be good for heart-offences in the young, in a sphere of training. On all accounts, then, flogging should not be the punishment of sins.

The faults which principally call for the rod are discipline-faults and wilful faults. For instance, when a boy persists in coming late to school; when a boy is impertinent; when a boy, by wilful idleness, accumulates book-punishments until the work comes to a dead-lock. These and similar cases require the rod; the more so, as they are entirely in a boy's own power, and no one need incur the penalty unless he chooses. Thus, whether flogging is degrading or not, confining the punishment to voluntary and repeated offences, removes any reasonable objection to it, for it becomes a boy's own choice; whilst offences of this sort require a sharp and speedy corrective, as the temptations are constant and sometimes so strong as to be painful to resist, and a little counter-pain acts as a very salutary check. Moreover, the daily recurrence of opportunity very soon makes offences of this kind, unless summarily disposed of, become impracticable to deal with. And though often venial in themselves, taken singly, they are utterly subversive of all order, rule, and training when repeated, and the school would break up like snow in a thaw unless some decisive check is found. That there is sensitiveness about being caned is certain, but it is bodily not mental pain that causes it, unless it is administered on wrong principles and in a capricious way. Abstract the pain, and boys would not be troubled by the imaginary disgrace. If the real disgrace of shameful idleness, or repeated disobedience is despised, the imaginary disgrace of a flogging will matter little. The theory always imagines a sensitive, innocent, unlucky boy flogged, but the fact presents an impudent, idle, or guilty boy who has despised warning, as being flogged. All the evil of homes comes into schools, as well as all the good. School-life is real, earnest work both for masters and boys, and not a matter of rose-water theories. At one time or another, every evil that boys can do will have to be faced by the masters; and every temptation that boy-life is subject to, faced by the boys. This requires a strong government.

Moreover, one of the advantages of school is, that a boy finds himself there in a world of law and order, and constitutional rights and penalties, whilst still surrounded by friendly and loving influences; instead of under a despotic will as at home, however sweetened by love, and indeed identical with it. He will have in after-life to live by law; it is good that he should learn to do so early, and not to expect to find everything free from discipline, or hardship even. How much bitterness would be saved if the vagaries of undisciplined nature, which few neighbourhoods are without, had been checked in boyhood, when law could be applied to such childish ebullitions! Spoiled children of mature years are like grit in the wheels, both in society and in public life.

For the reasons which have been mentioned, caning or flogging is an absolute necessity for working the ordinary discipline of a school well. But certain precautions should be taken against its being hasty or unjust. No caning or flogging ought to be inflicted at the moment the offence is committed; or by the master under whom it is committed. The headmaster should have the unenviable prerogative of inflicting it in all the more important cases. A lower master should be empowered to do so for petty offenses in the lower classes. It should be inflicted at one stated time, and in the presence of all who choose to witness it. These are necessary safeguards against temper and haste. Even where there is no doubt about the offence, the question often is, not what a fault *deserves*, but what is best for the culprit and the school. And a little reflection will often decide, that what is best, is an entirely different thing from what is deserved. Be this as it may, whatever are the opinions on this subject, it cannot be disposed of in a hurry by a whiff or a sneer. The whole question of punishment is full of difficulty, and must meet with earnest treatment from every wise and practical man.

It would be easy to draw a very true and not very bright picture of boys and the difficulty of dealing with them, but it is our purpose to show a trainer's duty, rather than his trials. Nevertheless, it would be well to bear in mind that no words can exaggerate the spoiled nursery-temper, the selfishness, the indolence, the low morale, the carelessness of consequences, the transcendent folly of some boys, united with a conceit coextensive with their folly. The power of not learning, too, is quite a gift, which must be experienced to be credited; the power by which boys, and not bad boys either, will daily be brought in contact with knowledge to no purpose. How, like the children's toy, the same rabbit is moved by the same wires, into the same mouth, down to the same stomach, of the same wooden bear, *ad infinitum*, always swallowed, never digested, a perpetual revolution of purposeless seeming feeding.

And in the matter of punishment, practice brings to light that the choice of wise and effective punishment is very limited; whilst serious mental mistraining may easily be brought about unawares by bad punishments, which produce habits of slovenly work and haste, and distaste for writing and reading. At all events, exceeding waste of time is often the result, though the main object in life is to learn never to waste time. And all this takes place, because men are seeking to avoid a phantom, dressed up by popular opinion to be knocked down and abused.

Grave professional questions are sure to be full of practical difficulties, requiring experience and knowledge to estimate and deal with them. Indeed, most frequently, in actual life and practice, there is no actual good possible: a choice of the least evil is the only thing open for the wise man to make.—*American Educational Monthly*.

Mr. Huxley and Scientific Education.

In a recent number of *Macmillan's Magazine* is contained a speech by Mr. Huxley, in which he criticises with much vivacity the modern system of education,—not, however, without showing in what way, in his opinion, it might be improved. Whatever Mr. Huxley's views may be, enemies—and we expect he has not a few—cannot but admit there is no atom of fear in his composition. What he thinks he speaks; and that with no feeble or uncertain sound. There is in him a genuine English hatred of cant and untruthfulness in all its phases, whether scientific or religious, that has rarely found such vigorous expression; and if he sometimes wounds the sensibility of the pious, he at least commands their respect by his earnestness. Perhaps, on the whole, it is fortunate for him that the hierarchy are restrained from ecclesiastical retaliation, or we fancy he would long ago have been chewing the cud of sweet and bitter fancy in the Lollards' tower, and might even now be placed on the rack, for the amusing division of the clergy, in the present speech, into an immense body who are ignorant and speak out, a small proportion who know and are silent, and a minute minority who know and speak according to their knowledge. Passing, however, to the main point of his speech, we find Mr. Huxley urging most strenuously the introduction of a systematic culture of science into our schools. The recent inquiries that have been instituted for the purpose of ascertaining the general results of school education, and the experience of all examiners on this point, are most uniform, and, we are sorry to add, most lamentable. They all tend to show that the amount of knowledge obtained by boys of from sixteen to eighteen years of age on leaving school is almost *nil*, and that which has been acquired is eminently unserviceable in after-life. A smattering of Greek and Latin, which does not enable him to translate the simplest sentence of his mother tongue into those languages, or to give the derivation of a single scientific term—the merest modicum of mathematics—and a jumble of history and geography, or none at all,—is about what the average boy has acquired when he is removed for the purpose of entering one of the professions. Is it extraordinary that each generation makes such small advances on the prece-

ding? And might we not ask, with Lord Bacon, whether we "are the richer by one poor invention by reason of all the learning that hath been learnt for these many hundred years in schools"? Instead of such work as this, says Mr. Huxley, let every child be instructed in those general views of the phenomena of nature which would teach him what is on the earth and in it and about it; and after he has become familiar with the use of the tools of knowledge—reading, writing, and elementary mathematics,—let him pass on to what is in the more strict sense physical knowledge, as botany, chemistry, and elementary physiology, on the one hand; and physics—*i. e.*, natural and mechanical philosophy—on the other. Surely this is both sensible and practical. Is it not better to teach a boy, at the period of his life when his powers of observation and his memory are the keenest, what he would regard as a pleasure rather than a task, and which would eminently fit him, by truly educating his mind and giving him comprehensive views of the outer world, for any career he may subsequently select,—than to teach him that which is so dry and unpalatable that he detests it from the bottom of his heart, that he never half acquires, that demands the intelligent appreciation of much riper age to perceive its value, and is then acquired in one-tenth of the time? Mr. Huxley's observations on this point are excellent:—"The great peculiarity of scientific training," he says,— "that in virtue of which it cannot be any other discipline whatever,—is the bringing of the mind directly into contact with fact, and practising the intellect in the completest form of induction; that is to say, in drawing conclusions from particular facts made known by immediate observation of nature." But such training should be real. The teachings of books, if not discarded, should be strictly compared with the objects themselves, and nothing should be taken for granted. The chief difficulty that strikes us in the matter is that which occurred to the old Scotch lady, who exclaimed, when she heard of the introduction of gas, "What is to become of the puir whales?" What is to become of the present race of schoolmasters?—*Lancet*.

STUDY.

(Concluded from our last)

A few practical suggestions on subjects of study and the use of books, will still further illustrate our subject, and serve to set forth some special modes of study.

First, as to *Subjects of Study*. There is a kind of advice often offered with which we can go but part of the way. It is based on the fact, that although all minds are alike in their general features, yet there is a great diversity among them as to the strength of particular powers. Hence some are fitted to excel in one thing, and some in another. Hence the advice to give your attention chiefly to those things in which you have a reasonable prospect of excelling. Now, this is good advice with a limitation. If what has been said about the inertia of mind is true, then your dislike of a subject may proceed from this, and not from any inaptitude in yourself. Hence, you may carry the maxim of considering your idiosyncrasy too far. Such a rule may become a mere screen of indolence, a mere excuse for idleness. You should hesitate to reject a good subject because you do not like it. You should bring yourself to like it. Be determined to like it. Work at it till you like it. By doing so, you will be preserved from an exaggerated estimate of any branch of study—a fault to which those are liable who confine themselves too exclusively to a particular class of subjects.

A second remark on the choice of subjects is, you must remember that there is the same difference in them as in food, some are more nourishing than others. The same remark applies to authors. Two men, dealing with the same subject, do not in a given time set forth the same amount of aliment. Be careful then, not only that the subjects are nutritive, but that the authors are stimulating.

While on this point, let me say, that if young men would form the habit of study, they must not read easy literature, books that demand no effort, such as many of the serials, and most of the fictions in circulation. Nor must they read much of ephemeral interest, like the 'leaders' in newspapers. When they do such things, it should be as a relief from things on hand, which require a long and heavy pull.

A third remark is, avoid books that profess to give royal roads to learning, that put forth pretensions of making things easy, which they usually do by leaving out the difficulties; so that the student who trusts to them, often finds that he has not only not mastered the subject, but has laid up difficulties in the way. The only way of making a subject easier is by having it treated on a good method and in a careful graduation. No one ever becomes a student by shirking difficulties. But many are prevented from attaining what they might by aiming at too much at a time. Let us take a lesson from the way a judicious mother trains her little one. Not able to walk, he is laid on a carpet, and a ball or other plaything is placed where the child, on full stretch can touch it with the tips of his fingers, and he is then encouraged to stretch and stretch until the prize is grasped. So do you. Let there be a subject that you can just touch as it were, with the tips of your mental fingers, and then make effort after effort till it has become your own. Or, to vary the figure, bring to the pedestal that you are building for yourself, not rubble and slush, but large, massive, well cut stones, that require all your strength to lift and carry, and an extra effort to put them in their place.

Another important thing is to approach each subject of study from the proper stand point. Students of any subject are of all grades. Some are novices, just entering on the path; others have advanced on the way; while others have completed the course. Now there will be found in the world of literature books to suit each class, and it must be obvious that some that would be very proper books for one class must be very unsuitable for another. There are few things so necessary for young men as getting the right books, or beginning at the right point. There are many books and many subjects that cannot be studied, until other books or other subjects have been mastered. *e. g.* Some of Emerson's writings or of Carlyle's, must be either unintelligible or very misleading, to such as have been unprepared to grapple with them by a previous course of psychological, ethical, or other study. Such writings have often a fascination about them to a certain order of minds; but it is a fascination growing out of what they do not understand, for many admire in proportion to their want of comprehension. But really the conduct we now condemn is as silly as would be that of a French lad wishing to learn English, first addressing himself to the pages of Milton or those of Locke.

Now as to the *Use of Books*. First, do not be ambitious to read many books. It is not the amount of his reading that makes a student, but the quality. Two evils flow from reading many books. One is in the habit of passing over a book to see what is said, rather than to examine its truth. So that reading becomes a device for passing away time, instead of an instrument of personal improvement, while of such a practice we may say with Butler, 'that there is no time spent with less thought, than great part of that which is spent in such reading,' and the consequence almost invariably is, that the reader of many books has a much lighter mind, and one not nearly so vigorous as the reader of few. That is, one good book thoroughly mastered in a given time, yields more than a dozen read through in the same time.

But another evil grows out of the practice of reading many books cursorily, rather than a few well. There comes not only the indisposition to read with thought, but the inability to do so. The mind gets burdened, the faculties get clogged, and the effort to move is as vain as it would be for a gymnast, whose limbs were shackled with heavy weights. Perhaps no better instance could be adduced than that of the late Mr. Buckle. For quantity of philosophic and scientific reading, he perhaps never had his equal. Every page of his writing is crowded with indications of his vast lore; at the same time, there is abundant evidence of the want of power of real thought, often ludicrously shown in

statements that prove he had not caught the sense of the author on whom he is animadverting, or the principles of a system on which he is dealing out sweeping condemnation.

Second, avoid *fast* reading, that which springs from the desire to get through a book, and which in operation is an obstacle to that careful and attentive reading, without which you had better not read at all. To young students we would say, that no book is worth reading, that is not worth reading three times; and for the young student we would lay down the rule that every book should be read three times. After reading a book, you should be able to give its general scope and mode of treatment. You should be able to state anything that the author holds, to recal the places where it is treated, and to show how it is illustrated or argued; and you should be able to state the grounds on which you assent to his views or dissent from them. Now we hold that these three things are, for the young student, best pursued separately. Hence we would have a book first read through consecutively with attention. At the end of every three or four pages, the reader to close his book and review what he has read; and also frequently to write from memory a synopsis of what he has read, with occasionally a fuller statement. At the end of a chapter he should do the same, and also at the end a part or book, if his author has so ordered the treatment of his subject. After going through a book in this way, we would have the student read it by its index, and if the book has no index, let it be a part of his plan in the first reading, to make one. Reading by the index brings before the student all the places where a topic is treated, and helps him to form correct opinions of his author's views. Often by this means, obscurities are cleared up, weak points are strengthened, and what may have appeared objectionable, does not remain so. After thus making himself master of what a book contains, the higher end remains—to sit in judgment upon it—to read it as a critic—to examine its statements and its arguments—to take it up sentence by sentence, and paragraph by paragraph, in order to test the truth or falsehood of its contents, or the conclusiveness or inconsequence of its arguments. In doing this, two rules should ever be present to the mind. First, while we avoid a captious spirit, we must not be too hasty to accept what we read; for an indispensable rule in study is to hold the mind in doubt, to put one's self in the position, not of an antagonist, but of one who wishes to find the truth, and not merely to be convinced. If this is not done, there is the danger of passing over too readily weak arguments, or of accepting conclusions on insufficient grounds. A second rule in reading is, not to allow ourselves to be too much influenced by authority. That a person who has given much attention to a subject is in favour of it, is a reason and a very strong reason why we should hesitate to reject it—why we should hold our judgment in suspense, but can be no reason for our accepting without sufficient proof. It may be that the proof is complete, that it is irrefutable, but if it is not to us, it is not truth to us.

Finally, to the right use of books, we must read by topics. No mode of study is more valuable, but it can be only indicated. All science or knowledge is distributable into certain and uncertain, the first including all those subjects in which the most perfect reliance can be placed on the process and on the result; the second comprising all other branches of human investigation—many of them being of the utmost importance to human well-being.

Now it is well to understand in what the uncertainty of these things consists. It does not exist in the things themselves. For instance, it may be uncertain to you or to me, whether the ground of moral obligation is in the fitness of things or in the will of God? but there can be no uncertainty in the thing itself, it must be either in one or the other; that is, it must either be true that a thing is right because God wills it, or that God wills it because it is right. Hence, it follows that things that are absolutely certain in themselves, are uncertain to us, either because of our inadequate knowledge, or because our powers are inferior to the task.

But besides these grounds of uncertainty, there are others proceeding from the medium in which truth is investigated or communicated. That medium is language. Now language, except

in the certain sciences, is never a fixed or a constant quantity, For no two men does any one term contain precisely the same thing. Hence it is always uncertain in reading any book whether you have got all the meaning or the precise meaning of the author.

It is in the light of these acknowledged facts that we hold there is no better plan to approximate towards truth than to do, what we have called reading by topics. Suppose for instance, you are a student of theology, and let us further suppose that you are going to master the arguments for the existence of God. Collect all the books you can that contain this, or part of this argument. Then, as the complete argument embraces several distinct points, take one of these points and work it up through all your authors. Bring together all they say. Compare every statement, every assertion, and every piece of reasoning. You will find as the result, first, that your mind is clear on the point itself. You have been saved from half-notions, from vague notions, and from mistaken notions, because one author has helped you to correct or supplement another. Secondly, you will find yourself in possession of an impregnable position, which you may use as a post for a further advance. Thus proceed with every point, until the whole argument has become your own.

In bringing this address to a close, we may just notice a few subsidiary aids to the formation of habits of study. It is well to have a subject of thought, independent of regular reading, kept before the mind, and taken up in the intervals between more regular labour, and then when the subject is fairly familiar, to have these thoughts arranged into some order and committed to paper.

Many young people require the aid of external stimulus to keep them at work, For these, the practice of several studying the same subject, and meeting together to compare results, is commendable. Of the same nature, and having the same purpose, is the practice of working examination papers. Hence one could wish for the advantage of the younger members of our Association, that a system of examinations might be established,—leaving each to read any books within his reach, but fixing the topics beforehand on which the papers would be set.

As the mind gets wearied by attention to one subject, and is refreshed by change, it is well to have several subjects on hand, and to give daily a fixed time to each.—*Papers for the School-master.*

L I T E R A T U R E .

MARCELLA.

What it wrong, dear Lady Abbess,
That I spent the night in prayer,
That the Rosary you gave me
Numbered every bead a tear?
I but wept until the Watchman
Passing in the street below
Slowly chimed the midnight *ave*,
Then I gave to God my woe.

Thrice I sued the Saints for slumber,
Still I could not keep away
From the narrow window facing
The little Chapel where he lay.—
Where the funeral torches flickered
Through the ever-opening door,
As around their silent Poet,
Pressed the throng of rich and poor.

Yes, I meant to sleep, dear Mother,
But morning came so soon,
As I watched that lighted Chapel
Shining back upon the moon:
Once, methought I lay beside him,
'Neath the sable and the gold,
Bending o'er my minstrel Father
As I used in days of old:

And a light—the same that trembled
 O'er his lips and o'er his brow
 When he sang our San Isidro,
 With the Angels at the plow—
 And a smile—the same that shone there,
 When he bade the Mother Mild,
 Hush the wings that shook the palm-trees
 Rustling o'er her sleeping child....!

Oh, 'tis hard that all may follow
 The mute Minstrel to his rest,
 Save the nearest and the dearest,
 Save the daughter he loved best !
 I alone, his own Marcella,
 Cannot touch dead Lope's bier,
 Cannot kiss the lips whose music
 None but Angels now may hear !

Still I feel, dear Lady Abbess,
 You will grant me what you may ;
 Since your smile first hailed me Novice,
 It is fourteen years to day :
 Have I shrunk from fast or vigil,
 Have I failed at matin bell,
 Have I clung to earthen image,
 Since I bade the world farewell ?

Nine long days I've heard the tolling
 Of the bells he loved to hear,
 Nine long days I've heard the wailing
 Of Madrid around his bier ;
 And to day, he will be buried,
 For I catch the deepening hum
 Of the people, and the stepping
 Of the soldiers as they come.

Never once I begged you lead me
 To the consecrated place,
 Where, between the triple tapers,
 I might gaze into his face—
 Grant me, then, sweet Lady Abbess,
 Only this—but this, alas !
 'Neath Marcella's cloister window
 Let her father's funeral pass.

Not one look, not one, I promise,
 For the Princes in their might,
 For the war-horse proudly curving
 To the spur of sworded Knight :
 Though all Spain in tears surround him,
 I shall know her Minstrel dead
 And my eyes—they will not wander
 Far from Lope's silver head.

Look, the Chapel doors are parting,
 See the lifted torches shine
 And the horsemen and the footmen
 All the swarming pathways line.
 Can it be.... these poor tears blind me.... ?
 Ah, you know what I would pray,
 And have granted ere I asked it—
 Yes, they come—they come this way !

GEORGE H. MILES.

SUMMER DYING.

BY W. C. HOSMER.

Beauty is waning, a voice of complaining
 Comes from the hill side and dell ;
 Dirge notes are ringing, and crickets are singing
 To summer a song of farewell !
 Day brightly closes, and where are the roses
 June wreathed with her tresses of gold ?
 Soft winds are sighing, where darkly are lying
 Their rain-beaten leaves on the mould.

Sadness comes o'er me, for barren before me
 Lie fields that I loved when a boy ;
 No more in the shadows of oaks on the meadows
 Stout mowers their nooning enjoy.
 The stubble, how lonely ! weeds shooting up only
 Where grain clothed the generous soil,
 And reapers were swinging their cradles and singing
 Blithe strains to enliven the toil.

Cattle are wading, where willows are shading
 The low shallow bed of the stream ;
 Thistledown floating, is sadly denoting
 That summer will pass like a dream.
 The harvest moon sailing through mist, is unveiling
 Her disc like a blood-painted shield.
 While school-boy and maiden, their baskets full-laden,
 Hie home from the blackberry field.

Dark swells of ocean, with long measured motion,
 Moan, as they break on the shore ;
 Airy tongues wailing, for beauty's cheek paling,
 Chime in with the desolate roar,
 Stars have grown dimmer, less dazzling the glimmer
 Of fire-fly lamps on the lawn ;
 Flower cups unfolding, are honey-drops holding,
 But light from the landscape is gone.

Throned on the thistle the bobolink's whistle
 Made cheerful the meadows of June ;
 Mead larks saluting the morn with their fluting
 Replied to his rapturous tune.
 Hoarse crows are calling and first leaves are falling,
 But still a mild loveliness reigns ;
 A sweet haunting sadness, though vanished, a gladness
 And glory from nature remains.

Life in North Australia.

According to an interesting account in the columns of a Brisbane paper, there is no reason to suppose that the work of colonization is more difficult in North Australia than it is in other parts of the continent. A writer who has had considerable experience in the Gulf country, and who is familiar with its climate and resources, gives a very favourable description of its prospects and affairs in general. He says the appearances of the country round the Gulf are very similar to the descriptions given of the large Pampas of South America. For hundreds of miles the traveller may wander over immense plains, seldom timbered except along the banks of the rivers. Sometimes the coarser grasses, which extend inland for 100 miles, grow higher than the head, so that it is difficult to distinguish a companion at the distance of a few yards. But in addition to this grass there is a " beautiful short and mixed herbage, sweet and as nourishing to stock as the best oaten or lucerne hay, and, to tell the truth, very nearly as dry ;" for it is stated that three months after the wet season the grass has ceased to be such and has become good hay through the drying effects of the tropical sun. This hay is highly nutritious, and strangers who visit the district are surprised to find that instead of their horses falling off from the dried up state of the country, they begin to improve in firmness and condition.

With regard to Sweer's Island, which is situate in the Gulf of Carpentaria, and which is fast becoming an important trading depot, this writer describes it as a healthy and pretty place ; and thirty miles N.N.E. from Sweer's Island are situated the Beautiful Islands, which are said to swarm with unlimited supplies of turtles and oysters. With regard to the climate of North Australia, the experience of this writer is that the seasons are remarkably regular. A man, it is said, who has lived a few years in the Carpentaria district can judge with the greatest precision as to the weather. From the beginning of March to the end of November is the dry season. During this time there is scarcely any rain, the water-holes begin to dry up, and towards the end of this season the grass becomes exceedingly sapless. The squatter then begins anxiously to look for rain, and stock begin to fall off in condition. Towards the beginning of November, however, thunder-clouds appear on the horizon nearly every evening, with many threatenings and promises of rain. But none falls until after a few weeks, when the wet season sets in earnest, and then the country is deluged. Speaking now more particularly of the immediate neighbourhood of the Gulf of Carpentaria, it is said that when the rain begins the traveller must stop where he is, unless, indeed, he can find a river to float down, as Mr. McKinlay did. The teamster sometimes for two months at a stretch has to live on the top of his dray. For miles around him the country is covered with water, and he must manage to live on the rations with which he was returning to the station ; or, if caught in the rain whilst going down with wool, he must live as best he can on pigweed and other vegetable dainties. " This," it is said, " is no coloured sketch ; it is the truth. All communication by land is cut off ; it takes a bold man with pressing business who will now venture to travel, even if he be able. The chances are, if he makes the attempt, that his beast is frequently bogged ; he has then to walk and drive his animals. He may have to wait days, nay weeks, for the subsiding of a stream, only to find

after crossing it that a few miles—say ten, fifteen, or twenty—bring him to another independent watershed, which is still flooded, and the tedious task of waiting commences again. As a rule, therefore, a business in the Carpentaria district must be transacted during the dry season, and then the settler shuts himself up, and if he has nothing better to do, watches the grass grow at the rate of about an inch per day after the first fall of rain. Towards the end of January the roads become passable again, and the bushman begins to be tormented by musquitoes and flies, which tease him day and night.

But in spite of these drawbacks, the writer states that no healthy man or woman need be deterred from living in the country, for "people who live according to reason may remain on the Gulf as free from disease as in most parts of Northern Queensland." The rain and the heat are undoubtedly troublesome; but there is a season which the writer describes as being very fine. He says, "by the time we have arrived at the end of April the sun is a long way north. The days and nights are pretty equal in duration; blankets are in demand for the nights, and thick Crimean shirts for the days. The flies are becoming less troublesome, the mosquitoes have been driven back to their native swamps; king ague is leaving the bones, the bushman grasps his axe, and feels himself every inch a man, and flatters himself he can do as good a day's work as ever. The meat is young and tender, and his appetite is excellent, and if not he takes a little quinine, which puts all to rights. The flocks and herds are increasing in numbers, and are in splendid condition; the squatter looks forward to a good lambing, and consequently is in excellent spirits, and so all goes merry as a marriage-bell."

As regards the industry and resources of the district, it is stated that shearers, shepherds, and bushmen can obtain the highest wages there that are paid in the Australian colonies; that stockholders on the look-out for a grazing country may find it to an enormous extent and of excellent quality; that the country is by no means badly watered, and that the wet seasons are always wet. But as regards agriculture, it is admitted that in the neighbourhood of the Gulf "the district does not come out very strongly. The country along the shores of the Gulf that is open to the agriculturist or selector is totally unfit for any, even the meanest, form of agriculture; two-thirds of the belt of land is unavailable for any purpose, even grazing, being nothing but low mud-flats, inundated by the sea during the summer months, and being intersected by a complete network of saltwater inlets. The remaining third, though suitable enough for grazing purposes, is totally unfit for agriculture, being for the most part open plains, with a stiff clay soil."

But the mining prospects of Carpentaria seem to be very promising. It is said that the Great Australian Copper Mine, lately opened by Messrs. Sheaffe & Henry on the head of the Cloncurry River, is the richest copper-mine in Australia. The whole of the ranges at the head of the Cloncurry are said to be more or less copper-bearing, and the ranges on the Gregory River are described as being rich in copper ore.....

These particulars relative to the country which lies adjacent to our own Northern territory, are at all events encouraging as to the resources of the place; and then, instead of there being so much disorder and drunkenness as spoken of by former writers, it is said that "it would be a difficulty to find in any part of the colony (Queensland) a more orderly and decent population."

—*Adelaide Observer.*

SCIENCE.

The Eyesight and the Microscope.

BY HENRY J. SLACK, F.G.S., SEC. R.M.S.

I have lately heard of several cases of persons purchasing microscopes, and soon becoming afraid to use them, lest they should permanently injure their sight. Now, if the instruments they used were of even moderate merit, the fault of not seeing objects comfortably lay entirely with themselves. It often happens that a beginner with a microscope operates chiefly with transparent objects, and floods the field with excess of light. Any of the paraffin lamps in ordinary use for microscopical purposes, of such excellent oil lamps as those which Mr. Pillischer supplies, give an immense deal more light than is wanted to exhibit any ordinary objects properly, either by transmitted or reflected illumination, and when this light is concentrated by a bull's-eye, and reflected by the stage mirror in full blaze, it is by no means wonderful that the eye is speedily fatigued. A few objects may be advantageously shown under brilliant illumination, for the display

of remarkable beauty in the variety of colours they present. The wing case of the diamond beetle and iridescent minerals belong to this class, and they should be viewed as we look at flashing fireworks, or the lustre of jewels, for a brief space only, and not in a prolonged stare. As soon as it is desired to make out details of their structure, the light should be reduced to a moderate pitch.

There are microscopic difficulties which involve prolonged effort to decipher obscure markings, or indications, with which beginners should have nothing to do, and which experienced microscopists must cautiously deal with if they value their own natural optical apparatus. Men who will sit up night after night, poring for hours over vexatious diatoms, have no right to complain of the microscope if they experience a deterioration of vision. Had they spent the same time in attempting to read very small print in a strong blaze, they would have been equally successful in wearying their visual organs. Such practices are an abuse of the eye, to which, no doubt, a penalty is attached.

The perfection of microscope work consists in its imitation of natural vision. The instrument should extend the range of action of the eye upon small objects; but should not—except for brief purposes of display—materially alter its character. Now, the first thing to be attended to is to keep both eyes open, whether the microscope be used for single or binocular vision. It is unnatural for two-eyed people to shut one eye, and then make a prolonged observation. There are occasions on which it is very desirable to shut one eye for a few moments, as in taking an accurate aim with a rifle, but with the microscope, or telescope, all that is necessary is to acquire the habit of paying attention to the impressions made upon the eye which looks through the instrument, and to disregard what the other may see. Some people have no difficulty in so doing, while others can only succeed if assisted by a little contrivance which many observers have long employed. I mean a shade covered with black cotton velvet, of which several forms have been devised. The simplest, which I have used for many years, is made of a piece of thin cardboard about as big as a small quarto page, covered with black cotton velvet, and pierced with a hole through which the tube of the microscope, just below the eye-piece, is introduced. I have found that everyone upon whom I have experimented, and who felt it difficult to keep both eyes open, and only look with one, could easily accomplish it by this means. There is no doubt that the eyes suffer considerably from the common practice of closing one, while looking through a microscope, or telescope, for any length of time, with the other, and it is, therefore, well worth while to acquire the more prudent habit I have described.

The next point to be considered is the method of modifying the light, and diffusing it agreeably through the field. When artificial light is employed to show transparent objects, it is rarely advisable to throw it as it comes from the lamp, or the bull's-eye, direct upon the object. For low powers and large objects, the best contrivance I know is one which Mr. Browning made by my direction a few years ago. It consists of two discs of glass, ground on one side only. The two ground sides are placed in contact, and the edges cemented, to keep them in position and exclude dust. A freshly ground surface of good glass is remarkably pleasant to the eye; the cool dead white appearance it gives to transmitted light is very agreeable, but its performance is deteriorated by handling the ground surface, or by impact of dust. To keep the surface in a fresh state I adopted the method just described, which works excellently with 4-inch, 3-inch, 2-inch, and 1½-inch powers. For two-thirds and half-inch powers, and smaller objects, I take an ordinary slide, and place in the middle of it, on one side, a piece of white foreign post paper, as wide as the slide, and place in the middle of it, on one side, and about an inch long, saturated with spermaceti, and covered with a piece of thin glass, to keep it clean. A few thin chips of spermaceti are placed upon the paper, and melted into it over a lamp. When this spermaceti-paper slide is employed, the side bearing the paper is turned downwards, and the slide carrying the object placed on the uppermost side. By this means the texture of the paper is kept out of focus.

Those who have an achromatic condenser should use the small stops to moderate the light, as well as to obtain sharper vision. I have recently been in the habit of placing below the condenser a modification of Mr. Rainy's light moderator, which Mr. Browning made to my pattern with some excellent grey glass in his possession. This apparatus consists in a short tube fitting into the sub-stage of my microscope, and capable of going under the condenser, or of being used without it. The bottom of this tube is covered by a brass plate, with a round hole in the middle. Two brass arms, moving upon a pivot, carry two discs of the grey glass, and one or both can be turned so as to cover the round hole, and moderate all the light thrown up by the stage mirror. This contrivance is very effective in reducing glare.

Mr. Collins makes a good moderating diaphragm, by which the

aperture through which the light comes can be enlarged, or reduced to a mere point, at will. Messrs. Beck have adapted to the microscope a very elegant *iris diaphragm*, imitating the action of the pupil of the human eye, and preserving a nearly round aperture, whether dilated or contracted. These instruments have a double use. They enable the quantity of light to be nicely graduated, and thus save the eye from fatigue, and they permit us to observe with great delicacy the varying degrees of transparency different objects, or different parts of the same object, possess.

With diatom markings, and many other objects, a plan just introduced by the Rev. J. B. Reade, F.R.S., President of the Royal Microscopical Society, will be found very valuable as an aid to distinct and pleasant vision. He places below the object an equilateral prism, with one side parallel to the object. The light is thrown on to another side, by means of a bull's-eye, in parallel rays, and being reflected by the third side of the prism, enters the object with moderate obliquity. It is not easy to explain why this illumination is so remarkably effective as it is found to be, but no one who has seen it in use can avoid being at once delighted and surprised.

There are many objects which can only be properly shown by sending a very strong light through them, and if the whole field is illuminated in the same proportion, the effect is wearisome and painful. In such cases I strongly recommend the eye-piece made at my suggestion by Mr. Ross, and known as my *Diaphragm Eye-piece*. In this eye-piece four shutters can be adjusted by small milled heads, conveniently situated, so as to leave the entire field open, or to shut off any portion of it that can be bounded by square, oblong, or rhombic figures. By this means the object is, as it were, framed in black, with just as much of light margin as may be desirable. The adjustments are easily made to suit long, thin, round, or square objects, as the case may require.

All the contrivances mentioned are adapted to binocular, as well as to monocular vision.

Various modes of obtaining dark ground illumination, by the spot-lens, parabola, etc., are much to be commended for certain objects, not only for the beauty of the display, but for the comfort of the eye; and a small spot-lens may be advantageously used with the binocular as a light-distributor, with powers that can take in its whole pencil of rays.

It is much more common for persons to injure their sight by the misuse of transmitted light with transparent objects, than for them to experience inconvenience from any excess of reflected illumination; and this results, not so much from any greater facility in the exhibition of objects by the last-named method, as from its being one less frequently employed in conjunction with lamps. The reflected illumination obtainable in open daylight, out of the direct sun, is never too strong, and is well adapted to objects of considerable size. To see smaller opaque objects clearly and comfortably several contrivances are advantageous. Lieberkuhn's have lately been neglected by many observers to an unreasonable extent. For low powers, a silver-side reflector, mounted on a brass stand with universal motions, is extremely handy. Messrs. Beck made an admirable parabolic reflector to fit to a $1\frac{1}{2}$ or $\frac{3}{4}$ objective, and furnished with a moveable arm which brings a flat mirror into such a position that the illumination is instantly changed from slanting to nearly vertical, which enables some surface markings—on metals, etc.—to be made out with great distinctness. Mr. Crouch has constructed a parabolic silver reflector (like Beck's), with a universal joint to suit different powers, but without the flat mirror, which for special purposes is invaluable. A Lieberkuhn works beautifully with Ross's $\frac{1}{2}$ -inch, Beck's small-angled $\frac{1}{6}$ ths, and similar glasses of Powell and Lealand.

No microscopist should be satisfied without acquiring skill in all the methods of illumination I have mentioned, and where objects admit being seen in a variety of ways, all should be tried, as each will bring out some special feature. While an object is indistinct, the observer should avoid paying much attention to it. He should simply watch the changes he can effect in attempts to show it properly, and reserve steady examination until all the adjustments are in order. Few persons are aware how much the eye is under control of the mental faculty of attention, and what advantages they may gain by acquiring the habits recommended in the preceding remarks.—*The Student*.

A R T.

The Uses of Music.

The social uses of music are often forgotten when its value as an art is being estimated. In one of his novels, Douglas Jerrold records

a dispute between the performers in a band employed at an election, the question being whether the drum or the trombone did most toward returning a member to the House of Commons. The idea may at first seem far-fetched, but it expresses a truth in a coarse way. The influence of music everywhere, of the piano in the house, even of the thin sentimental songs of the day, might be found to produce practical results of a deep and abiding kind. In a theatre they can do nothing without music. A hero declares his love to a sympathetic though suppressed murmur of the violins in the orchestra. The heart-strings and the fiddle-strings are worried simultaneously. In melodrama, the villain stabs to a tune; in opera, the whole business of life is represented in major and minor keys, affection is set in B-flat, and eating and drinking goes on in F-sharp. In the stalls and the boxes, the gusts and the zephyrs of sounds alternately stir another cast of emotion; and it is the strange mission of this wonderful art to be all things to all men and all women, full of suggestiveness to most, but dumb or mere ear-tickling to many.

Perhaps the most beautiful combination which the fashionable world can affect in the season is a flower-show. The music chimes in well with the ladies and the rare plants. It is music, too, of a filigree and fragile pattern—a dainty waltz of Gungl's, a delicate *polonaise* or a swift rustling galop. If the trombone in the band mentioned by Jerrold had to answer through his instrument for making a member of parliament, the clever cornet of Mr. Godfrey's band deserves a testimonial from the associated Belgravian mothers. No one can guess at the romance set afloat by a clarinet, considered from this point of view, and there may be even a virtue in the clashing cymbals, the jingling triangle, or the rattling kettle-drum. When working with their allies at a flower-show, even these unpromising instruments might produce as important a consequence as the efforts of the passionate Italians who sing their souls out to each other on the stage at Covent Garden. Music lends itself to war in stirring songs and marches; Dibdin's ballads were employed to recruit the navy, and from the dismal trenches of the Crimea might be heard the snatches of song with which the soldiers cheered their spirits. Nor does it cease to aid us at the most solemn periods of devotion and worship, not alone under the roof of a temple, but abroad at the concerts, where the magnificent choruses chant the profound interpretations of Handel. That which Bishop Beveridge found the best recreation, both to mind and body, whenever either stood in need of it was music, which exercised at once both body and soul. It called in his spirit, composed his thoughts, delighted his ear, recreated his mind, and so not only fitted him for after business, but filled his heart at the present with pure and useful thoughts. People say it is nonsense to talk of music being representative, and the question has been asked, Did you ever hear a sonata descriptive of a man going abroad and changing his religion? Of course, music can not of itself define a material notion, but it is from this nature it derives its power of exalting the mind into a sphere of indefinite longing and luxurious melancholy. It may be insisted on at least that music, orchestral music, has a distinctive character, and that there is such a thing as a vulgar tune, and a vulgar, we had almost written vicious, arrangement of it. There is a French composer, more or less popular here, whose conceptions seem to leap from his brain fully equipped for burlesque. The airs are indicative of roystering animalism, and of nothing else; so are some of the ditties of comic singers, which, if torn from the words, would still exhibit a kind of tipsy manner irresistibly suggestive of a gentleman with a nonsensical swagger and ridiculous clothes.

"Heaven reward the man," wrote Hood, "who first hit upon the very original notion of sawing the inside of a cat with the tail of a horse." The world knows not half the power and the occult and remoter influences of the art. In a letter of Mendelssohn's, we find a paragraph stating that, when he became acquainted with Goethe, the Poet often asked him to play for him in the twilight, his eyes gleaming like those of a lion out of the gloom. So the tune poet and the world-poet wove their fancies into shape side by side, and one, we may be sure, was an inspiration to the other. The poet owes to music system, form, and his finest phrases; we can not speak of the painter's picture without referring its beauties by comparison to music; sculpture, we are told, is but frozen music, and indeed the word harmony, we should bear in mind, originally signified proportion of shape, and not a combination of strains. It is our servant in grave or gay moods, just as we will have it. It is also, as Johnson says, the only sensual pleasure which is completely innocent. We should not, however, degrade it from being an art into a mere fashion. There are numbers of people who attend concerts simply to see others, and to be seen, who are utterly forgetful of the performances. Like other arts, too, music, to be duly appreciated, must, in some degree, at least, be understood. A good deal of trouble is taken by parents to have their children taught a technical acquaintance with an instrument, and it frequently happens that pupils are put to such hard practising at an

immature age that they afterward get a distaste if not a disgust for the accomplishment it was proposed to teach them. Then, again, it is utterly a waste of time, temper, and money to endeavor to make a child without a musical ear fond of music. It is as foolish as to try and teach a thick-headed boy to write poetry, except that in the latter case a step may be made in facility of expression. Yet it is rare, indeed, to find people who are destitute of the faculty, Lamb humorously described himself as being without an ear for music; but in his further explanation and apology he clearly shows that he was deeply sensitive to the impressions of the art. It is almost impossible to believe that a man of genius could be deaf to music. We know what Shakespeare said with reference to him who hath no music in his soul. Pythagoras was represented by the modern poet, who told us—

“There’s music in all things, if men had ears :
This earth is but an echo of the spheres.”

“When she had passed, it seemed like the ceasing of exquisite music,” writes Longfellow. Byron speaks of the music breathing from Zuleika’s face; Mr. Tennyson, of a woman “musically made,” and so on and on. We should bear a few of these notions in mind when attending many of the tempting music feasts that go on around us. Nor should we be ungrateful to the artists who bring to us gifts from the masters. Singers or players sincere and accomplished in their respective vocations are worthy not only of patronage but of esteem, and should not be subjected to the flippant inattentions which so often mortify and disturb them in the concert-rooms.—*Daily News.*

OFFICIAL NOTICES.



Ministry of Public Instruction.

APPOINTMENTS. SCHOOL COMMISSIONERS.

The Lieutenant-Governor, by an Order in Council dated the 20th September last, was pleased to appoint the following Gentlemen, as School Commissioners and Trustees of the following School Municipalities:—

St. Albert de Warwick, County of Arthabaska: The Rev. Mr. Gédéon Béliveau and Mr. Narcisse Gélinas, to replace Messrs. Magloire Bussiére and Fidèle Demers.

St. Norbert, County of Arthabaska: Messrs. Eusèbe Drouin and Fédime Lemieux, to replace Messrs. David Poisson and Vital Talbot.

Stanford, County of Arthabaska: Messrs. Louis Lachance and Théophile Nanet, to replace Messrs. Ignace Gagnon and Moïse Réault.

Jouquière, County of Chicoutimi: Mr. Trésé Bergeron, to replace the Revd. Mr. François Gagné.

St. Edouard de Frampton, County of Dorchester: Mr. Michael Smith, to replace Mr. Martin Miller.

Rivière au Renard, County of Gaspé: Messrs. Gualbert Renaud dit Lavergne and Louis Chrétien, to replace Messrs. Narcisse Ouellet and Bénéni Francœur.

Ste. Anne Lapocatière, County of Kamouraska: (No. 1) Messrs. Antoine Dionne and Adolphe Roy, to replace Messrs. Nicolas Aubot and Clément Rouleau.

Village of St. Martin, (No. 1) County of Laval: Mr. Laurent Verdon, to replace himself, and Mr. Joseph Côté, to replace Mr. Amédée Gaboury.

Ireland, County of Megantic: the Rev. Mr. R. G. Ward, to replace himself, and Mr. Harvey Bennett to replace Mr. Thomas Gill.

St. Pierre de Broughton, County of Megantic: Messrs. Cyrille Vallée and Patrick Doyle, to replace Messrs. William Pier and Magloire Drouin.

St. Laurent, County of Montmorency: Mr. Pierre Laprise to replace Mr. Pierre Lapierre.

St. Célestin, County of Nicolet: Mr. Joseph Béliveau, fils, to replace M. Papin Béliveau, and Mr. Damase Poirier to replace Mr. François Béliveau.

Aylmer East, County of Ottawa: Alexander Bourgeau to replace Mr. J. Coleman, and Mr. John R. Woods to replace the Reverend Mr. Michel.

Waterloo, County of Ottawa: Messrs. Joseph Galipeau and Joachim Lafontaine to replace themselves.

Ste. Luce, County of Rimouski: The Reverend Edouard Guilmet and Messrs. Pierre Tremblay, Alexis Dutremble, Joseph Lévesque and Célestin Dechamplain.

Sorel, (Parish) County of Richelieu: Mr. Michel Peloquin dit Félin, (son of André), to replace Mr. Olivier Latraverse.

Terrebonne, (Town) County of Terrebonne: Mr. François-Louis-Rodrique Masson to replace himself.

Ste. Thérèse, (Parish), County of Terrebonne: Messrs. Antoine Payment and Grégoire Labelle, to replace Messrs. Léon Filion and Pierre Dion.

Rigaud, County of Vaudreuil: Mr. Joseph-Emilien Cherrier, to replace Mr. Hilaire Mailet.

Ste. Marthe, County of Vaudreuil: Mr. Thomas Murphy to replace Mr. Thadée Merleau.

Ste. Bridget des Saules, County of Yamaska: Messrs. George Jutras and John O'Meara, to replace Messrs. Isaïe Jutras and Edward Kane.

SCHOOL TRUSTEES.

Cox, County of Bonaventure: Mr. Edward Huard, to replace Mr. Marcel Caron.

Côte des Neiges, County of Hochelaga: Mr. John Cullen to replace himself.

St. Laurent, County of Jacques Cartier: Mr. George Muir to replace Mr. John Bremner.

St. Félix de Valois, County of Joliette: Mr. Edmund Page, to replace himself.

Notre Dame de Hull, County of Ottawa: Mr. William J. Louks, to replace Mr. Christopher Wright.

SEPARATIONS, ANNEXATIONS, ERECTIONS, &c., OF SCHOOL MUNICIPALITIES.

The Lieutenant-Governor, by an Order in Council dated the 20th September last, was pleased:

1. To detach from the township of Tewkesbury, in the County of Quebec, the first four ranges of the said Township now included in the School Municipality of Stoneham, to form a separate School Municipality under the name of School Municipality of Tewkesbury No. 2, the former Municipality of Tewkesbury to be known as the Municipality of Tewkesbury No. 1.

2. To erect into a School Municipality the new Parish of St. Simon, in the County of Charlevoix, with the same limits that it has as a Parish, and which are described in the *Official Gazette* of the thirty-first of July last.

3. To separate from the Municipality of Ste. Eulalie, in the County of Nicolet, the new Parish of St. Samuel, in the County of Arthabaska, to form thereof a distinct Municipality with the limits such as described in the Canonical Decree of the nineteenth of October, one thousand eight hundred and sixty-six, to wit:

The territory hereinafter mentioned, part of which is situated in the County of Nicolet, District of Three-Rivers, and part in the County and District of Arthabaska, to wit:

1. The eighth and ninth ranges of the augmentation of the Township of Bulstrode, part of the fifteenth range of the Township of Aston, comprised between the augmentation of the Township of Bulstrode, and lot number twenty-six of the said fifteenth range of Aston, exclusively; that part of the second range of the Township of Horton, situate to the north-east of the north-eastern branch of the Nicolet river; these three parts of the said territory shall be, and are hereby dismembered from the Parish of Ste. Eulalie.

2. Lots numbers twenty-six, twenty-seven and twenty-eight of the fifteenth range of the augmentation of Aston, shall be, and are hereby dismembered from the Parish of St. Léonard.

3. All that part of the third range of the Township of Horton, situate to the north-east of the by-road crossing the nineteenth lot of the said range, lots number twenty-seven and twenty-eight in each of the tenth, eleventh and twelfth ranges of the Township of Bulstrode; these two latter parts of the said territory shall be and are hereby dismembered from the Parish of St. Valère de Bulstrode:

4. Lots numbers twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, and the south-west half of lot number nineteen in the third range of the Township of Horton; lots numbers twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty and twenty-one in the fourth range of the Township of Horton; lots numbers sixteen, seventeen and eighteen in the fifth range of the Township of Horton.

DIPLOMAS GRANTED BY THE BOARD OF EXAMINERS.

CHARLEVOIX AND SAGUENAY BOARD.

Adjourned Session of August 25th, 1869.

ELEMENTARY SCHOOL DIPLOMA, (F) 1st Class:—Misses Marie Victoire Simard and Lydie Tremblay. Miss Tremblay received a Second Class Diploma in May last.

M. BOIVIN,
Secretary.

KAMOURASKA BOARD.

Session of August 3rd, 1869.

ELEMENTARY SCHOOL DIPLOMA, (F) 1st Class:—Misses Elise Roy and Exorée St. Laurent.

P. DUMAIS,
Secretary.

BEAUCE BOARD.

Session of August 17th, 1869.

ELEMENTARY SCHOOL DIPLOMA, (F) 1st Class:—Misses Marie Olive Valée and Mathilde Garant.

2nd Class:—Emilie Grondin, Lucie Lessard and Clotilde Lessard.

J. T. P. PROULX,
Secretary.

Correction—Amongst the Official Notices in our last issue the name Mr. Hilaire Dubreuil will be found instead of Mr. Hilaire Dubrule; Mr. George Derome instead of Mr. George Dionne; Mr. Charles Taite, instead of Mr. Charles Tarte; Ste. Jeanné de Niverville, instead of Ste. Jeanne de Neuville, and Mr. Godefroi Bernabé, instead of Mr. Godefroi Bérubé.

WANTED.

A situation by a Teacher possessing the requisite Diploma and qualifications. She has had several years' experience in Model Schools. Address "Journal of Education, Quebec."

A master competent to conduct an Academy in which the usual branches of a liberal and general education are taught. Salary about \$500. Applications and testimonials to be addressed "Journal of Education, Quebec."

THE JOURNAL OF EDUCATION.

QUEBEC, (PROVINCE OF QUEBEC,) OCTOBER, 1869.

Gilchrist Scholarship Examination for 1869.

The readers of the Journal are aware that one of these Scholarships is assigned annually for competition in the Dominion of Canada. The successful Candidate becomes entitled to £100 sterling a year for three years, and prosecutes a Collegiate course of study in one of several British Universities from amongst which he selects at his own option.

This year there were Candidates at Quebec, Montreal, Ottawa, Toronto and Fredericton.

The successful Candidate was Mr. John Logan McKenzie, of Quebec, a pupil of the High School of that City, and subsequently a student of Morrin College.

At the examination, which was held simultaneously in the above named cities, in the first week of July, sets of questions and papers were prescribed on the following subjects; Latin; Latin Grammar and Composition; Greek; French or German; Arithmetic and Algebra; Geometry; English Language; English History; Natural Philosophy, and Chemistry. The time allowed for each paper was three hours, except Latin, Latin Grammar and Composition, for which the time was two hours.

Report of the Minister of Public Instruction of the Province of Quebec, for the year 1867, and in part for the year 1868.

To His Excellency the Honorable

SIR NARCISSE FORTUNAT BELLEAU,

Lieutenant-Governor of the Province of Quebec.

I have the honor to submit to Your Excellency my report on the State of Public Instruction in the Province of Quebec for the year 1867.

Following this report will be found those of the three Normal Schools, of the Agricultural College of l'Assomption, of the School

of Arts and Manufactures at Montreal, and those of the Inspectors of Schools.

Some of these documents relate to the year 1868, and, while all the Statistics belong to the year 1867, for which, agreeably to the understanding which existed before Confederation, the report will be more in detail, I shall frequently have occasion to make allusion to the Acts which were passed in the year 1868.

The publication of a *triennial* report, giving the Statistics of Schools by Municipalities, and the details of all information collected respecting the Schools for Superior Education as well as the reports of the Inspectors was deemed sufficient by the Committee of the two Houses charged with the superintendence of printing, and it was agreed to publish for the other two years, for the sake of economy, only a summary of the Statistics. This summary, for the year 1868, will be soon published.

It will be seen by the report of the Principal of the Laval Normal School, that the number of pupils of the Normal School, properly so called, increased, in 1868, to 122; namely: 49 in the male teacher's division and 73 in the female. The model schools furnished 529 pupils; so that this institution, in the year 1868, afforded instruction to 651 persons.

I would draw attention to the following passages in the reports of the two other Normal Schools.

"I have the pleasure of announcing to you," says the Principal of the Jacques Cartier Normal School, "that all our teachers furnished with diplomas and who completed their course (last year) are engaged in teaching at this moment."

The Principal of the McGill Normal School, says: "The reports sent to the School shew that 253 of the pupils who have obtained diplomas, are now devoting themselves to teaching, or are about to do so; 12 have returned to the school to obtain diplomas of a higher degree. Most of the others, I doubt not, have been engaged in teaching without sending me word."

The Principal of the Laval Normal School complains, with reason, in his report, of the insufficiency of the premises in which the numerous pupils of this institution are crowded together. The ancient Chateau, which has, for the second time, been converted to the uses of a Normal School, is not only a very old building, but is further, ill adapted for the purpose; whenever the finances of the Province permit, there will be much advantage in constructing an edifice worthy of the important objects to which this institution is devoted.

The progress of the Normal Schools during the year 1867, and since their first establishment, is exhibited in the following tables: the first shewing the number of pupils, the second, that of the diplomas granted.

TABLE of the number of Pupils who have attended the Normal Schools.

School years.	Jacques-Cartier.	McGill.			Laval.			Number of Male Pupil Teachers.	Number of Female Pupil Teachers.	Grand Total.
	Pupil Teachers. (male.)	Pupil Teachers. (male.)	Pupil Teachers. (female.)	Total.	Pupil Teachers. (male.)	Pupil Teachers. (female.)	Total.			
1st Sess. 1857	18	5	25	30	22	....	22	45	25	70
Sess. 1857-1858	46	7	63	70	36	40	76	89	103	192
Sess. 1858-1859	50	7	76	83	34	52	86	91	128	219
Sess. 1859-1860	53	9	72	81	40	54	94	102	126	228
Sess. 1860-1861	52	5	56	61	41	53	94	98	109	207
Sess. 1861-1862	41	10	58	68	39	52	91	90	110	200
Sess. 1862-1863	57	8	72	80	39	52	91	104	124	228
Sess. 1863-1864	56	7	67	74	34	49	83	97	116	213
Sess. 1864-1865	56	5	60	65	43	55	98	104	115	219
Sess. 1865-1866	43	2	73	75	39	57	96	84	130	214
Sess. 1866-1867	35	2	73	75	43	55	98	80	128	208

DIPLOMAS granted to Pupils of the Normal Schools since the establishment of these institutions.

Class of Diplomas Granted.	Jacques-Cartier.	McGill.			Laval.			No. of M. Pupil Teachers.	No. of F. Pupil Teachers.	Grand Total.
	Male Pupil Teachers	M. Pupil Teachers.	F. Pupil Teachers.	Total.	M. Pupil Teachers.	F. Pupil Teachers.	Total.			
Academics	20	12	10	22	13	...	13	45	10	55
Model Schools	98	15	130	145	81	102	183	194	232	426
Elementary Schools	85	28	254	282	36	129	165	149	383	532
Totals	203	55	394	449	130	231	361	388	625	1013

of schools being under these Pupil-Teachers, it is not only the importance of this noble pursuit, easily instilled into the minds of young scholars, that we have to consider, but there is also the propagation of knowledge which each teacher would occasion in his neighbourhood, and the influence which his advice would exercise, and his example, in case he should be able to procure for himself a small lot of land for cultivation.

Some seem to prefer a system of Model-Farms distributed through the different counties. Instruction in practical agriculture given in the Normal Schools, so far from being an obstacle to such a measure, would naturally lead to it. It may be assumed that the pupils going forth from the Normal Schools would be directors already prepared for those institutions; that at least a certain number of them would imbibe a particular taste for agriculture, and that in the case of their abandoning teaching instead of embracing one of the other liberal professions or of leaving the country, as has been the case with several former teachers, they should become here trained agriculturists, and in fact model-farmers if not directors of model-farms.

These motives, which have decided the Government and the Legislature to vote the sum which has been granted, have, since last Session, led me to concern myself in giving immediate effect to the vote. Meanwhile, as that would be making a new experiment in this country, the Government has thought proper to consult, before acting, as well respecting the mode to be followed as the details, the Members of the Council of Public Instruction, those of the Board of Agriculture, and distinguished practical Agriculturists; and, finding a great difference of opinion upon several important points, while requiring from the directors of the Normal Schools special reports about the manner of making these practical studies accord with the programmes of these Schools, it has appointed M. l'Abbé Godin, former director of the Model-Farm of Ste. Thérèse, to study analogous Institutions in Europe and particularly the Model-Farms connected with the Normal and Model Schools of Ireland.

There is every reason to hope, that, if the Legislature be willing to vote anew the sum demanded last year, this project, to which I attach the greatest importance, will be soon matured.

The following Table contains a summary of the general Statistics of Public Instruction since the year 1853. The increase in the whole number of pupils for the year 1867 will be observed to be inconsiderable. There is even a slight decrease for several districts of inspection, although in some cases merely apparent and the result of errors in the preceding report. The decrease of 114 Institutions upon the returns of 1866 is also, in part, merely apparent, new Inspectors having changed the classification of Schools and omitted to assign as distinct Schools the Primary Schools attached to other Institutions.

TABLE of the progress of Public Instruction in Lower Canada, since the year 1853.

—	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
Institutions	2352	2795	2868	2919	2946	2995	3199	3264	3345	3501	3552
Scholars	108284	119733	127058	143141	148798	156872	168148	172155	180845	188635	193131
Contributions	165848	238032	249136	406764	424208	459396	498436	503859	526219	542728	564810

TABLE of the progress of Public Instruction in Lower Canada, &c.—Continued.

—	1864	1865	1866	1867	Increase over 1853.	Increase over 1856.	Increase over 1858.	Increase over 1865.	Increase over 1866.	Decrease from 1866.
Institutions	3604	3706	3826	3712	1378	811	745	24	.....	114
Scholars	196739	202648	206820	208030	99963	65106	51375	5599	1210	.....
Contributions	593964	597448	647067	728494	62646	321730	269098	131046	81426	.....

The introduction, in the Normal Schools, of a more complete and a more practical system of teaching Agriculture, has been recommended in a report of a Committee of the Legislative Assembly charged with the inquiry into Agriculture and Colonization, and a sum of \$12,000 has been voted for this object.

The results obtained in some parts of France and Belgium by the teaching of agriculture and horticulture, in the Normal Schools, and, above all, the success of the Model-Farms in connection with the Central Normal School of Dublin, and with the Model Schools of the other great towns of Ireland, have induced me to recommend the establishment of Model-Farms in connection with our Normal Schools, as one of the best means of diffusing agricultural instruction. Doubtless the pupil teachers of the Normal Schools, after acquiring at least a certain theoretical and practical knowledge of agriculture and horticulture, would be very apt and well disposed to contribute powerfully to the progress of those branches. It is not only the dissemination of agricultural knowledge which would result from the direction

The following table indicates the progress made in teaching the most essential branches; it comprises the Institutions of Superior Education as well as the Elementary Schools. Book-keeping, Geogra-

phy and History are now taught in all the Model and in a great number of the Elementary Schools.

COMPARATIVE TABLE of the number of children learning each branch since the year 1853.

	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866*	1867	Increase over 1853.	Increase over 1858.	Increase over 1862.	Increase over 1866.
Scholars reading well	27367	32861	43407	46940	48833	52099	64362	67753	75236	77108	77676	75555	96491	98706	101166	73799	49067	24058	2460
Do writing.....	50072	47014	58033	60086	61913	65404	80152	81244	87115	92572	97086	99351	107161	111703	112191	62119	47797	20619	498
Do learning Simple Arithmetic...	18281	22897	30631	48359	52545	55847	63514	63341	69519	74518	75719	14197	83930	84201	84544	66263	28697	10026	343
Do learning compound Arithmetic	12428	18073	22586	23431	26643	28196	30919	31758	41812	44357	45727	46529	52892	53726	54660	42232	28017	10303	934
Do learning Book-keeping .....	.....	799	1976	5012	5500	6689	7135	7319	9347	9614	9630	9615	10381	10430	10825	10825	4136	1211	395
Do Geography...	12185	13326	17700	30134	33606	37847	45393	49462	55071	56392	60585	66412	64718	64998	65616	53431	27769	9224	618
Do History.....	6733	11486	15520	17580	26147	42316	45997	46324	51095	54461	59024	66894	71153	71453	71965	65227	29649	17504	512
Do French Grammar	15353	17852	23260	29328	39067	43307	53452	54214	50426	61312	63913	68564	76097	76264	76996	61643	33689	15684	732
Do learning English Grammar..	7066	7097	9004	11824	12074	15348	19773	25073	27904	28464	27358	29428	30453	30648	31748	24682	16400	3284	1100
Do learning Analysis of Grammar	4412	9283	16439	26310	34064	40733	44466	46872	49460	50893	52244	60311	66237	66341	68172	63760	27439	17279	1831

(To be concluded in our next.)

Sixth Annual Convention of the Provincial Association of Protestant Teachers of the Province of Quebec.

This body held its annual session at Waterloo, commencing on the morning of Wednesday, August 25th. After prayer, and the disposal of routine work, the Address of the President being deferred until the afternoon, a discussion took place on the question "Are the Natural Sciences too much neglected in our High Schools." Several gentlemen, amongst whom Prof. Duff, Inspectors Hubbard and Parmalee, and the Reverends Messrs. Duff, Lindsay and Jones, took part in the debate which ensued.

SESSION OF WEDNESDAY AFTERNOON.

The Hon. C. Dunkin, President, took the chair. After prayer by the Rev. A. Duff, the Chairman addressed the Association, taking for his subject some of the peculiarities of Protestant Teachers in the Province of Quebec. He said:

The great mass of the schools were, of course, common schools; this term including model schools. Model schools were just what all common schools should be. Above these, all education might be termed superior—that taught in academies, high schools, or grammar schools, which were all the same, and which were meant to fit a pupil for college, or to make him an educated man. Then, there were the universities, with the three old-established professional faculties. These, however, did not cover all classes. There were now faculties of applied science, and there were schools for the purpose of fitting pupils for the profession of the teacher, than which one could not aspire to a more responsible, more respectable, or more difficult pursuit. His field of operation, although not quite so wide as that of the clergyman, embraced responsibilities that were in many respects greater.

The arrangements of society were, in this country, more like those of our neighbors in America than like those of the population of the old country. Here, the population was often very sparse, a thing unknown in many parts of England. There were here, in the country at least, none of those distinctions of rank which made common schools an impossibility in England. Again, our municipal institutions were much further advanced than those of England, where schools were either the private enterprise of those who lived by them in the best way they could, or of an eleemosynary nature. Government there could only interfere when necessary. Here, education must be urged forward by law, or be left hopelessly behind. The chief evil likely to arise from the condition of things was too much dependence on law and too little on private beneficence.

Here, in Lower Canada, Protestants were a small and numerically speaking, a weak minority. This difficulty is increased by a diversity

of language. We might some day become a bi-lingual people, but meantime we were in language almost as small a minority as we were by religion. It is idle for us to talk of our all using the same common schools. We may be willing, but no wish of ours can very materially affect the honest preferences of our neighbors, which they have a right to hold. We cannot pretend that our views should influence the course of those portions of the country where others were almost a totality of the people; and where were we in a similar majority we could not admit the authority of other people. Minorities who do not like the views of the majority must have every opportunity of dissent, and in this matter we had, perhaps, as good a general system as any other would be.

There is a danger here of people relying too much on the machinery and aid of the government, to the ignoring of the earnest personal effort of the community itself. We also, as a minority, must not show a tendency to aggressiveness. And an earnest desire should be felt to overcome our own differences among ourselves. Our difficulties were great enough to maintain our system even if we were all united. We must do all we can to make private effort supplement the law in developing education,—doing even more than the law makes us do. Endowment was a very important means of carrying out this; and in this, we might take our pattern from the magnificent endowments of the Old World.

If the law makes people pay for their schools they should get the good of them—no matter how sparse or how poor the population, they must have schools within reach, and if, as a rule, we must expect for poor pay poor preach, we must make the pay as good as we can possibly make it. It was desirable that we should have a large class of permanent school teachers. We could never have a good system without this; and to this end we must pay better,—until that we must, as we do now, depend principally on our educational militia, and the fact that a large number passed through years of such service as this was far from an unmixed evil. We could not for generations have any other system, and it was to be deplored that people should regard such employment as in any respect a coming down. It was not, and this feeling should be reformed. When he knew Harvard, thirty years ago, it was considered the correct thing for the most aristocratic young men to give months every year to teaching. This elevated both the schools, and the men, and gave the latter a character, as having obtained the confidence of their professors, who gave them liberty to do so.

Teachers were not only to be as well paid as possible, but we ought to treat them with respect. The most honorable calling were always those which were worst paid. An English officer's recompense for his time, was not in his pay, but in his rank; and such was properly

the position of the teacher, whose rank in society should supplement his miserable pay.

There existed at present a most serious heresy about superior education. It was utterly wrong to think that universities and higher education were for the higher classes. The European universities were originally established to give education to the poor, not only free but rewarded. If this was the case where ancient distinctions of rank were known, it should be where there were no such distinctions of station or rights. These higher educational institutes should be territorially and otherwise within easy reach of all, even the poorest. You have not only to make them free, but to give substantial advantages to poor pupils who attend, rather than leave them to the idle sons of the rich. These higher institutions would not take care of themselves any more than the lower. They must be endowed by the rich, and helped by the state. What raised the calling of the lawyer or doctor was the great prizes attainable. Such prizes should be open also to teachers. There was a duty incumbent on all of us to develop a teacher-class by every means in our power.

Our community had now to be measured with other communities; we must do it with intellectual and, still more, moral eminence, and to this end, we must give abundant material and moral support to our teachers.

At the conclusion of the President's address, the first subject taken up for discussion was—"Is not a national system of schools essential to a free people?" Mr. Sanborne said the subject, if discussed, should be honestly approached. To say that a national system of education was essential to a free people was a mistake—thoroughly free peoples had existed without it; but, undoubtedly, the tendency of freedom was towards it, and it was a great good, but not an unmixed good. The Prussian system was, though manly, painfully stereotyped. We could here properly give our individual views without offending anybody. He would desire to see all our schools in the Province of Quebec based on a common principle. The difficulty was not one of language, but of creed. It was impossible for us to have a common system for all. Protestants generally express themselves satisfied with moral teaching without religion, but the Roman Catholics would not agree to this, and we need not insist on what we can't get.

Mr. McLachlan, M. A., of Sutton, said schools were established in this country, not according to the wants of the country, but according to the possibility of obtaining grants. System was utterly unknown.

Mr. D. R. Roberts, M. A., of Phillipsburgh, agreed with those who said that the present state of things was about as good as could be expected, but we might look forward to improvement. The natural effect of the present state of things would be to perpetuate differences; we must look forward to sweep away distinctions. We are, and must ever be, the moving power in this province, and must not rest satisfied with that which is imperfect. We must, at least, maintain a protest.

Rev. Mr. Fessenden, of Bolton, said that in the United States it was now found, as a free people, differences must ever be permitted to exist; and such differences must ever be permitted among us. The tendency of freedom was not toward unity, but diversity; and the only way that any progress could be made towards unity would be by making the people think alike, by intelligent conviction.

Rev. C. P. Watson, of Cowansville, said that no system could be such as to interfere between a man's conscience and his God; and, therefore, severed entirely from religion, it was possible to have a uniform system.

Professor Duff, the indefatigable Secretary of the Association, said that the higher schools should not be forgotten. Our academies had no system whatever. Our high schools are not high schools. In our laws we have hardly a word about them. There was no provision there for either their working or their management. The teachers were not provided for. There was no adequate provision for their examination. In every family there were those who had a right to academy training, and there should be properly qualified teachers, adequate support and systematized training. Our University, which filled the country with young men who had had advantages equal to the best in the world, was supported by gentlemen in Montreal, and had no national character. Those who were educated there had not the remotest knowledge either of the men or the thoughts that led our French neighbors.

Mr. Lay, of Waterloo, urged a national system, pure and simple.

The President said a stump orator had once been complaining that the country was not a free country. He was asked if he could not do as he liked. Yes, he said, but he could not make other people do as he liked; and a good deal of the language which has been used would give us a system such as the majority would choose.

Mr. Trenholme said a national system should be a combination of the common elements in all portions of the people. Acknowledge

any other mode and there is a disintegrating element introduced which would make every sect a state within the state.

Prof. Robins read a brilliant Essay on teaching arithmetic, urging the teaching of the science as well as the art of calculating. The most rapid calculation was the most exact, as it was simply a mechanical movement of the mind free from the agency of fallible volition. How to teach the greatest facility in this operation was explained and illustrated on the blackboard in a very able way. He urged especially that children should learn to associate the relations of numbers with the written and not with the oral expression of them, so as to enable them to operate without needing always to translate a written symbol into the name by which it is known.

As previous arrangements prevented an evening session, the Convention adjourned to Thursday.—(*Waterloo Advertiser* and *Montreal Witness*.) (1).

(To be concluded in our next. Report of School-Pic-nic at Shefford in our next.)

Current Exchanges Received.

It is impossible in this number to do more than acknowledge receipt of the following though many more are to hand.

The Notre Dame Scholastic, devoted to the interests of the Students;—Vol. III, No. 2. This is the first that has come to hand, and to which we say welcome.

The National Normal, an educational monthly, edited and published by R. A. Holbrook, 176 Elm St., Cincinnati, O. We received the first number of this excellent monthly, issued October, 1868, but none after until February, 1869, from which time they have been regularly received, but by some unaccountable oversight, we omitted to put it on our exchange list. We now make the *amende honorable*, and will send our current volume. But for the formidable words, *copyright secured*, attached to a series of articles entitled "School Management," which have appeared in the *National Normal*, we would have laid its pages under contribution.

American Educational Monthly, devoted to Popular Instruction and Literature, for October, 1869, J. W. Schermerhorn & Co., 14 Bond St. New-York, only \$1.50 per annum. It ranks amongst the foremost of our exchanges. Those Teachers who are not already subscribers should become so at once.

The Manufacturer and Builder, Vol. 1, Nos. 8, 9 and 10 for August, September and October, 1869. The first half-volume of this Journal ended with June last. In that period the publishers have given 500 COLUMNS OF MATTER, from the pens of the best writers in the country, and presented in connection therewith upwards of 150 ENGRAVINGS, at an aggregate cost to themselves of over \$25,000, but to its readers only 75 CENTS, and in cases where they have joined in clubs, at 50 CENTS AND LESS. Send your subscription at once to Western and Company, No. 57 Park Row, N.-York, P. O. Box 5969.

Journal of Education, St. Louis, September, 1869.

Leisure Hours, a monthly magazine, devoted to History, Biography, Prose, Poetry, Wit, Romance, Reality and Useful Information for August, September and October, 1869. A series of valuable articles entitled Facts Worth Knowing, have appeared in this periodical, which to the practical Teacher, are worth the year's subscription. The October no. commences a new Volume, so now is the time to subscribe. Send \$2 00 American currency to O'Dwyer & Co. 59, 4th Avenue Pittsburgh, Pa.

Hearth and Home, to latest date.—We would take this opportunity of recommending this journal as an excellent family paper. Matter to suit all ages will be found in its pages,—and always moral too, which is more than can be said all of the weeklies published now-a-days. Read the following and see if you will not be tempted to subscribe:—

To all who subscribe before next January, for one year, at the Reduced Rates printed below, *Hearth and Home* will be sent from the date of their subscription to the end of the year *Free*, so that all such yearly subscriptions will end January 1st, 1871.

Therefore, those who subscribe earliest will get the most for nothing.

Our only terms hereafter are the below reduced rates for 1870, *Invariably in Advance*.

Single Copies	\$4
Three " all at one time	9
Five " " "	12

All over Five Copies at same rate.

Making *Hearth and Home*, to a Club of Five Subscribers at \$2.40 each, *The Cheapest*, as it is the most complete, *Family Weekly Newspaper* in the world.

(1) Want of space has obliged us to confine ourselves to these outlines of the speeches and other proceedings of the Sixth Annual Meeting of the Protestant Teachers' Association. In particular, the paper by Mr. W. E. Jones, on Technical or Scientific Education, would be well worthy of a perusal by those who did not hear it read. We should desire, if possible, to give it entire in a future number of the Journal.

METEOROLOGICAL INTELLIGENCE.

— From the Records of the Montreal Observatory, Lat. 45° 31 North; Long. 4h. 54m. 11 sec. West of Greenwich, and 182 feet above mean sea level,—for August, 1869,—by Chas. Smallwood, M.D., LL.D., D.C.L.

DAYS	Barometer corrected at 32°			Temperature of the Air.			Direction of Wind.			Miles in 24 hours.
	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	
1	29.271	29.207	29.249	64.2	70.9	69.1	W	W	W	70.12 ^a
2	.261	.254	.301	69.0	79.7	67.9	W	W	W	101.10 ^b
3	.451	.547	.599	62.4	84.6	69.2	W	SW	SW	87.41
4	.768	.827	.850	63.1	82.7	67.9	W	NE	NE	77.10
5	.951	.957	.960	65.1	87.9	69.4	NE	E	NE	66.29
6	.957	.912	.850	65.2	87.9	70.0	NE	SE	SE	67.21
7	.807	.649	.499	68.9	85.9	68.2	SE	SE	NE	91.12
8	.479	.432	.562	68.3	75.4	65.0	SE	SW	SW	86.71 ^c
9	.397	.411	.450	65.9	73.7	65.6	W	W	W	81.29 ^d
10	.616	.674	.699	60.0	69.4	63.2	W	W	W	114.10
11	.674	.607	.648	60.3	61.4	60.0	W	NE	NE	91.10 ^e
12	.662	.670	.699	57.2	69.9	61.7	NE	N	E	77.10
13	.651	.644	.650	53.2	70.4	63.9	N	W	W	88.21 ^f
14	.660	.652	.649	62.0	73.9	68.0	W	W	W	104.24 ^g
15	.600	.644	.510	65.0	70.1	63.7	W	W	W	211.10 ^h
16	.789	.800	.848	56.7	68.2	56.0	NE	NE	N	197.41
17	.872	.894	.900	53.3	75.1	52.5	N by W	WSW	WSW	99.11
18	.849	.824	.700	58.0	69.4	73.0	W	WSW	WSW	84.29
19	.549	.584	.589	70.0	83.1	70.9	WSW	WSW	WSW	99.74 ^j
20	.601	.647	.689	70.1	82.1	69.0	NE	WSW	W	101.24
21	.710	.849	.884	62.3	83.2	68.0	NE	NE	NE	111.21
22	.897	.846	.800	63.1	83.0	68.2	NE	NE	NE	77.29
23	.801	.744	.672	66.3	83.0	72.4	W	W	W	88.20
24	.575	.634	.662	65.2	87.6	76.0	SW	SW	SW	117.24
25	.766	.717	.749	68.0	87.9	75.0	SW	SW	WSW	212.10
26	.750	.847	.901	68.7	85.7	58.8	WSW	WSW	NE	91.21 ^k
27	30.061	30.049	30.001	53.0	77.7	58.7	NE	NE	NE	77.49
28	29.864	29.810	29.926	56.6	74.3	67.4	NE	SW	SW	66.24
29	.614	.502	.462	63.7	80.1	70.2	SW	SW	SW	71.10 [*]
30	.610	.662	.711	63.0	87.1	69.2	W	W by N	N	84.29
31	.844	.60	.11	60.1	78.6	69.4	NE	NE	NE	66.24

Rain in inches.—a, 0.343; b, 0.734; c, 0.114; d, 0.111; e, 0.102; f, g, Inapp; h, 0.217; j, 0.395; k, 0.320; *, 0.036.

The mean temperature of the month was 60° 94, which is scarcely a degree lower than the Isothermal for Montreal for the month of August, reduced from observations during a long series of years.

The highest reading of the Barometer was 30.061, and the lowest 29.207, giving a range of 0.854 inches.

Rain fell in 11 days amounting to 2.662 inches, and was accompanied by thunder on three days.

— Meteorological observations taken at Quebec during the month; of August, 1869—Lat. 46° 40' 30" North; Longitude 71° 12' 15" West; height above St. Lawrence, 230 feet; by Sergt. John Thurling, A. H. C. Quebec.

Barometer, highest reading on the 1st.....	30.150 inches.
" lowest " 3rd.....	29.444
" range of pressure.....	0.706
" mean for month reduced to 32°.....	29.684
Thermometer, highest reading on the 11th.....	80.2 degrees.
" lowest " 6.....	46.0
" range in month.....	34.2
" mean for month.....	62.6
" mean of maximum in sun's-rays, black bulb..	104.9
" mean of minimum on grass.....	51.9
Hygrometer, mean of dry bulb.....	64.8
" wet bulb.....	58.2
" dew point.....	52.2
Elastic force of vapour.....	400 inches.
Vapour in a cubic foot of air.....	4.5 grains.
" required to saturate, do.....	2.3 "
Mean degree of humidity (Sat. 100).....	65
Average weight of a cubic foot of air.....	523.0 grains.
Cloud, mean amount of (0-10).....	7.1
Ozone " " (0-10).....	2.1
Wind, general direction.....	S. W. and W.
Mean daily horizontal movement.....	126.8 miles.
Rain, number of days it fell.....	15
Amount collected on ground.....	2.93 inches.

— From the Records of the Montreal Observatory, lat. 45° 31 North; Long. 4h. 54m. 11 sec. West of Greenwich, and 182 feet above mean sea level, for Sept, 1869,—By CHAS. SMALLWOOD, M.D., LL.D., D.C.L.

DAYS	Barometer corrected at 32°			Temperature of the Air.			Direction of Wind.			Miles in 24 hours.
	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	
1	30.147	30.199	30.201	49.7	62.3	54.0	wby N	wby N	wby N	101.11
2	.301	.301	.251	54.1	69.4	57.8	wby N	wby N	wby N	91.10
3	.200	.114	.061	58.0	73.0	61.1	NE	W	W	89.91
4	.042	.040	.052	58.4	74.2	67.7	W	W	W	114.10
5	.049	.021	.000	64.0	84.2	71.6	W	W	W	121.20
6	.047	.014	.030	65.2	76.1	70.0	W	SW	SW	90.00
7	.060	29.947	29.825	68.0	77.9	72.1	SW	SW	SW	89.44
8	29.671	.600	.549	69.1	75.2	62.7	SW	SW	NE	204.21
9	.651	.842	.970	54.1	60.1	52.4	NE	NE	NE	194.12
10	30.049	30.025	30.026	53.7	61.3	58.0	W	W	W	99.27
11	.099	.061	.100	54.2	78.4	61.0	W	SW	SW	77.00
12	.151	.243	.250	64.0	78.0	66.7	W	wby N	wby N	91.10
13	.325	.337	.349	61.1	84.1	70.2	W	NE	NE	41.27
14	.375	.335	.300	67.0	82.1	71.0	W	WSW	WSW	50.42
15	.269	.174	.079	63.1	82.2	73.0	NE	WSW	SW	99.24
16	.075	.097	.110	64.0	86.1	67.7	SW	SW	NE	60.00
17	.161	.159	.212	63.0	67.1	64.0	W	W	W	57.71
18	.301	.292	.287	62.0	77.9	66.1	W	SW	W	91.00
19	.201	.177	.101	65.7	81.6	77.0	WSW	WSW	WSW	101.14
20	.067	.121	.150	68.7	82.6	69.8	NE	NE	NE	207.10
21	.150	.154	.160	58.1	59.2	58.2	NE	NE	NE	91.11
22	.247	.277	.300	56.1	64.6	59.1	NE	NE	NE	104.24
23	.351	.340	.311	59.0	80.4	61.7	NE	W	W	81.11
24	.342	.311	.241	56.4	82.1	68.2	W	W	W	77.43
25	.212	.114	.060	64.3	75.0	68.1	W	SW	SW	99.14
26	29.764	29.600	29.799	63.0	65.0	47.0	SW	SW	SW	157.24
27	.849	.899	.961	41.0	47.8	45.0	W	wby N	wby N	145.10
28	30.147	30.112	30.149	37.4	57.7	46.7	wby N	W	W	211.21
29	.169	.174	.199	49.1	67.9	57.5	W	W	W	101.10
30	.160	.06	.125	55.7	75.7	62.9	W	W	W	199.27

REMARKS.

The Barometer indicated a high reading during the month, and attained on the 14th day 30.375 inches; the monthly range was 0.726 inches.

The mean temperature of the month was 65° 53 which was 12° 41 higher than the mean of last September, and 7° 0 higher than the mean annual temperature for September for Montreal.

The highest reading was 86° 01 on the 6th day, and the lowest 35° 0 on the 28th day.

First frost of the Autumn occurred on the morning of the 28th day, and a very small amount of snow fell on the 27th day.

Rain fell on 10 days, amounting to 4.096 inches, and was accompanied by thunder on one day.

— Meteorological Observations taken at Quebec, during the month of September, 1869; Latitude 46° 48' 30" North; Longitude 71° 12' 15" West; Height above St. Lawrence 230 feet, by Sergt. John Thurling, A. H. C. Quebec.

Barometer, highest reading on the 13th.....	30.181 inches.
" lowest " 9th.....	29.387
" range of pressure.....	0.794
" mean for month.....	29.833
Thermometer, highest reading on the 8th.....	82.0 degrees.
" lowest " 28th.....	34.3
" range in month.....	47.7
" mean for month.....	61.8
" Maximum in Sun's rays, mean of (black bulb.)	100.7
" Minimum on Grass mean of.....	51.6
Hygrometer, mean of dry bulb.....	63.4
" wet bulb.....	58.7
" dew point.....	54.9
" elastic force of vapour.....	.439 inches.
" vapour in a cubic foot of air.....	4.9 grains.
" required to saturate do.....	1.5
" mean degree of humidity (Sat. 100).....	74
" average weight of a cubic foot of air.....	527.8 grains.
Cloud, mean amount of (0-10).....	7.0
Ozone, " " 	1.4
Wind, general direction.....	S. W. & N. E.
" mean daily horizontal movement.....	115.4 miles.
Rain, number of days it fell.....	15
" Amount collected on ground.....	3.95 inches.