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DECISIONS OF THE COURTS OF QUEEN'S BENCH AND COMMON PLEAS ON SCHOOL QUESTIONS, IN UPPER CANADA.*

The abbreviation 3, Q. B. R. 241, means Vol. 3, Upper Canada Queen's Bench Reports, page 241.
The abbreviation 7, C. P. R. 227, means Vol. 7, Upper Canada Common Pleas Reports, page 227.

TRUSTEES AND TEACHERS.

(1) *A Local Superintendent Signing a Contract with a Teacher is a mere approval of the appointment.*

A Local Superintendent signing, together with Trustees, a contract with a Teacher, will be considered as having signed the same only as approving of the appointment, and not as contracting with the Teacher.—*Campbell v. Elliott et al.*, 3 Q. B. R. 241.

(2) *The Trustees (and not the Teacher,) the proper parties to sue for a Trespass on the school-house.*

Under the forty-fourth section of the School Act of 1843, 7 Vic. c. 29, the Trustees of the School, and not the Teacher, should sue for a trespass on the school-house; unless it can be shown that the Trustees have given the Teacher a particular interest in the building, beyond the mere liberty of occupying it during the day for the purpose of teaching.—*Monaghan v. Ferguson et al.*, 3 Q. B. R. 484.

(3) *Trustees agreeing to furnish a Teacher with fuel, must be applied to for same.*

A Teacher charged Trustees upon a special agreement stated to have been made by them, to furnish the said Teacher with fuel when required:

Held, that they could not be charged with a breach of covenant, as a request with time and place had not been stated in

* Several of the following abstracts of decisions are taken from the "Canada Educational Directory for 1857-58," edited by Thomas Hodgins, Esq., LL.B., Barrister-at-Law, Toronto. The later decisions, and those omitted in the Directory, have been added.

the Teacher's declaration.—*Anderson v. Vansittart et al.*, 5 Q. B. R. 335. [Qy., whether such an agreement could be enforced. See (6), below.]

(4) *Teacher's agreement with Trustees should be under Corporate Seal.*

In an action brought by a Teacher against Trustees appointed under the [old] School Act of 1846, 9 Vic. c. 20, setting out a special agreement to retain said Teacher in their employment for a year at a certain salary; and also in a special action brought by the Teacher, founded on a verbal agreement for wrongfully and without cause turning the Teacher away, and preventing him thereby earning his salary, &c.

Held. In both cases that the declaration was bad, in not stating that the agreement was made by the Trustees with their corporate seal. (See 56, page 54.)—*Quinn v. Trustees*, 7 Q. B. R. 130.

(5) *Trustees cannot be sued for money, but for order when it is their duty to give an order.*

If the School Trustees refuse to sign the order upon the Local Superintendent for the payment of the School Fund as provided for by the Act, they may be proceeded against by Mandamus; or, perhaps, they may be sued in a special action for not making the order; but they cannot be sued for the money, as that is not in their hands.—(*Idem.*)

(6) *Trustees cannot agree to provide a Teacher with board and lodging.*

Trustees have no power under the School Act to make an agreement for providing the Teacher with board and lodging.—(*Idem.*)

(7) *No Rate can be imposed for the payment of an Unqualified Teacher.*

No rate can legally be imposed for the salary of an unqualified Teacher.—*Stark v. Montague et al.*, 14 Q. B. R. 473.

(8) *Nor for the re-imbursement of Costs in defending illegal acts.*

School Trustees cannot impose a rate to re-imburse themselves for costs incurred in defending unsuccessfully, a suit brought against them for levying an unauthorized rate, or for travelling expenses incurred in order to consult with the Superintendent.—(*Idem.*) (See 42, page 53.)

(9) *Arbitration is the only mode of settling disputes between Trustees and Teacher.*

No action in Law or Equity can be sustained by a School Teacher against Trustees for his salary; arbitration is the only remedy.—*Tiernan v. Trustees*, No. — *Nepean*, 14 Q. B. R. 15.

(10) *Arbitrations with Teachers—Difference in two awards.*

The Trustees of a certain School Section had agreed to engage a certain teacher, but differences having arisen as to his salary, &c., an arbitration was had, and the award made was to the effect, that there was due to the Teacher from the Trustees £50, for which they were individually liable. This award not having been complied with, the Teacher named an arbitrator and gave notice to the Trustees, claiming for his salary since the date of the first award; but they, acting under legal advice, did nothing; and the second arbitration took place without their concurrence. The following was the award then made:—1st. That the arbitrators having received indisputable evidence of the former award, and of its recognition by the parties, agreed to adopt the same. 2nd. That as the Trustees had failed to perform said award, and as, by the 17th section of the School Act of 1850 (p. 51), the Teacher was entitled to his salary at the rate agreed on till fully paid, the said Teacher was entitled to his salary from the date of such award to the present time, with costs of the arbitration, making altogether £95 12s. 3½d.; and further, that he was entitled to such salary for all time to come, until he should be paid in full. (See 4, page 49.)

At the trial, however, the arbitrators quoted an award which was materially different from that proved to have been made by them. (See 1 below.)

On the second award the arbitrators issued their warrant to a bailiff to make the whole sum awarded (which included the sum due under the first award), by seizure and sale of the goods and chattels of said Trustees. (See 6 & 7, page 49.)

The Teacher had been engaged by the Trustees at a certain salary, by verbal agreement only. (See 2 below.)

Held, 1. That as the award of the arbitrators proved, differed materially from their award as pleaded, such plea could not be supported.—*Kennedy v. Burness et al.*, 15 Q. B. R., 473.

(11) *Agreements with Teachers must be in writing.*

2. That the averment of an agreement with the Teacher could be supported only by a written agreement.—(*Idem.*) (See 4, page 49.)

(12) *Personal liability of Trustees dependent upon their neglect or refusal to exercise their Corporate powers.*

3. That as by the Upper Canada School Act of 1850, sec. 12, sub-section 16 (p. 42), the Trustees can only be personally liable when they have wilfully neglected or refused to exercise their corporate powers, such neglect or refusal should have been alleged and shown in the award, to warrant its directions to levy on the Trustees personally. *Semble*, also, that the evidence showed no sufficient ground for such liability. (See 15, this page.)

Quære. Whether the arbitrators have authority to determine the question of personal liability on the part of the Trustees.—(*Idem.*)

(13) *The Arbitrators' award is final as to Teacher's claim for further salary.*

4. That the non-payment of the first award was not a non-payment of the Teacher's salary under his agreement, so as to entitle him to such salary after the award; nor was it a matter in difference, within the meaning of the Act, which could authorize a second reference.—(*Idem.*) (See 16, on this page.)

(14) *Duties and Responsibilities of Arbitrators.*

5. That the arbitrators were not precluded from raising these objections by the provision in the statute that such award shall be final.

6. That the plea which the arbitrators set up, that the grievances charged related solely to judicial acts done in good faith in their capacity of arbitrators and within their jurisdiction, was insufficient, for not stating anything which could authorize an award against the trustees as personally liable.

7. That the plea of their bailiff on similar grounds was also bad.

8. That if the award had been good as to the salary since the first award, yet the including in it the sum given by such award, and for which a levy had been already made, would make the whole award bad.—(*Idem.*)

(15) *Neglect or refusal of Trustees to exercise their corporate powers must be proved.*

In an action of replevin for goods of School Trustees distrained under an award for the salary of a School Teacher, declaring the Trustees individually liable on the ground, "that the Trustees did not exercise all the corporate powers vested in them by the School Acts for the due fulfilment of the contract," made by them with such Teacher.—*Kennedy v. Hall et al.*, 7 C. P. R., 218.

Arbitration—Replevin—Personal liability.

Held, That the award as evidence did not support pleas which averred as required by the 16th clause of the 12th section of the School Act of 1850, a wilful neglect or refusal by the Trustees to exercise their corporate powers as the ground for making them personally liable.

2. That, on the facts, the defendants as Trustees were not personally liable, the award ascertaining for the first time the exact amount due to the Teacher, and declaring the Trustees personally liable without giving them any opportunity to exercise their corporate powers to raise the money to pay it.

3. That the action being of replevin, no notice of action was required.—(*Idem.*)

(16) *Arbitrators' award final as to Teacher's claim for further salary.**Arbitration—Personal liability.*

A School Teacher, after an award had been made in his favor on a dispute as to salary with the Trustees, afterwards made a claim in a second arbitration for the amount payable under the first award, together with his salary for the further period which had elapsed since such award, and sought under an award obtained *ex parte* and a warrant thereon to recover the amount by a seizure of the Trustees' goods. (See 12, on this page.)

Held, On replevin by the Trustees, that such a course was illegal and not contemplated by the School Acts.—*Kennedy v. Burness et al.*, *Murray v. Burness et al.*, 7 C. P. R. 227. (See 13, on this page.)

(17) *Representation as to the character of a Teacher by a rate payer, with a view to obtain redress, is a privileged communication. Malice and falsehood of the representation must be proved in action for libel.*

A representation by the assessed inhabitants of a School Section as to the character of a Teacher, made with a view of obtaining redress, is a privileged communication, which it is of importance to the public to protect; and such a statement would not be the less privileged if made by mistake to the wrong quarter.

Quære. Whether a communication of this nature can be made by

inhabitant of any other part of the Province, would not be privileged.

Where the libel complained of is clearly a privileged communication, the inference of malice cannot be raised upon the face of the libel itself, as in other cases it might be, but the plaintiff must give extrinsic evidence of actual express malice, he must also prove the statement to be false as well as malicious; and the defendant may still make out a good defence by showing that he had good ground to believe the statement true, and acted honestly under that persuasion.—*McIntyre v. McBean et al.*, 13 Q. B. R. 534.

SCHOOL SECTIONS AND SITES.

(18) *Alteration in the boundaries of a School Section does not constitute it a New Section so as to require an Election of three Trustees.*

An alteration in the boundaries of a School Section under the fourth clause of the eighteenth section of the School Act of 1850 (p. 54), does not constitute it a new section, nor make it necessary to call a school meeting to elect new Trustees. Such an alteration only involves a change of parties, from being members of one School Section, and becoming members of another School Section, and takes effect the 25th December next after. Nor is it necessary to show that the people desire an alteration of the boundaries to authorize the Council to make it.—*Chief Superintendent Appellant, in re Trustees No. 2 Moore v. McRae*, 12 Q. B. R. 525.

(19) *The Union of two or more Sections would require a new Election of Trustees.*

The union of two or more School Sections in the same Township into one, may take place at any period of the year, and would then require a new election of Trustees.—(*Idem.*)

(20) *Trustees must sue persons residing outside their Section.*

Trustees are bound to collect by Warrant from the residents of the School Section; and to sue for and recover by their name of office from persons residing without the limits of the Section and making default of payment.—(*Idem.*)

(21) *Township Councils in altering Sections are not required to give notice to parties residing outside of their Township. What is due notice.*

The Municipal Council of a Township passed a by-law, disuniting a Union Section with another Township, and uniting such part Section and two distinct Sections in its own Township into one, after a petition from certain inhabitants of the Sections concerned.

Held, That the Council was not bound to give notice to the inhabitants of that part of the Union Section belonging to the other Township—it being out of its jurisdiction; but in regard to the parties within its authority, it was required to be satisfied that *due notice* had been given. It is made the judges of such “*due notice.*”—*In re Ness v. Municipality of Salfleet*, 13 Q. B. R. 408.

(22) *Notice to parties concerned only is required in altering Sections, or their consent in uniting them.*

The authority of a Township Council “to alter any School Section already established,” is one to which no restriction save *notice*, is attached; but the authority “to unite two or more School Sections into one, at the request of the majority of the freeholders or householders in each of such Sections,” is accom-

panied with a restriction at once expressed; and which restriction does not, by grammatical construction, extend to the power of merely altering boundaries. In the Supplementary Act, the “restrictions in regard to alterations” are spoken of as distinct from any other expression. The intention of the fourth clause of the eighteenth section of the School Act of 1850 (p. 54), is, that in a measure for merely altering the boundaries of Sections, the Township Council may take the initiative; and can act without any previous request of a public meeting; but if they enter it of their own accord, they must see that all parties to be affected by the alteration have been duly notified of the intended step; and if they have been applied to on the subject, they are not bound to entertain it until they see that due notice has been given.—(*Idem.*)

(23) *Detaching parts of new Sections.*

The intention of the seventeenth section of the Supplementary Act, is that the Township Council may pass a by-law for bringing back exclusively to its own jurisdiction, any part of the Township united to another; and that it may make what arrangement it thinks most convenient for giving the inhabitants the benefit of the Common School laws; but it cannot do so unless it clearly appears that all parties have had due notice.—(*Idem.*)

(24) *Formation or alteration of Union School Sections can only be made by Reeves and Local Superintendents.*

The Municipality of a Township may alter the boundaries of School Sections within its township, by taking from one and adding to another, without any previous request of freeholders and householders, and notwithstanding their disapprobation of the change—provided that those affected by the alteration have notice of the intention to make it. But the Municipality has no power to alter the boundaries of a union School Section consisting of parts of different townships—such power pertaining only to the Reeves and Local Superintendents of the townships concerned.—*In re Ley v. Municipality of Clarke*, 13 Q. B. R. 433.

(25) *Dividing a School Section makes only one New Section. — Rate by Trustees de facto.*

On application of the resident inhabitants of a Section, the Municipality of a Township, in 1853, passed a resolution to divide the Section, by taking away a part to constitute a new Section (but no By-law was passed until 1855, when one was adopted confirming the resolution.) A meeting was called for the 16th January, 1854, to elect three new trustees for the Section. In the meantime, on the 10th of January, the ordinary annual meeting was held, and a dispute arose as to whether Trustees should not then be elected for the ensuing year? Some thought not, and left the meeting; while others remained, and proceeded with the election. The Local Superintendent being appealed to, declared the election illegal, considering the Section had become a new Section; and appointed another election to take place on the 16th, when the three defendants were appointed Trustees. In January, 1855, the dispute was renewed and elections held, so that there were two sets of Trustees claiming the office. The first elected Trustees in 1854, abstained from acting; and the defendants imposed a rate, which the plaintiff resisted.

Held, (affirming No. 18, *Chief Superintendent, in re Trustees No. 2, Moore v. McRae*, 12 Q. B. R. 525.) that the alteration did not constitute the Section a new one; but that the rate was legal, being imposed by Trustees *de facto*, who had not been removed.

Quære—Whether such alteration could be made by resolution only.

Quære, also—Whether the decision of the Local Superintendent can be thus incidentally reviewed in an action to recover back the rate.—*Chief Superintendent Appellant in re Gill v. Jackson et al.*, 14 Q. B. R. 119.

(26) *If two Sections be united, in rearranging the School Sections of a Township, an election of three Trustees is necessary.*

In the township of Harwich, prior to February, 1854, School Section No. 1 consisted of the Town of Chatham and a part of the Township; there was also a School Section in operation, known as section No. 2½. In February, 1854, the Township Council passed a resolution dividing the Township into sixteen School Sections. No. 1 (of the new sections) was formed of that part of the Township of Harwich, which, together with the Town of Chatham, had previously been No. 1, added to the whole of 2½ as it existed previously.

In January, 1855, an election for the new Section No. 1 (as created by the resolution of February, 1854) was held, at which one trustee only was elected, and the two other trustees elected the previous year for the then section gave defendant the warrant under which he acted.

Held, That there should have been three trustees elected for Section No. 1 at the election in January, and that a warrant signed by the other two was inoperative.—*MacGregor v. Pratt*, 6 C. P. R. 173.

(27) *Notice should be given before the alteration of School Section Limits be made.*

Before any alteration can be made in the limits of a School Section, notice must be given to the parties interested in the proposed alteration, before the passing of the by-law authorizing the same.—*Griffiths v. Municipality of Grantham*, 6 C. P. R. 274. (See 21, page 51.)

(28) *By-laws for the alteration of School Sections can only be quashed within a reasonable time.*

Where a great length of time (fourteen months) had elapsed before motion was made, the court refused to quash a By-law altering School Sections, it being on its face legal, and having been acted upon, although it was doubtful whether sufficient notice had been given to interested parties.—*Hill v. Municipality of Tecumseth*, 6 C. P. R. 297.

(29) *Two Trustees cannot act without consulting the third.*

Two of the Trustees of a School Section are not competent to act in all cases without consulting the third, and giving him an opportunity of uniting in, or opposing, the acts of his colleagues. (See No. 39.)—*Orr v. Ranney et al.*, 12 Q. B. R. 377.

(30) *In selecting a Site, Trustees cannot act without consulting their constituents.*

Not can the whole body of Trustees, without any reference to the freeholders and householders of the Section, determine upon a site for the school house, and impose a rate to meet the expense of its purchase.—(*Idem.*)

(31) *First arbitration in regard to a School Site cannot be set aside by a subsequent special meeting.*

When a meeting was held to change the site of a School house, and arbitrators appointed who met and decided the question, but their decision was not acted upon; subsequently another meeting was called, and their decision and proceedings were acted upon, and the site changed.

Held, That the proceedings were irregular, and that the trustees had not authority to change the site of the school house without the sanction of a special meeting of the freeholders and householders, and that the second meeting had no authority to alter the determinations previously made.—*Williams v. Trustees, No. 8 Plympton*, 7 C. P. R. 559.

(32) *School Rates must be levied upon all taxable property.*

SCHOOL RATES IN TOWNSHIPS.

When the municipal council of a Township, intending to act under the Upper Canada School Act of 1850, section 18, cl. 3, for Common School purposes, levied a rate upon the resident inhabitants of a School Section only, it was held, that under the School Act, as well as the Municipal and Assessment acts, the by-law was invalid, because the rate should be levied on all taxable property, whether real or personal, of the inhabitants resident as well as non-resident.—*In re De la Haye v. Municipality of the Gore of Toronto*, 2 C. P. R. 317. (See 48, page 54.)

(33) *Executors equally with the testator liable for School-Rate on Non-Resident Land.*

A resolution of the freeholders and householders of a School Section passed at their annual meeting, that the trustees should tax the property in such Section to pay the teacher's salary and the expenses of the school, followed by a resolution of the Trustees, directing a rate to be levied on the ratable property of such Section to raise the sum required, and the preparation of a rate-bill and warrant, are sufficient to render a non-resident, having real estate within the Section, liable for the sum rated by the Trustees according to the assessed value of his real property; and that being so liable, an executor representing the estate is liable in an action of the same nature to which the testator might have been subjected.—*Trustees No. 2, Dunwich v. McBeath*, 3 C. P. R. 228. (See 43, page 53.)

(34) *A Corporation aggregate is not bound to appear as Witnesses in Court, but its Members may be Subpœnaed.*

A corporation aggregate is not bound to appear at the trial as witnesses, under a notice served on its attorney under the Statute 16 Vic., cap. 19, sec. 2. If the individual members are required to appear they may be individually subpœnaed.—(*Idem.*)

(35) *Discretion to raise a Loan for School Section purposes rests as much with the Council as with the Section.*

A by-law of a Township Council authorizing the levy of certain rates in a school section having been quashed, the council then without a second School Section meeting having been called, passed another by-law for the same purpose, it was

Held, That the discretion to raise the sum within any number of years, not more than ten, rests as much with the council as with the school meeting or trustees.

That a second meeting of the inhabitants after the former by-law had been quashed, was not necessary.

That the rate was not declared on the property assessed in a previous year; but only the amount to be raised was determined by reference to the assessed value of property in that year.—*In re De la Haye v. Municipality of the Gore of Toronto*, 3 C. P. R. 23.

(36) *A rate may be levied for a larger sum than is required.*

That the rate not being complained of as excessive, its being calculated to realize more than the precise sum required, did not render the by-law invalid.

That the duty imposed on the clerk in making out the assessment list of the section in accordance with the Township by-law, was in accordance with the Statute.

That a proviso of the by-law sanctioning receipts, *pro tanto*, given to those who had paid under the invalid by-law, did not render the second by-law void—because such parties, although entitled to restitution, would have to pay *de novo*.—(*Idem.*)

(37) *Townships have no power to levy a School-rate for County purposes.*

A Township by-law was quashed in so much of it as related to the raising of a sum of money, to defray the demands of the County Council on the township, and as an equivalent to the Legislative School grant; it not appearing in the face of the by-law that it was directed to the purpose of meeting a deficiency.

It follows therefore that a Township Council has not power to pass a rate in aid of any county rate, as the thirty-first section of the Act 16 Vic., cap. 182, authorizes the County Councils to pass by-laws to raise money for County purposes, and the Township Council for Township purposes; and the 27th section of the School Act 13 and 14 Vic., cap. 48, expressly makes it the duty of the County Council (and not the Township Council) to cause to be levied each year upon the several townships of the County, such sums of money as shall at least be equal, clear of all charges of collection, to the amount of school money apportioned to the several townships out of the government grant.—*Fletcher v. Municipality of Euphrasia et al.*, 13 Q. B. R. 129.

(38) *Trustees' Warrant to collect School Rates, only legal within their own Section. They must sue non-residents.*

School Trustees can only give a warrant to collect School rates within the limits of the Section for which they are appointed. They can only sue non-residents.—*Gillies v. Wood*, 13 Q. B. R. 357. (See 20, page 51.)

(39) *Form of Warrant.*

The warrant may be signed by two Trustees (but see 29, page 172).

In making cognizance under such warrant, it is sufficient to state that the plaintiff was duly assessed, and that the collector was duly appointed. It is not necessary to state therein that the rate was decided upon at a meeting, as required by statute, or how the appointment was made.—(*Idem.*)

(40) *An undivided Lot must be in the same Municipality. Municipal Boundaries divide Lots.*

Certain property, through which ran a municipal division line between a Town and Township, was assessed by the Trustees of a School Section in the Township, according to the value of that portion of it lying in their section, and outside the town. The owner refused to pay, and was sued by the Trustees as a non-resident, in accordance with the provisions of the School Law. The Judge of the Division Court decided against the Trustees, on the ground that the proviso in the 15th section of the Supplementary School Act of 1853, referred to undivided lots within different municipalities, as well as within but one municipality. The Chief Superintendent appealed the case, and it was

Held, That the Trustees acted rightly,—they being guided by the assessment roll of their municipality; and that the proviso referred to applies only to the case of an undivided property extending into more than one School Section of the same municipality, and not where the land lies in different municipalities. Hence

municipal boundaries divide lots.—*Chief Superintendent appellant in re Trustees No. 4, Hallowell v. Storm*, 14 Q. B. R. 541.

(41) *Trustees can levy a rate for the erection of a School-house without consent of a public meeting.*

Under the School Act of 1850, Trustees are authorized to levy a rate for the erection of a school-house in their section. This authority is more clearly and definitely expressed in the sixth section of the Supplementary School Act of 1853.—*Chief Superintendent Appellant, in re Kelly v. Hedges et al.*, 12 Q. B. R. 531.

(42) *Trustees can levy rate for defraying costs of defending a groundless action.—Separate school supporters, when exempt.*

A rate may be levied to reimburse School Trustees for the costs of defending a *groundless* action brought against them (See 8, page 164). Where such charge was incurred before the establishment of a separate Roman Catholic school:

Held, That the supporters of that school were not exempt from the rate.—*In re Tiernan and Municipality of Nepean* 15 Q. B. R. 87.

(43) *Testator's estate liable for School Assessment rate in the hands of devisees and executors.*

An action of replevin may be brought upon a distress for school rates, and notice of action is not necessary, where several devisees and executors were rated for a school rate in respect to the property of their testator, as "John Applegarth and brothers," which entry appeared to have been made at the instance of some of them; but two of them only had slept on the premises occasionally, although such was not their ordinary place of residence, and they had received the usual notice of assessment in that form without appealing, and the same two had paid taxes on an assessment on the township roll in their individual names.

Held, 1st. That the facts afforded sufficient evidence to show that the plaintiffs were "inhabitants" for the purposes of the rate.

2nd. That the parties were sufficiently named on the roll to render the rate lawful.

3rd. That a demand made by the collector on "John Applegarth," named on the roll, was sufficient to bind all the plaintiffs.—*Applegarth et al. v. Graham*, 7 C. P. R. 171.

CITIES, TOWNS, AND VILLAGES.

(44) *Boards of School Trustees, in Cities, Towns and Villages, not subject to the restrictions of rural Trustees in regard to the number of schools to be established.*

The School Trustees in cities, towns, and villages, have unlimited discretion, under the twenty-fourth section of the School Act of 1850, as to the number of schools to be kept up, and are not subjected to the restrictions in this respect imposed upon school section trustees in Townships.—*In re Board of School Trustees v. Municipality of Brockville*, 9 Q. B. R. 302.

(45) *Payment by the Town Council of a part of the Trustees' Estimate a recognition of the whole.*

When an estimate of the sum required for school purposes was sent to the Municipal Council, by the Board of School Trustees, and the Council recognized the presentation of such estimate by paying a portion of the amount, and submitted to court their reasons for refusing to pay the balance.

Held: That by such recognition of the Trustees' estimate,

they were precluded from pleading that it had not been laid before them as the law required.—(*Idem.*)

(46) *A resolution of a Board of School Trustees is not the Estimate required by law.*

The communication by a Board of School Trustees to the Municipal Council of a town, of a resolution of the Board, that the chairman do order the Town Council to furnish the Board with a sum of money immediately, for the purpose of purchasing a site and erecting a school-house—a copy of which resolution was sent to the Town Council—is not a compliance with the sixth clause of the twenty-fourth section of the School Act of 1850, requiring the Board to prepare an *estimate* of the sums it may require; and consequently does not render the Town Council liable to be compelled to pay the amount by mandamus.—*In re Board of School Trustees v. Municipality of Port Hope*, 4 C. P. R. 418.

(47) *A vote of the school rate-payers not necessary in Cities, Towns, and Villages, as in school sections.*

A vote of the rate-payers is not necessary in cities, towns, and villages—although it is in school sections—to authorize an application to the Town Council, or a rate by the Board.—(*Idem.*)

(48) *Ward School Assessments of a City or Town illegal.*

A Board of School Trustees applied to a Municipal Council to levy a distinct sum in each of the wards of the Municipality, and the Council passed a By-law for that purpose:

Held, That it was illegal. An assessment for School (as well as Municipal) purposes must be levied equally upon the rate-payers of the Municipality in proportion to their ratable property, and cannot be levied by an unequal rate in the different wards of such Municipality.—*In re Scott v. Municipality of Ottawa*, 13 Q. B. R. 346. (See 32, page 52.)

(49) *Order on Treasurer must precede an application for writ of Mandamus to compel payment.*

The Board of School Trustees of a village applied to the Village Municipality to levy a sum of money required to pay for a School site which they had contracted to purchase. The Municipality refused to do so, and the Board applied for a mandamus. It did not appear that the Trustees had appointed a Secretary-Treasurer.

Held, That the Board should first have given an order to the person from whom they had agreed to purchase, upon the Treasurer of the Municipality.—*In re Board of School Trustees v. Municipality of Galt*, 13 Q. B. R. 511. (See 56, on this page.)

(50) *Meaning of "Taxable Inhabitants," in Cities, Towns, and Villages.*

Persons who are rated for statute labor only, and who are not householders, are not "taxable inhabitants" within the meaning of the twenty-second section of the School Act of 1850, and cannot therefore vote at the election of School Trustees.—*The Queen ex rel. McNamara v. Christie et al.*, 9 Q. B. R. 682.

(51) *Extension of time for collection of School rates.—Power of Collector.*

The time for levying a School tax in the City of Kingston, imposed by By-law in December, 1855, was extended by resolutions of the City Council, under 18 Vic., ch. 21, sec. 3, until the 1st August, 1856, and again, on the 22nd December, 1856, to the 1st March, 1857.

Held, That the collector, who was the same person for both years, might distrain, between the 1st August and the 22nd De-

ember, 1856, although no resolution extending the time was then in force.—*Newbury v. Stephens, et al*, 16 Q. B. R. 65.

(52) *Moneys collected under a By-law of any Municipality must be paid to the Municipal Treasurer.*

Under a By-law of the District of Huron Municipal Council, a certain School Section was assessed in £25 to build a school-house therein;

Held, That all monies collected for the erection of school-houses under any By-law of the District Municipal Council were payable to the District Treasurer, who alone under the late Act was authorized to take security from collectors for the payment of moneys collected for public purposes.—*Brown v. Styles et al*, 2 C. P. R. 346.

MISCELLANEOUS.

(53) *Decisions on School Questions by the Chief Superintendent.*

The duties imposed upon the Chief Superintendent and the several Local Superintendents by the School Acts, show that the Legislature intended to provide a domestic forum for the settlement of school questions; and the reference of several other matters involving legal considerations to arbitration, answers the objection sometimes urged that the Legislature did not mean legal questions to be determined by an officer who, perhaps, might not be versed in legal technicalities. It appears, therefore, looking at the whole scope of the acts, that it was supposed the affairs of the schools could be managed by means of arbitrators, and references to the Local Superintendent, and finally to the Chief Superintendent, without troubling the Courts.—10 Q. B. R. 475.

(54) *Maximum rate of interest to be paid by Municipal Councils.*

Municipal Corporations cannot, by By-law, provide for money at a rate of interest exceeding that authorized by the Statute.—*Wilson v. Municipality of the County of Elgin*, 13 Q. B. R. 129.

(55) *Treasurer must honor Trustees' Orders for School Moneys.*

That portion of the rate which by the enactment of law goes into the hands of the Treasurer, is subject to the order of the Trustees. He may not have received the money, or may refuse to obey their order, but in neither case can they be liable to an action for not paying the money. They are public officers, who have only to discharge their proper duty. If they refused to make an order, a Mandamus would lie against them, or perhaps a special action for not making the order, but not an action for the money, for that is not in their hands. If the Treasurer fails in his duty he is liable to indictment, and might be found liable also to a remedy by action.—*Quin v. Trustees, No. 4, Seymour*, 7 Q. B. R. 138. (See 49 and 52, on this page.)

(56) *School Trustees contract not valid without their Corporate Seal.*

The Trustees of a School Section being a corporation under the School Act of 1850, are not liable as such to pay for a school-house erected for and accepted by them, not having contracted under seal for the erection of the same. The seal is required as authenticating the concurrence of the whole body corporate.—*Marshall v. Trustees No. 4. Kitley*, 4 C. P. R. 375. (See 4, page 49.)

* "A corporation being an invisible body, cannot manifest its will by oral communication; a peculiar mode has heretofore been devised for the authentic expression of its intention,—namely, the affixing of its common

(57) *School Trustees contract under Seal signed by a majority of the Corporation binding.*

A contract was entered into by two of the Trustees of a Section under their corporate seal for building a school house, after the house was built the Trustees refused to pay on the plea that the contract was not legal, a jury having given a verdict in favor of the Trustees, a new trial was ordered, and the verdict set aside.—*Forbes v. Trustees, No. 8, Plympton, 8 C. P. R. 73.* (See 4, page 49; and 56, page 54.)

(58) *A Township Superintendent can only sue Collector for Penalties.*

A Township Superintendent has no legal authority to sue the collector of the Township for monies received by him, *not in the nature of penalties.*—*Shirley v. Hope, 4 Q. B. R. 240.*

(59) *Separate Schools for Coloured Inhabitants.*

(1) Where no Separate School is established for the children of the coloured inhabitants, such children have the same right to attend the Common School as the other children of the Section.—*Washington v. Trustees, No. 14, Charlotteville, 11 Q. B. R. 569.*

(2) Residents of a School Section in which a Separate School has been established for the class to which it belongs—as in this case for coloured people—are not entitled to send their children to the general Common School of such Section.—*In re Dennis Hill v. Trustees, Camden and Zone, 11 Q.B.R. 573.*

II. Papers on Practical Education.

1. A COMPARISON OF THE SIMULTANEOUS, MONITORIAL, AND INDIVIDUAL METHODS OF TEACHING.

Collective teaching is a primary necessary of the schoolmaster, and the difficulty of arriving at the most effective means of accomplishing it has originated various plans. To teach even a small group of youths satisfactorily—to distribute an equal share of attention to each and as nearly as is compatible with their varying degrees of natural capacity, to confer on each an equal measure of benefit—must of itself prove a severe test of a teacher's ability; but when the numbers to be handled are large, the very highest degree of tact is required, while one scholar of the group is reading "in his turn," to sustain the attention of the remainder, and in questioning, to arouse at once an individual and a general effort to reply. The natural tendency on the part of the unoccupied pupil is to lapse into a state of listless indifference, and the equally natural error of the unskilful or indolent teacher is to accept the *readiest* answer, however clumsy and inaccurate; or, if no approximate answer can be had from the class, to supply it at once himself, and pass rapidly on to something else, without any attempt to arouse the attention and excite the reasoning powers of his pupils by gradually leading them up to what ought to have been the reply. Thus, the faulty or the accurate performance of one is not made available for the improvement of the others; the minds of by far the larger proportion of the class are but languidly interested or are wholly inactive, and loose discipline, with its unhappy consequences, becomes inevitable.

It was long before any well-defined attempt was made to cope with the difficulties and remedy the abuses here indicated. At length however, arose the *monitorial system*, which had a direct reference to the exigencies of the case. For it was evident that if, without increasing the actual number of masters, the school could be stimulated into activity at a greater number of points at one and the same time, an all-important end would be gained. On the monitorial principal, then, which became rapidly popular, the school was divided, so to speak, into a vast number of living parts, the learner becoming teacher in his turn to a section of pupils less advanced than himself, and alternating the receptive with the communicative state according to rules prescribed.

seal; and it is held that though the particular members may express their private consent by words, or signing their names, yet this does not bind the corporation; it is the fixing of the seal, and that only, which unites the several assents of the individuals composing it; and makes one joint assent of the whole.—*Smith's Mercantile Law, B, I. C. 4,*

Experience subsequently proved that the technical superiority of the monitors was inadequate to the end in view, and that, in addition to this qualification, permanency of office was desirable. And here the apprenticeship scheme of your Lordships was introduced, with its appropriate remedy, adapting itself partially to the machinery already in operation, and not necessarily supplanting, but materially aiding the monitorial method.

Meanwhile, however, there had been adopted in Glasgow, as a distinguishing feature of what is termed the "training system," a mode of dealing with masses of pupils which, considered from the point of view of the monitorial scheme, wears a somewhat reactionary aspect. On the monitorial plan, simply as such you do not despair of maintaining the activity of an entire class, or of an entire school, although you deal, *immediately* only with individuals; you merely, by a process of subdivision, increase the number of points at which you act upon the school. But the "simultaneous," system does in principle, despair of this; and even after the management of a school has been rendered easier by the employment of monitors, proceeds upon the assumption that you cannot secure general attention and interest in your groups of pupils, unless these groups, in their entire numerical strength, are unceasingly made to furnish such lively and unmistakable demonstrations of activity, as on the non-simultaneous plan, are required only of the individual immediately addressed. The simultaneous system consists in treating a class as a unit; it ignores, in a great measure, the individual scholar; it teaches reading simultaneously, and demands that the answers to questions shall be given in one simultaneous shout. It proves, therefore, to be a mechanical artifice for securing universal activity, by insisting on a universal demonstration of activity.

The *Simultaneous system*, as is well known, rapidly propagated itself throughout the country, and is now extensively practised, forming in some schools the leading characteristic; while in others it is adopted as an auxiliary to the individual method. Now, it is plain that the acceptance with which it was met must have a reason; it would be vain to deny that it possesses features calculated to recommend it to teachers and managers of schools. Some of these features are so patent and striking that it is no wonder they have made considerable impression on the minds of educationists, and have secured for the simultaneous system a large amount of patronage. I have already indicated one of them,—the demonstration of universal activity; and another no less obvious recommendatory trait is, the saving of time. I admit the appearance of activity, and I admit the saving of time; but the sacrifices which it involves are generally greater than the advantages which it secures.

We may examine the working of the simultaneous system under two heads; first, its results upon the pupil, and second, its results upon the teacher. My remarks are directed not so much against the simultaneous method as against the abuse of that method.

First, then, with regard to the system as affecting the pupil. The machinery of the simultaneous method being set in operation, the paramount difficulty of the schoolmaster seems conveniently overcome,—universal activity appears to prevail. It is true that, in the perfected form of the method, mechanical activity may be secured, i.e., words may be enunciated with satisfactory accuracy; but close observation will determine that it is only a very small proportion of the class who are in any way conscious of a connexion between the sound and the sense of the words they utter. And this is a perfectly natural consequence, seeing that in simultaneous reading, for example, every individual effort is concentrated on the anxiety to keep the measured time. While therefore, the bare art of collective utterance may be conveniently cultivated under this system, the entire aim of learning to read, to wit, the habit of accompanying comprehension, is on the whole, foiled.

On pointing out the faulty character of the reading of individual pupils, I have been triumphantly referred to the *simultaneous* performances. It is true I have heard a class read simultaneously with striking effect, producing at first a most favourable impression; which impression, however, was completely and very unpleasantly dispelled when the pupils were tested singly. About one-fifth of the whole may have read as well as the class collectively appeared to do, while the rest fell various degrees short of the proficiency which they ought to have attained, and which an unwary observer would have imagined they had attained.

In those schools, again, where the simultaneous method is adopted as an auxiliary, it is employed in questioning for the specific purpose of confirming, on the composite mind of the class, what may have been separately said by a pupil or teacher. But unless the method is practised with a skill so rare that I have hardly ever met with it, the pupil singled out, if able to repeat the answer intelligibly, will be found incapable of *stating the question* to which, with the assistance of the rest of the class, he mechanically responded.

It will be admitted that any mode of training which does not foster independent development and self-reliance, fails in one of the most essential requisites of all education. But does the simultan-

sons system, fully carried out, and as generally practised, encourage independent exertion and self-reliance? The general tendency of the method might of itself indicate the reply; but I am bound to state the result of my observations on this point. Not only have I been unable to ascertain that the invaluable habit of free independent effort, and the high social virtue of self-reliance, find their appropriate encouragement in simultaneity of utterance; but, on the contrary, so far as my experience of the general abuse of the system qualifies me to pronounce an opinion, I must hold that it checks their growth. In collective shouting the "sympathy of numbers" holds undisputed sway. Boldness of expression is in exact proportion to numerical strength, while it waxes feebler with diminished numbers, until, when a single unaided effort is challenged, it cringes into low hesitating indistinctness. This is true always of the large majority, and the "leaders" of a class can alone be excepted. As the simultaneous system professedly discourages, and indeed in a great measure precludes, emulation, one of the principal stimulants to voluntary exertion and courageous self-assertion is necessarily absent.

I have now to say a very few words on the simultaneous system with especial reference to its effect upon the teacher. As the success of the method has not been proved, this phase of the question assumes an importance proportionate to the amount of energy now being comparatively wasted in our public schools.

In the ordinary way of applying the simultaneous method, partly by teachers and monitors, no skill is demanded, and consequently none is exercised; in the process of its *perfect* application, the leading qualifications needed are, constant vigilance of eye and discriminating acuteness of ear. Without these the machinery of the system cannot be efficiently worked. It would be well if they were generally present, but I rarely find that the eye is much used for the purpose of maintaining correct discipline, and certainly the ear is never used as the sole test of reading. However, granting that the employment of the simultaneous method does produce in the teachers who use it a more than ordinary degree of acuteness in the faculties alluded to, what after all is the special value of the heightening of these faculties? That value consists solely in the greater power conferred of maintaining the *police* of the school. But if the faculties which the simultaneous system mainly develops in a teacher are not so much of an intellectual or moral as of a physical cast, and have reference principally to the detection and checking of abuses, does this add to the dignity of the method? No doubt it would be mere cavilling to find fault with a special cultivation of the eye and ear, provided the general tendency of the system were to give a broad and equal encouragement to *all* those qualifications which go to constitute professional ability in the schoolmaster. But if it demands and fosters professional ability in general, how, I would ask, does it occur that the extension of that system has taken place not only in quarters where it is consistently employed as a means of cultivation, but in a marked degree also over fields acknowledged to be barren? My answer to this is, that the effect of the system as ordinarily practised is, to call into play and maintain in exercise only a small amount of professional ability. So far has the mere empire deviated from the true spirit of the "training system," that all the arguments adduced by teachers in favour of simultaneity resolve themselves into these two,—facility of technical acquirement on the part of the school, and ease on the part of the master. I have already drawn attention to the fact, that the appearance of technical proficiency on the part of the class is most frequently deceptive, and we are therefore quite prepared to find that the communication of this appearance of proficiency is *easy*. Were ever any great and good results brought about by *easy* methods?

There is, indeed, one point of view in which the use of the simultaneous system cannot be said to confer ease either on teacher or scholar; for it frequently interferes to a serious extent with the physical comfort of the school. In some schools where the teachers are distinguished by superior energy and the most self-denying toil, I have occasion to admire their patient endurance under tests so severe that I can only compare it to the fortitude inspired by military discipline. Of these, a surprising number have succumbed from over-exertion, and the evil effects flowing from the same source are telling upon the constitutions of others so palpably, that the subject has been represented to me by various parents and school managers. I have not dwelt on any of the really advantageous features which the method, when judiciously applied, certainly possesses. I consider, for example, that it may be profitably employed in purely mnemonic exercises, such as learning the alphabet and spelling, and, of course, in all the departments of physical discipline. But in teaching these or any other branches, nothing can be done without *skilled application*.

I now proceed to consider the individual method in collective teaching, and its applicability to the necessary purposes of the common school. In several schools this system of teaching is alternated more or less frequently with the simultaneous system. But to whatever extent they are "mixed," their peculiarities and comparative advantages or disadvantages must be weighed in separate scales.

The individual method consists in the performance of the reading by single pupils at a time, and in the master's either addressing a question to this or that member of the class individually, or to the class collectively, with a view to an individual voluntary reply. Its primary recommendations are, that it is natural; that it does not mentally or physically overstrain either pupil or teacher; and that it is capable of calling forth the "whole nature," the entire capacity of both. I readily concede that, were a comparison instituted between the results of the two systems under review, the schools whose leading characteristic is a *skillfully applied* simultaneous procedure would assert their superiority over those taught in the ordinary individual style. That the best "simultaneous" schools, however, cannot compete with the best "individual" ones is adequately proved by my experience.

The object of the teacher who practises individual method "is to present food for every variety of mind, suited to every capacity, without overstraining any; and to cultivate by exercise every varied power of human nature." He must therefore bring every available faculty into play, so as to impart, confirm, aid, and encourage wherever there is need. He will show tact in distributing the effect produced on one over the whole group with which he is dealing, but especially in communicating it to those who may happen to be defective on the particular point which is being treated. The extension of the hand on the part of the pupil is a frequent and, as I think, an important accompaniment of individualization. It is indicative of a desire to reply, and a larger or smaller show of hands is of course secured, according to the ease or difficulty of the question. After carefully scanning the class, and encouraging the less sharp or the less adventurous youths to co-operate, the teacher, if dissatisfied with the number of hands as compared with his estimate of the facility of the answer, repeats the question in simpler and inverted forms. He is supposed to take the answer from among the dullest lads, and if it happens that he receive a wrong answer, then the opportunity is seized of kindly showing its absurdity. The acuteness of the teacher must, however, be instantaneously exercised in seizing upon the process by which the error was arrived at; the result will furnish a guide to accurate thinking for the whole class. Should the answer be correct, on the other hand, further matters are proceeded with, the teacher having gained an accurate measure of the lowest capacity of his class, and being thus enabled to guard against too simple questions in future; or before proceeding to a fresh question, he may, if he choose, select another of those who made the sign of readiness to answer, and rapidly subject him to a process similar to that through which his neighbour has just passed. To keep alive the interest of the class is the teacher's constant effort, and experience convinces him how little the possibility of doing this depends on the nature of the subject upon which he is questioning. It is enough that his interrogatories be of a stimulating character, not too easy, nor yet calculated to depress by being too difficult, but of such a sort that they present obstacles which the pupil, by the voluntary exertion of his own unaided mental strength, may hope to overcome. Assuming an accurate organization which provides him with classes in which the two extremes are not far apart, it is abundantly possible for him to adopt the style of questioning indicated, and to preserve as a general rule, that medium amount of difficulty which will neither suffer the interests of the more advanced to cloy, nor the spirit of the less able to sink. Under these circumstances, provided the teacher's own manner evidences a genuine interest in the solution of the question, and that he has already that sympathetic relation to his pupils which can alone justify his position, the utmost eagerness to reply will be manifested,—an eagerness which should augment by seeming to restrain. Tact is required to do this delicately. While restraining, he wards off the chances of an accurate answer, and the eagerness becomes impetuosity. This is his precious moment. It is precisely that tension of mind, and that concentration of thought and interest which to him, as an educator, are invaluable. For this, then, he has laboured, and to this the answer is but the crisis; in comparison with the activity of this suspense, the *fact* to be elicited is, after all, of trifling importance. But as there is a point at which tension ceases, at which the interest must slacken or snap, judiciously he must guard against over-doing his part, trusting to the suggestion of a well-trained instinct as to the measure of suspense. Finally, when he has secured the answer, he may find it, though in substance correct, faulty as regards enunciation, adequateness, or grammatical expression. This affords the youth, successful so far, an opportunity for self-correction; failing which, the correction is made for him by a repetition of the same plan. Thus the power of expression—an almost unknown branch of elementary instruction—is developed; and this will form a valuable preliminary to future and higher grammatical cultivation. The teacher must, however, be careful to accept gratefully the most simple forms of expression which have sprung from individual conception. Habit will accomplish him in the art of doing all this with comparative rapidity; and every successive lesson brings with it, on the part of the class, fewer and fewer inaccuracies. Were the method thus described generally

applied with skill, as I have seen it applied by a few, the pupil would no longer be a machine, nor teaching a drudgery. It would be painful to contrast the natural, pleasurable and healthy interchange of thought and feeling which it calls forth, with simultaneity of action. And even supposing that a less numerous array of acquisitions were thus secured than by the opposite method, I would ask, of what nature are those more numerous results which are attained through means of the simultaneous system? Precisely those which, by universal confession and natural consequence, begin to expire from the moment a child leaves school. Through well-applied individual teaching, on the other hand, the fact becomes interwoven with the mind, and is made a permanent possession, while at the same time an ever-increasing inclination to add more is imparted; and thus is attained the ultimate end of all—the power and the habit of self-education. —From Mr. Inspector Laurie's Report to the Committee of Council on Education.

2. HOW SHALL I INTEREST MY PUPILS ?

Be sure that unless you do, you will fail as a teacher. Feel that you are responsible for the progress of every child committed to your charge. Do not excuse yourself by charging indifference upon the parents or neglect of duty upon the district board. Understand that you are to correct, as far as possible, all that has been amiss in the conduct of former teachers, as well as to advance the school. In short, do not complain. Study to feel an interest yourself. Enthusiasm is contagious. A teacher, in earnest, can do all things. Nothing will supply the want of a deep interest in the business of teaching. All cannot feel this, all cannot paint, or use the sculptor's chisel, or write an epic—but let those who cannot, seek some other calling. No man can teach except he be called. He must be a man in the manliest sense of the term. He must furnish the clearest evidence that his motives are disinterested, his objects noble. He must sympathize with the unfortunate, defend the defenceless, and show in his daily conduct those manly virtues that children and youth so much admire. A child instinctively despises a mean act in a teacher. As to some of the means which the teacher may adopt, we may mention the following :

1. Show a rational interest in the studies of the School.

Do not attempt to make the lessons so simple that recitation becomes a pastime. Show your pupils that *effort* is the price that all must pay for knowledge. Let them feel that what is not *striven* for is not worthy them. Inspire them with the conviction that the studies of the school are important, and then all necessary labor is pleasant. Let them feel that there must be hard study, close attention and self-denial in school in order to secure the objects of the school. Explain to them daily the relation between vigorous, persistent, and intelligent effort and ultimate success—tell them of difficulties surmounted, of obstacles overcome, of intellectual battles fought, of glorious victories won. Make them feel that the noblest virtues are those of the mind. Point out the relation of success in study to future prosperity and happiness, and, in short, show them that the exercises for the school room are necessary preparation for the future.

2. Make the school-room attractive.

Let there be no petulance or moroseness there. Be in earnest—let the movements of the teacher and pupils be active and still. Be accommodating and kind. Let the tone of voice and the manner of expression be such as will encourage the timid and restrain the wayward. Adorn the walls with works of taste and use; pictures, busts, maps, and charts. Institute prizes of books and establish a good library. Let the school-room be kept neat and clean. Make it seem like home. Allow no boisterous conversations, no rude playing in it. Let it be sacred to what improves, refines and educates.

3. Manifest an interest in the recreations of the pupils.

Go to the playground—run, jump, and play at ball, or engage in any sport you can commend. 'Be familiar but by no means vulgar.' Give evidence that you feel an interest in the enjoyment of your pupils, and you will secure their friendship. Every teacher should study to understand what sports and games are proper for the playground, and thus be gratified to direct as well as in the school-room.

4. Cultivate the moral powers of your pupils.

Show them the importance of living for some object truly good. You can not interest or benefit those who have no rational ideas of the end of life. Show your pupils that God has inseparably joined goodness and happiness, and that to expect the one without the other is folly. A school is as dependent upon its moral tone for success, as a community.—Reverence the truth in all you say and do, and act and feel. Let scholars feel *how mean it is to utter or act a lie*. In all your teaching, teach the truth—never make a rash promise, but fulfil to the letter every one you make. Cordially, and without cant or hypocrisy recognize the claims of the Creator upon the obedience and love of all men. Cherish all those virtues that adorn and beautify a noble, generous, manly life. Hold good men up as models for

imitation and as objects for respect. Without a public opinion in school, which is in favor of virtue and good order, the school is an unmitigated curse.—*Wis. Jour. of Education*.

3. EDUCATION A SOURCE OF WEALTH.

How is a nation to grow rich and powerful? Every one will answer—by cultivating and making productive what nature has given them. So long as their lands remain uncultivated, no matter how rich by nature, they are still no source of wealth; but when they bestow labor upon them, and begin to plough and sow the fertile earth they then become a source of profit. Now is it not precisely the same case with the natural powers of the mind? So long as they remain uncultivated, are they not valueless? Nature gives, it is true, to the mind talent, but she does not give learning or skill—just as she gives to the soil fertility, but not wheat or corn. In both cases the labor of man must make them productive. Now, this labor, applied to the mind, is what we call education; a word derived from the Latin, which means educating or bringing forth the hidden powers of that to which it is applied. In the same sense, also, when we use the word cultivation, we say, "cultivate the mind," just as we say, cultivate the soil.

From all this, we conclude that a nation has two natural sources of wealth, one the soil of the nation, and the other the mind of the nation. So long as these remain uncultivated, they add little or nothing to wealth or power. Agriculture makes one productive, education the other. Brought under cultivation, the soil brings forth wheat and corn, and good grass, while the weeds and briars, and poisonous plants are all rooted out; so the mind, brought under cultivation, brings forth skill and learning and sound knowledge, and good principles; while ignorance and prejudice, and bad passion, and evil habits, which are the weeds and briars, and poisonous plants of the mind, are rooted out and destroyed.

An ignorant man, therefore, adds little or nothing to the wealth of a country; an educated man adds a great deal. An ignorant man is worth little in the market; his wages are low, because he has got no knowledge or skill to sell. Thus, in a common factory, a skilful workman may get \$10 or \$15 a week, while an unskilful workman must be contented with \$2 or \$3. In the store or counting-house, one clerk gets \$1,000 salary because he understands book-keeping or the value of goods; while another, who is ignorant, gets nothing but his board. * * * We see this difference, too, when we look at nations. Thus, China has ten times as many inhabitants as England, but England has an hundred times as much skill; therefore, England is the more powerful of the two, and frightens the government of China by a single ship of war.

Thus, too, among the nations of Europe. Prussia is more powerful and prosperous than any other of the same size on the continent, because all her people are educated, and that education is a Christian one, making them moral and industrious, as well as skilful. If, then, the education of the people be necessary to the prosperity of the nation, it is the duty of the government or nation to provide for it; that is, to see that no child grows up in ignorance or vice, because that is wasting the productive capital of the country. This education, too, should be a Christian education, in order that children when they grow up should be honest, faithful, and temperate; for if a man be a liar or a drunkard, his knowledge and skill is worth little to his country, because he will be neither trusted nor employed.

None know the value of education but those who have received it. It is therefore the duty of every child who has been well educated himself, to use his influence, when he grows up, to extend it to others; and if he be a legislator, to make it national and universal in his country.—*Hunts' Merchants' Magazine, April, 1859.*

III. Biographical Sketches.

No. 6. MADAM ISABELLA ELIZABETH GAMBLE.

Isabella Elizabeth Gamble, the third daughter of Dr. Joseph Clarke and Isabella Elizabeth Alleyn, who was born at Stratford in Connecticut—then a colony of Great Britain—on the 24th October, 1767. In the year 1776 her father, faithful to his allegiance, repaired to the British army in New York, to which place his family followed him. At the peace of 1783 Dr. Clarke removed with his family to New Brunswick (then known as the Province of Acadia) and took up his residence at Mangerville. There his daughter—the subject of this memoir—then in her seventeenth year, was married, on the 18th May, 1784, to Dr. John Gamble, the eldest son of William Gamble and Leah Tyrer, of Duross, near Enniskillen, Ireland. Mr. Gamble was born in 1755; studied physic and surgery at Edinburgh; emigrated to the British Colonies in 1799, and landed in New York in September of that year. Immediately on his arrival he entered the King's Ser-

vice as assistant surgeon, General Hospital; subsequently he was attached to the "Old Queen's Rangers," and for some time did duty with that Regiment as Surgeon. At the peace of 1783, he with other American loyalists went to New Brunswick. After his marriage, Dr. Gamble practised his profession at St. John, and resided in New Brunswick until 1793, when, having been appointed Assistant Surgeon to the late Regiment of Queen's Rangers by General Simcoe, then Lieutenant Governor of Upper Canada, he joined his regiment at Niagara, where it was then quartered, having left his wife and five daughters with her father at Mangerville. Mrs. Gamble continued to reside with her father until 1798, when her husband having in the meantime (July, 1796) been promoted to the surgeoncy of his regiment, she, with her five daughters, the eldest then but thirteen years of age—accompanied by her father and a sister (afterwards married to the Hon. Samuel Smith)—ascended the River St. John in a bark canoe, crossed the portage by Temiscouata to the Rivière du Loup, came up the St. Lawrence, and joined Dr. Gamble, then with his regiment in garrison at York.

In 1802, the Queen's Rangers were disbanded, and Mrs. Gamble accompanied her husband and family to Kingston, where he practised his profession until his death, in the fifty-sixth year of his age, on the 1st December, 1811. She remained in Kingston until the year 1820, when, with the portion of her family then at home, she removed to Toronto, and there continued to reside, surrounded by her offspring until her death, which took place on the 9th March, 1859.

Mrs. Gamble had thirteen children, nine daughters and four sons: Isabella, the eldest, married to Robert Charles Home, Esq., Assistant Surgeon, Glengarry Light Infantry; Mary Ann, married to Col. Sinclair, Royal Artillery; Sarah Hanna Boyes, to James Geddes, Esq., Assistant Surgeon, Medical Staff; Leah Tyrer, to the Hon. William Allen; Catherine, who died unmarried; Jane, married to Benjamin Whitney, Esq.; Rachel Crookshank, to Sir James Buchanan Macaulay; Magdalene, to Thomas William Birchall, Esq.; and Mary Ann, unmarried; John William, of Vaughan; William, of Milton, Etobicoke; Clark, of Toronto; and Joseph, who died in infancy. Of these thirteen, six only survive, but Mrs. Gamble's descendants have already reached the large number of two hundred and four, and some of her children's children's children are now upwards of thirty years of age.

The remarkable longevity of a large number of the American loyalist emigrants, who came to the British Provinces after the American Revolution, has been noticed by the Lord Bishop of New Brunswick as a striking instance of the fulfilment of the promise contained in the fifth commandment, embracing as that commandment unquestionably does, the duty of obedience to civil rulers. Mrs. Gamble may well be counted among the number, having in October last entered upon her 92nd year.—*Colonist*.

No. 7. NICHOLAS BROUSE—ANOTHER U. E. LOYALIST GONE.

Died at his residence, Village of Iroquois (Matilda) on the 4th April, inst., in his 85th year, Nicholas Brouse, Senior, after a prolonged illness and confinement. In the death of this old inhabitant is witnessed the departure of one of the last, if not the very last within the county of Dundas, of the old stock of U. E. Loyalists. Although of the youngest of that truly loyal class, he was made to feel at a tender age the suffering consequent on that eventful period—the American Revolution. Having lost his father just at the time of reaching the place of royal refuge, he was left a young and almost helpless stranger, and shared the privations and sufferings that are but too well recorded in the history of that time, which were undergone by the families of the United Empire Loyalists. He served in the American War of 1812; held a commission of Lieutenant in the Lower Canada Militia, and was on duty under the late Col. DeSalaberry, at Lachine and other places, in expectation of an attack from the noted American General Wilkinson's army, so disastrously routed at the celebrated battle of Chrysler's Farm. His sons Nicholas and Edward were both out on active service for the Queen in 1837-8 their father being then disabled.

No. 8. JACOB DEWITT, ESQ., OF MONTREAL.

The late Jacob DeWitt was a native of Windham, Ct., and came to Canada in the year 1807, being then a young man of one-and-twenty. He established himself in business in Montreal, and in company with Mr. Brewster, founded the hardware house now carried on by the firm of Brewster and Mulholland. During the war of 1812 his commercial transactions were remarkably successful, and he was able thenceforward to carry on business on a scale of sufficient magnitude to make him, with the aid of prudence and good fortune, the owner of considerable wealth. About the year 1829, he entered Parliament, having been elected member of the Lower Canada Legislative Assembly by what was then the county of Beauharnois, a dis-

trict comprehending several counties which now return each a member. Mr. DeWitt, from his first entrance into Parliament, continued a member of the Lower Canada House of Assembly, so long as it remained a separate Legislature, having been re-elected by the same constituency a member of each successive Parliament up till the time of the Union of the Provinces. Subsequently to the Union he continuously, with the exception of one brief term, represented the same constituency, (latterly the county of Chateauguay, a portion of the former county of Beauharnois) till he retired from public life in 1857. He might have been again returned for Chateauguay at the General Election which took place in the Fall of that year, but he considered he had served the public in the Legislature for a sufficiently long period, to entitle him to claim the enjoyment of privacy and leisure during his few remaining days. We believe that many of his friends had urged him to become a candidate in 1856 for election to the Legislative Council by the district comprising the constituency which he had so long represented in the Lower House, but at the age of threescore and ten he was not ambitious of honors additional to those he already wore, and declined the proffered support of his friends.

In all religious and benevolent movements, Mr. DeWitt was always ready to give his assistance. He was one of the founders of the American Presbyterian Church of this city in the year 1822, and for many years has been one of the elders. About the year 1830, when the minister of that church, Rev Mr. Christmas, proposed to introduce into Canada the total abstinence movement which was only commencing to be heard of, Mr. DeWitt was the first in Montreal who signed the pledge, as an example to others, for he had been a temperate man all his life. Before any Legislative provision was made for the assistance of poor emigrants arriving on our shores, Mr. DeWitt was President of an Emigrant Committee which exerted itself in relieving the destitute and in forwarding to their destination those who required such assistance. During the severe cholera visitation of 1832, none was more active than he in benevolent labours, and the self-forgetfulness with which at that trying time he constantly exposed himself to imminent danger for the sake of others, has been long and gratefully remembered. Mr. DeWitt was a true Canadian, and laboured strenuously to advance the best interests of his adopted country. But at the same time he could not forget his early associations, and he felt it to be an honor when he was chosen the first President of the New England Society of this city, of which to his death he continued a warm friend. In his old age he had a very venerable appearance, his hair, though whitened, having been scarcely at all thinned by the hand of Time, and covering a massive head which gave an idea of considerable breadth and strength of character. In all the relations of life he was useful and respected, and as the death of Jacob DeWitt becomes known, it will be felt in Montreal and throughout the Province, that a good man, who served his day and generation well, has passed from among us.—*Montreal Transcript*.

IV. Papers on Canadian Subjects.

1. MONTCALM AND THE PLAINS OF ABRAHAM.

Lieut. Col. Beatson, R.E., has lately published, at Gibraltar, an interesting little work, entitled, "The Plains of Abraham: Notes, original and selected." The work consists of 48 pages, and has a frontispiece containing two miniature portraits of the gallant Marquis of Montcalm, one copied from an old and rare engraving in the possession of Mr. Faribault, the other from a portrait belonging to the Ursuline Convent in this city. Colonel Beatson establishes the fact that the Plains of Abraham and the *Cote d'Abraham* derived the name from a Scotchman *Maitre Abraham Martin*, who in a legal document dated August, 1646, is styled the King's "Pilot of the St. Lawrence," and was generally known as *Maitre Abraham*. The earliest mention of Martin occurs in the very first entry in the parish register of Quebec, on the 24th of October, 1621, recording the baptism of his son Eustache. Also the second baptism recorded in the same registry is that of his daughter Marguerite. These children are designated as the offspring of the lawful marriage of Abraham Martin, *dit l'Ecossois*, and Marie Langlois. Several interesting particulars are narrated concerning this individual and his numerous family. The *Abraham* property originally consisted of 32 arpents, extending between St. Geneviève and la Claire Fontaine streets on both sides of St. John's road, terminating at the descent still called *Cote d'Abraham*. This property went by the name of *La terre* or *La Plaine d'Abraham*, and the designation was subsequently extended to the adjoining heights. Having demonstrated this point with mathematical precision in the first eleven pages of his pamphlet, Colonel Beatson proceeds to enumerate a variety of facts relating to the character and death of Montcalm, which he appears to have collected *con amore*, with great accuracy and zeal. Most of these incidents recorded are well known to persons conversant with the local history of Quebec, but they are well put together and neatly arrang-

ed in the present publication. Thus in allusion to the death of the French hero and his burial in the church of the Ursuline Convent, he relates: "There happened, at that time, to be living in the neighborhood of the Convent, a little girl about nine years of age, who, prompted by curiosity, followed the funeral procession into the Chapel, and, standing close to the grave, witnessed the interment."

She afterwards became a Nun in the Convent; and in May 1833, when upwards of eighty years old, was enabled, by her perfect recollection of the position of the grave, to point it out so exactly that no difficulty was experienced in finding the hero's remains.

These consisted—besides the skull—of only a few fragments of bones, so completely decayed as to crumble into dust when touched; and the spade, used in making the excavation having unfortunately come in contact with the upper jaw, broke it in pieces. This injury has, however, been neatly repaired with wax; and the skull, since its exhumation, has been carefully preserved, under a glass case, in the apartments of my venerable friend the Abbé Maguire: to whose kindness and to the courtesy of the Lady Superior I am indebted for the privilege of being allowed to have this interesting relic accurately delineated, and casts of it taken.

On the skull the marks of two wounds are distinctly visible; one an inch and three quarters in length, on the left side of the occiput: the other, two inches long, on the right side of the frontal bone, and close to the suture which separates that bone from the right parietal bone.

Colonel Beatson gives due prominence to that remarkable letter addressed by Montcalm to his cousin, President of the Parliament of Paris, dated from the camp before Quebec, 24th Aug., 1759. Translated extracts from it are given in the text, and the whole letter in the original is added in the Appendix. The hopelessness of his own situation is pathetically described, and the measures are pointed out whereby Wolfe might and actually did secure success as distinctly as if Montcalm and not he had planned the attack. It is in this letter also that the doomed hero almost prophetically describes the American revolt and resolution, as an inevitable consequence of the capture of Quebec and the possession of Canada by the British. A perusal of this document must elevate Montcalm in the mind of the most prejudiced reader. The following anecdote so characteristic of the French officer of the old school was communicated to Colonel Beatson by Mr. Faribault, whose information was derived from our respected fellow-citizen the Hon. Malcolm Frazer, son of Lieut. Frazer of the 42nd Highlanders, one of Wolfe's officers, and now one among the oldest inhabitants of Quebec. Mr. Frazer in his younger days heard the incident and many other interesting facts described by an elderly woman, who, when about eighteen years of age was an eye-witness of the scene. Montcalm, when his forces were routed, regardless of the pain which he suffered from two wounds received during the combat, "relaxed not his efforts to rally his broken battalion in their hurried retreat towards the city until he was shot through the loins, when within a few yards of St. Louis Gate. And so invincible was his fortitude that not even the severity of this mortal stroke could abate his gallant spirit or alter his intrepid bearing. Supported by two grenadiers—one at each side of his horse, he re-entered the city; and in reply to some women who, on seeing blood flow from his wounds as he rode down St. Louis street on his way to the Château, exclaimed *Oh, mon Dieu! mon dieu! le Marquis est tué!* he courteously assured them that he was not seriously hurt, and begged of them not to distress themselves on his account—*Ce n'est rien! ce n'est rien! Ne vous affigez pas pour moi, mes bonnes amies.*" The remainder of Colonel Beatson's compilation is chiefly occupied with a description of the monuments erected, and the honors paid to the memory of the two heroes.—*Quebec Chronicle.*

2. PRESENTATION OF THE LOGAN TESTIMONIAL.

The presentation to Sir William Logan of his share of the Logan and Perry Testimonial took place on Thursday afternoon, in the Hall of the Natural History Society. The testimonial consisted of a massive silver fountain, made by Gerrard, of London, and costing, we believe, about £200 sterling. It was designed to represent Sir William's discoveries among the coal formations. The pedestal, of ebony, representing a block of coal, bore on one of its faces a plate with the following inscription:—

"In commemoration of
His long and useful services
As Provincial Geologist in Canada,
And especially his valuable services in connection
with the Exhibition of all Nations in
London in 1851 and in Paris
in 1855.

By which he not only obtained for himself higher
honor and
More extended reputation, but largely

Contributed in making known
The natural resources of his native country.
This testimonial was presented to
Sir William E. Logan, Knight, F.R.S., F.G.S., and
LL.D.,
By many of the inhabitants of Montreal,
Desirous of marking their respect and regard for
one of the most distinguished of their
fellow citizens."

"Montreal, July, 1856."

On the other sides of the pedestal, and on the several compartments of the fountain, were designs representing the various modes of vegetable existence from which the deposits of coal have been derived.

Hon. George Moffatt having been called to the chair, requested the Right Rev. the Lord Bishop of Montreal [Dr. Fulford] to act as the organ of the Committee in making the presentation.

The Lord Bishop, addressing Sir William Logan, said:—It is now nearly three years ago since, as President of the Natural History Society of Montreal, in whose rooms we are met this day, I had the satisfaction of presenting an address to you on behalf of that Society, in which grateful mention was made of your long and valuable services to Canada, and especially in connection with the Exhibitions in London and Paris; and I also, at the same time, presented you with the diploma of honorary member. I am now deputed on behalf of many of the inhabitants of this city, to present to you this testimonial now before us, bearing the following inscription, which sets forth its object and purpose—(His Lordship here read the inscription.) I trust, Sir, and I am sure that I speak the sentiments of all present, that you may long be spared to continue your honorable and useful labors amongst us, and to give your aid and counsel to those who are struggling to advance the cause of National Science in a young country. And I remember with no small gratification, that when, in those last few years, the attention of England has been more and more awakened to the growing importance of Canada as one of her noblest possessions, and when Her Majesty, who knows so well how to dispense Her gracious favors, has been pleased to single out some of the most eminent of her Transatlantic subjects to receive honor at her hands, that it was not only our most distinguished Judges, or Statesmen or Soldiers, who attracted her notice, but that you, Sir, as the *Professor of Natural Science*, the *Provincial Geologist of Canada*, and I will add, a citizen of Montreal, were amongst the first to receive the accolade at her Royal hand, and with the unanimous feeling on the part of Canada that it was justly and honorably won.

Sir William Logan replied:—It is a great satisfaction to me that I should receive from so many of the inhabitants of my native city so distinguished a mark of their regard and approbation, and that it should come through the hands of so eminent and respected a citizen as your Lordship, and in the halls of the Natural History Society who have already bestowed on me the highest honor within their power. If, in the Exhibitions of London and Paris, I was in any way instrumental in extending a knowledge of the material resources of Canada, it was chiefly those more immediately connected with the geological investigation with which I am charged. In respect to other materials, my exertions I fear would have been of little avail, without the practical experience of those associated with me in the management of the Canadian contributions, with some of whom as inhabitants of Montreal you are well acquainted, and the name of one of whom has been joined with mine in the expression of your good will. Those exhibitions involved a very practical purpose, and seeing that what may be called mineral manufactures had extended but little in this country, I rejoiced in the opportunity offered of placing before the eyes of European judges some of the results of the geological survey, persuaded that although we could not show that we possessed the skill requisite to give to all our metallic ores and useful rocks the various ultimate forms of which they were capable, we should at least convince the world that Canada contained in her subsoil vast stores of mineral materials that would hereafter become available for the purpose of native industry. The mere specimens exhibited, however, would have been but an ineffectual means of attaining the object, had they not been accompanied by a geological map, showing the geographical distribution of the formations from which the minerals were derived—thus making at once intelligible the position and abundance of those things of which the specimens merely displayed the nature. Successful, however, as our geological contribution proved to be, there was one branch of the subject in which we were deficient—our fossils had not been arranged or described, and it was in consequence impossible for us to prove the sequence of our rocks from their position, except by an assertion that was not disputed. I am not myself a naturalist to describe fossils. For many years of my life engaged in the active pursuits of a practical miner for coal, and a practical smelter of copper

from its ores, my connection with geology relates more to the application of materials. But I well know the value of fossils as an indispensable means of research, and unless Canadian fossils are properly described, Canadians themselves will never thoroughly understand their own economic minerals, or sufficiently to protect them from imposition; nor will the study of Canadian minerals enter into the educational system of the country. In the form given to the testimonial which you do me the honor to present to me, it is gratifying to me to observe typified a discovery which, in my pursuits as practical collier, I was so fortunate as to make, by which coal and its associated fossils were drawn into closer relation than had ever been known before. By its practical researches for coal were greatly facilitated; and, as a practical collier, I can assure you that it is only in a knowledge of the differences that exist between such kinds of fossils as this testimonial indicates, and others of a distinct description of organisms, that you have the most certain means of discriminating between the coal of Newcastle and that of Bowmanville. One pleasing circumstance that attaches to this testimonial is, that amongst those presenting it there are so many engaged in the practical business pursuits of life, as it gives me an assurance that they are convinced of the usefulness of geological investigations. And I beg to assure you that, as marking the good will of so many of my fellow-citizens, I shall always regard it with feelings of satisfaction and pride.—*Montreal Gazette.*

V. Papers on Physical Science.

I. FIGURES AND DESCRIPTIONS OF CANADIAN ORGANIC REMAINS, BY THE GEOLOGICAL SURVEY OF CANADA.—DECADE III.

On the title of the above work meeting our eye, we were pleasantly struck with the opposite coincidence of its first appearance, so immediately after the bursting of the coal-mine bubble at Bowmanville.

For some time past it was generally known to be the design of the Provincial Geological Survey to publish an illustrated account of the Canadian fossils, and from the well-known acumen and untiring efforts of Sir William Logan, and of our esteemed townsman, E. Billings, Esq., Paleontologist to the survey, something of a superior order was looked for; but although we have had opportunities of bearing testimony to the talents of both these gentlemen, we must confess that we were not prepared for such a rich intellectual treat, as was afforded us by a perusal of the decade just issued.

The artistic portions of the work, especially the illustrations, is of a very superior description, and calls for more than ordinary encomium; indeed it serves as a convincing proof that Canada can now achieve within herself, in the first style of art, all that we have hitherto expected from and looked for in other quarters; and to the "Geological Survey of Canada," is due the merit of introducing the best artists in our midst.

In the first article, from the pen of Mr. Billings, we have a "Descriptive account of the Geological position, structure and classification of the Cystidæ of the Lower Silurian Rocks of Canada." In the introductory portion of which we are told that the work is intended for the use of the students of Canadian geology, and on this account that a more general summary of what is known of the history of these extraordinary organisms is given than would have been the case were the work intended for scientific men alone.

Mr. Billings concludes the first section of this most interesting paper with a minute description of the external form and internal structure and organization of the Cystidæ.

In the second section we have an elaborate account of the Ambulacral orifices of the Cystidæ and their collateral congeners, the crinoidea or lily encrinites and star fishes.

The third and concluding section consists of a catalogue and description of the lower Silurian species of Cystidæ proper to Canada, and it is a source of no small pleasure to us to observe that out of eight genera comprising nineteen species, no less than ten of them were procured from the immediate vicinity of the city of Ottawa.

The second paper in this decade is devoted to an enumeration and description of the Star Fish of the lower Silurian rocks of Canada, and is also written by Mr. Billings. The catalogue consists of three genera and nine species, six of which, in like manner to the foregoing, were found in this neighborhood.

The next article, on the Cyclocystoides, a new genus of Echinoderms, is supplied conjointly by Mr. Salter and Mr. Billings. It describes two species only, one of which also is peculiar to the Trenton limestone of this locality.

The last and concluding article of the decade is descriptive of the Paleozoic Bivalve Entomostraca of Canada, and is from the pen of J. R. Jones, Esq., F.G.S.

In this paper we readily detect most unmistakable traces of much

intricate labor, and of deep and minute research. The size of some of the shells described did not exceed the one-thirtieth of an inch, and none of them the one-sixth of an inch, in length. And although we do not find from the accounts given of them that any of them were discovered at Ottawa itself, nevertheless by far the greater number of them did once inhabit various portions of our noble river from Pacquette's rapids down to Hawkesbury and Grenville.

The Decade contains about twenty superior wood cuts, besides eleven lithographic plates, all of the very finest style and finish; and whilst we most heartily congratulate Sir Wm. Logan on the success of his enterprise, we look forward with unmingled pleasure soon to receive one of the Decades now in progress.—*Ottawa Citizen.*

2. OBSERVATIONS ON THE FALLS OF NIAGARA.

Professor Henry, at the recent scientific meeting at Baltimore, read a paper of "Observations made at the Falls of Niagara." September 1, 1857. He said:

It is well known from the experiments of Jule, the investigation of Clavius, Rankin, Thomson and others, that the agitation of water or any other liquid evolves heat. Jule has found that the mechanical energy generated by the fall of one pound weight through 750 feet is sufficient to produce a rise of temperature of one degree of Fahrenheit's scale in a pound of water.

It appears from a series of measurement made by my friend Z. Allen, of Providence, Rhode Island, some years ago, and published in Silliman's Journal, that 701,250 tons, or upwards of fourteen hundred millions pounds of water are precipitated over the great cataract of Niagara during every minute of time, and thus acquiring a mechanical energy greater than the estimated steam power now in use in all the civilized world. This energy, however, is not alone expended in generating heat; a portion of it is absorbed in wearing away the rocks and in excavating the gorge in which the water flows. Another portion is absorbed in producing a tremor in the earth and in the air; also currents in the atmosphere and in the water below the Falls; another in compensating for the loss of rotatory power of the whole earth in the ascent of the particles from the ocean. A greater portion, however, is probably expended in producing the vapor in the constantly ascending column which we have before described.

The principal object of my investigation at the Falls was to ascertain whether there was any difference in the temperature of the water above and below the cataract. Unfortunately I was not provided with very sensitive instruments, and was obliged to make the observations with two thermometers which I selected from a number found in the shop of a watchmaker at the village near the bridge. The two give the same indications, and although the actual graduation could not be depended upon, still they served to show differences of temperature with as much precision as the length of degrees on the scale would permit.

The temperature of the air above the Falls was $71\frac{1}{2}^{\circ}$, and about the same below. At the latter place it however partook of the temperature of the spray with which the air was filled where the observation was noted.

The temperature of the water was taken above the falls from the eastern edge, near the head of the staircase, from the race-way, near the bridge across the rapids, from about the middle of the bridge itself, from the eastern shore of Goat Island and from the foot of the tower at the very verge of the precipice. Several observations were made at each place, which did not differ from each other to exceed more than a tenth of a degree. The average temperature thus obtained was 69 degrees. I was surprised to find a temperature so high and so uniform, since the day previous (the 30th of August), I had found the temperature in the steamboat channel of Lake Huron 57 degrees. This increase of temperature was probably due to the passage of the water through the broad, shallow basin of Lake Erie. The uniformity of temperature at different points along the Falls, was probably caused by the mingling of the water in passing through the narrow straits at Detroit and over the rapids of Niagara river. The result was, however, unexpected, since I had observed in Lake Superior considerable variation, indicating currents of different temperatures. The absorption of so much heat during the passage through Lake Erie must materially influence the climate on the shores of that body of water.

Observations were next made below the Falls, and for the opportunity of making these, I was indebted to the kindness of the captain of the small steamboat "The Maid of the Mist." The temperature was noted as near the perpendicular fall as could be approached from the deck of the steamboat amid the spray, at intervals, for considerable distance across the river. The results agreed among themselves and the average gave almost precisely the same temperature as that which had been found above. I regret that the thermometers employed were not more sensitive, though I am confident that on this

occasion the temperature above and below the Fall did not differ more than a fifth of a degree if as much.

On reflection it would appear that though an immense amount of heat may be evolved by the mechanical energy of the cataract, yet the temperature produced, and, if we estimate the height of the fall at 160 feet, this will give an elevation of temperature for every pound of water, of about one-fourth of a degree. The difference of observed temperature is less than this amount, and the excess was probably expended principally in producing the constant formation of the clouds before described. All these observations were made in the course of about six hours, and though they may not establish definitely, any important fact, yet they may serve to indicate a line of interesting investigation in regard to the phenomena present in unparal- leled magnitude in this cataract.

3. GREAT DIFFERENCE IN THE VOLUME OF WATER AT THE FALLS AND AT THE OCEAN.

Lieut. Maury, in lecturing recently on the meteorology of the Lakes, spoke of the vast work of evaporation going on in the great chain of lakes on the North American Continent. He estimated that by the process of evaporation, the lakes were relieved of five or six times the quantity of water that passes over the Falls of Niagara. Just imagine half a dozen Falls of Niagara boiled, so as to pass away into the air, and you have a condensation of lake evaporation.

The chain of lakes contain one-third of the fresh water on the surface of the globe—the entire surface of the earth being divided, as follows :

Land and Water	Square Miles.
Land	197,000,000
Sea	145,000,000
Land and fresh water	52,000,000

The great chain of Lakes have been estimated to contain eleven thousand cubit miles of fresh water. To give an idea of the amount of this vast body of water, after explaining the mode of the careful measurements of the Mississippi river at Memphis, the lecturer said that the lakes contained more water than the Mississippi discharges into the gulf of Mexico in one hundred years. In other words, were all waste from the lakes by evaporation and other causes to be cut off, and a sluice to be opened the size of the Mississippi channel, it would flow for a century, in draining these vast inland seas. The lakes contain a surface of 2,000 square miles, and drain a water-shed of 50,000 square miles.

According to Col. Graham's report of 1855 to the department at Washington, the value of the shipping and commerce interested in the construction of a single breakwater at Michigan City, was \$218,000,000, and, according to observation taken, the value of the shipping and commerce passing the flats of the St. Clair, on an average of 230 days for the busy season, reached the daily average of \$1,129,223. The entire value of the lake commerce was \$200,000,000 to each lake, varying more in favor of Lakes Michigan and Huron, less to Lake Superior, and as Lake Erie is an outlet to others, amounting in its case to \$300,000,000.

VI. Papers on Natural History.

1. THE BELOVED FAMILY OF BIRDS.

A REMONSTRANCE AGAINST SHOOTING THEM.

Our feelings have seldom been better expressed than by the following, from the "Boston Courier," *apropos* of the shooting of robins and others of the beloved family of birds:—

We cannot believe it. We should require the affidavit of three respectable householders to credit such a charge against the inhabitants of that pleasant town. A hard-hearted man was said to have once burst into tears; to which it was replied that that was impossible, but that he might perchance have burst into a tear. So a man in Dedham may have shot a robin; but men there do not and cannot shoot robins.

It is our deliberate opinion that any man who would shoot a robin, would pick a pocket or sell his mother's grave for a house lot. We say a man; for boys are crude and thoughtless, and their acts of destructiveness are the expressions of the love of power, or the love of action, and are not the growth of deliberate cruelty. But a full grown man who will take aim at a robin is a possible pirate. "The notes of the robin in Spring are universally known, and as universally beloved," says Wilson. Nuttall says of him—"The confidence he reposes in us by making his abode in our gardens and orchards, the frankness and innocence of his manners, beside his vocal powers to please, inspire respect and attachment even in the truant schoolboy, and his exposed nest is but rarely molested."

The robin and the bob-o-link are the two characteristic living features in our early summer of New England scenery; and who that

has not a heart as dry as the dust of the highway, does not delight in both? What gaiety and animation the robin gives to our gardens, orchards, and lawns in June! How full of life they are, with their quick darting plumage, and their varied and overflowing song! What prettier sight is there than to see them running through the young grass, taller than themselves, and then emerging upon a swept walk, and showing the whole of their trig and cleanly turned figures! How full of charming pertness is the way in which they throw up their pretty heads and turn their bright, restless eyes from side to side, as if saying, "I am a handsome fellow, and I know it; do, please admire me." And then the song of the robin is so cheerful and cordial. He is not a brilliant bravura performer, like the bob-o-link, that huddles forth his joyous heart in such thick precipitated notes as if the longest summer day would not be long enough for him to unravel all the web of music that lies folded in his quivering frame; nor has he the sweet, pathetic, soul-like voice of his congener, the ferruginous thrush—that Jenny Lind of the feathered tribe over whose exquisite song a shade of human feeling seems to pass, like the shadow of a cloud over the stream: but his notes are joyous, honest and domestic. He is a fine ballad singer, not remarkable for tenderness or depth or for brilliant execution, but that pleases all by the charms of nature, truth and simplicity.

For two or three weeks this very year, one of these birds—at least we took him to be one—used to perch on the iron fence which is built around the garret scuttle of a house near our own, and greet the rising sun with a matin hymn. His song was the first sound we heard when the soul drifted back into the world of consciousness; and heard at that calm and silent hour, it was inexpressibly touching and sweet. It was like the voice of an angel floating out of some rift in the sky and filling the whole vault of air with overflowing sound. The heart that heard it went up to heaven on the wings of that musical orison; for the sweet creature seemed to be singing for all the little world around him a hymn of praise, and to be thanking God for the gift of another day. We were the better man all the day for the baptism of that voice, and we could no more have shot that bird than we could have shot our neighbor's baby that is just beginning to pat a greeting to us with his fat little hands.

Some persons attempt to justify their avincinal propensities on the ground that birds eat fruit, and therefore do harm to man and his works. If this means that there is any bird under God's heaven, that in the course of his life does more harm than good to man—we mean the pocket of man—it is a mistake. The plan of God in his creation is full of wisdom, and of minute and carefully adjusted wisdom. There is a balance and proportion among the various tribes of the animal creation, which cannot be disturbed. Robins eat cherries, it is true; what a shocking instance of human depravity it is! how very badly a robin must have been brought up that will steal cherries! We do not profess to have a soul above cherries; but we would rather see robins eat cherries any day, than eat them ourselves.

A knot of jolly feathered gourmands, rioting and junketing in a cherry tree, laughing and chattering and cracking jokes among themselves—doubtless at the expense of the good easy man that planted the tree, and counted upon having some of the fruit, is better than a poor play—better than many cherries. But robins not only eat cherries, but they eat worms, grubs and caterpillars; and it is the same with other birds. Between the feathered creation and the insect creation there is a proportion fixed by Infinite wisdom and goodness, and short-sighted man only makes mischief when he attempts to disturb it. If the numbers of the birds be diminished, that of the insects which do injury to the products of agriculture will be proportionally increased. Spare then, the birds, ye farmers, not merely for the sake of your children—not merely for the sake of your own better natures—but for the sake of your apple trees, your cornfields, and your kitchen gardens.

2. THE CUNNING THRUSH.

There is much more intellect in birds than people suppose. An instance of this occurred the other day at a slate quarry belonging to a friend from whom we have the narrative. A thrush, not aware of the expansive properties of gunpowder, thought proper to build her nest on a ridge of the quarry, in the centre of which they were constantly blasting the rock. At first she was very much discomposed by the fragments flying in all directions, but still she would not quit her chosen locality. She observed that a bell rang whenever a train was about to be fired, and that at the notice the workmen retired to safe positions. In a few days, when she heard the bell, she quitted her exposed situation and flew down to where the workmen sheltered themselves, dropping close to their feet. There she would remain until the explosion had taken place, and then return to her nest. The workmen observed this and narrated it to their employers, and it was also told to the visitors who came to view the quarry. The visitors naturally expressed a wish to witness so curious a specimen

of intellect, but as the rock could not always be blasted when visitors came, the bell was rung instead, and for a few times answered the same purpose. The thrush flew down close to where they stood, but she perceived the change, and it interfered in the process of incubation; the consequence was, that afterward when the bell was rung she would peep over the ledge to ascertain if the workmen did retreat, and if they did not she would remain where she was.—*London Literary Journal.*

VII. Miscellaneous.

1. CRADLE SONG.

From J. G. Holland's New Poem "Bitter Sweet."

What is the little one thinking about?
Very wonderful things, no doubt
Unwritten history!
Unfathomed mystery!
Yet he laughs and cries, and eats and drinks,
And chuckles and crows, and nods and winks,
And if his head were as full of kinks
And curious riddles as any sphinx;
Warped by colic, and wet by tears,
Punctured by pains, and tortured by fears,
Our dear little son will lose two years;
And he'll never know.
Where the summers go:—
He need not laugh for he'll find it so!

Who can tell what a baby thinks?
Who can follow the gossamer links
By which the manakin feels his way
Out from the shore of the great unknown,
Blind and waiting, and all alone,
Into the light of day—
Out from the shore of the unknown sea,
To sing in pitiful agony—
Of the unknown sea that reels and rolls
Specked with the barks of little souls—
Barks that were launched on the other side,
And shipped from heaven on an ebbing tide!
What does he think of his mother's eyes?
What does he think of his mother's hair?
What of the cradle roof that flies
Forward and backward through the air?
What does he think of his mother's breast—
Bare and beautiful, smooth and white,
Seeking it ever with fresh delight—
Cure of his life and couch of his rest?
What does he think when her quick embrace
Presses his hand and buries his face,
Deep where the heart throbs, sink and swell
With a tenderness she never can tell,
Though she murmur the words
Of all the birds—
Words she had learned to murmur well?
Now he thinks he'll go to sleep!
I can see the shadow creep
Over his eyes in self eclipse,
Over his brow and over his lips,
On to his little finger-tips!
Softly sinking down he goes!
Down he goes! Down he goes!
See! He is hushed in sweet repose!

2. THE CHOICE OF A PATH IN LIFE; OR, WHAT SHALL I BE?

A CHAPTER FOR OUR SONS.

"Hurrah!" exclaimed Owen, "this is the first New Year's Day I have felt really joyful for many a year, because the first of January has seemed a warning that the holidays would soon be over. Now we have no more school—no more fagging in Latin and Greek! Come, Edmund, why do you not join my shout of triumph? You look as grave as if you meditated undertaking all the cares of the nation!" he added, laughing, as he fixed his eyes upon the thoughtful countenance of his cousin.

"I have always been very happy at school," replied Edmund. "I liked my schoolfellows, and we all loved our good tutor, so that leaving such friends is not altogether joy to me. Besides"—and he paused.

"Besides what?" rejoined Owen; "let us have it all out."

"Well, and besides," continued Edmund, "it seems to me rather a serious matter, to step out of boyhood into youth."

"Oh!" answered Owen, "I shall reckon myself quite a man now, I assure you."

"In what respect?" inquired Edmund, drily.

"In the first place, then, you know we shall not be plagued with any more lessons; nor shall we be forced to obey our tutor's orders, or keep school rules, but may do as we please all day, and go where we choose. In short, we are *independent* now!"

"I should be sadly at a loss if I were independent yet," rejoined Edmund. "But are you not going into any business or profession, Owen?"

"Time enough for that, when I have had a year or two of relaxation, after studying so hard. I hope to get a little travelling before I buckle-to for riches."

"That will not do for me," said Edmund. "I must buckle-to at once, in good earnest, for a *livelihood*, and need not aspire to riches; moreover, I have heard my father and tutor both say that lads would not fancy work a hardship if they did not get a taste for dissipation between leaving school and fixing in life."

Owen opened his eyes wide at this speech, for the cousins had been educated, both at home and at school, under very different auspices.

"Pray, what shall you be then?" he asked.

"That is the very question that perplexes me," answered Edmund; "and fills my thoughts continually."

"Well, pray fix on something *gentlemanly*, and do not do anything that will spoil your hands."

"If I can be an honorable character, and maintain myself honestly by my own exertions, I shall not trouble myself about white hands and gentlemanly notions, Owen, I assure you."

These two lads were about the same age, and, in accordance with an annual custom, were visiting, with a large family party, at their grandfather's mansion. Just as Owen had uttered his last remark, the prayer-bell rang, and their venerable relative entered with the usual salutations of the new year. Their own response was chastened by the conviction that he could not survive to witness many more such anniversaries, and that each returning period might be the last of their family gatherings round his cheerful fire side. He might have heard some part of our friends' conversation, but he made no allusion to the circumstance, save that, in his morning supplications at the domestic altar, he prayed most fervently that "the God of their fathers would bless the lads now standing on the threshold of active life, with guidance as to their future course on earth, and crown its close with an abundant entrance into eternal life."

"Mr. M— complained of difficulty in speaking to young people upon religious subjects, yet they perpetually felt how warmly he was interested in their welfare; and many of his grandchildren regarded him as their most confidential and indulgent friend, a title which he richly merited and sedulously turned to their advantage. After breakfast he distributed the customary New Year's Gifts to all except Owen and Edmund, whom he invited into his study to receive the neat substantial watches which he always presented to those who had just quitted the routine of school.

"This is an important era to you, my dear lads," he remarked, as he contemplated the delight with which they examined the bright little monitors, which they deemed a great addition to their dignity. "You read of epochs of time in history, of critical junctures in the career of heroes, of 'golden opportunities' in every individual's life, and all these unite in the experience of to-day! Having completed one brief period of preparatory discipline and study, you have arrived at a point where many ways meet, or rather, where many paths branch off; and need direction as to the one you should choose for your onward course. Have you thought at all what you should be?"

"Oh, yes!" replied Owen. "I mean to be a gentleman; that has been decided long ago."

A smile lurked for a moment in Mr. M—'s eye, as he turned towards Edmund with the query, "And *you*, is *your* choice made?"

"I must be a worker, sir," answered Edmund, "and suppose I shall follow my father's profession, and try to cure, or at least to alleviate, my neighbors' sufferings."

"Well, that is a very honorable, useful, and influential post, Edmund, though involving much self-denial, much patient study, and much persevering activity; and I trust you will be blessed and made a blessing to thousands in your day and generation."

"I had thought of the law, or engineering, or mercantile pursuits," continued Edmund, "but I felt afraid of the temptations I might encounter there."

"There is no sphere free from temptations, my boy; and some fancy the medical student is more exposed to scepticism, infidelity, and dissipation than most others; but there is One, Edmund, able and willing to shield all who seek his protection. While preserving your own integrity, he may enable your steady consistency to attract your associates to the service of the same Master."

"And so, Owen," pursued Mr. M—, turning to his other grandson, "your design is to be a gentleman?"

"Yes, sir, I hate work, and shall have a handsome income when I am of age; so I think it will be a good plan to make the most of my youth, and enjoy myself as much as I can."

"Certainly! if you fulfil both these intentions; but, remember, riches may take to themselves wings and fly away, and enjoyment is apt to elude her most eager votaries, and steal in unawares among the plodding workers, who marvel how their labors have become so lightened."

"Then there is a chance for my cousin Edmund having a stray visit from her now and then," said Owen.

"Indeed, I should not much wonder if she takes up her abode with him and his fellow-workers," answered Mr. M—. "But, Owen, you say you intend to be a gentleman, and I am glad to hear it, for a true gentleman comprises every variety of attractive worth, both in character, attainment, deportment, and influence. He is the most self-denying of mortals, ever preferring the convenience of others to his own; improving his time in the cultivation of his talents, exerting his influence, and using his wealth for the counteraction of evil; employing his energies for the social weal; and all this in the most agreeable manner that can be devised. You must, indeed, make the most of your youth to attain such a distinction."

Owen was so astounded at this interpretation of a gentleman's qualities, that he could not utter a single exclamation. So his grandfather continued, "Whilst courteous to others, a true gentleman is not unmindful of himself; but always nice in his person, and unobtrusive in his dress; no tawdry tinsel, no shabby finery, betrays his dependence upon outward adornment. He is refined in his habits and his language, indulging in no low phrase, no vulgar tricks, even in private. Considerate of the feelings of others, he would forego a joke rather than inflict a pang. His politeness is as assiduous in the domestic circle as in royal saloons, and he is so well informed as to be able to converse on congenial topics with the mechanic as well as the statesman, with the merchant or the divine, with the little child or the matured philosopher. The gentleman is welcome in every society; is prepared to do as much good, to all classes of the community, as he possesses leisure to attend to them."

"Stop, dear sir," said Owen; "you are describing a perfect character, but I only meant a gentleman to travel, and amuse himself, and so on."

"Well, to travel as a gentleman, you must be well acquainted with the language, history, and customs of the countries you visit; for ignorance of these things is beneath a gentleman. You must be a judge of paintings, sculpture, and architecture—they are parts of a gentleman's taste and knowledge; and for amusement, a gentleman cannot course or hunt—these pursuits involve so much low companionship and noisy revelry; he cannot gamble, for he would distress his antagonist, and lose his own equanimity; he cannot frequent the theatre, and those public resorts where his ear would be offended by profanity, his delicacy wounded by impunity. In short, the gentleman rightly estimates his own position, his own conduct, and his prospects, and would be the last to make a mistake on either point."

"You have portrayed a vastly superior personage to any that I ever dreamt of, sir," replied Owen.

"Possibly; but as you have thought sufficiently of your future course, to choose a special path, you would surely ascertain all that belongs to that path."

"The fact is, my dear sir, I begin to feel that I have never really thought about the matter."

"Ah, 'tis an old and common error, my lad. The Great Jehovah lamented in ancient days, 'My people do not consider.' And so now, we flutter along the gay garden of childhood, heedless of all but the passing moment; then plunge headlong into the activities of life with reckless ardour, and only pause on the confines of eternity, to wish we could begin again, and redeem the unprofitable past!"

"I am sure that cannot be your case, sir," interposed Edmund, with an affectionate smile. "You have always been busy and useful ever since I can remember."

"You remember but a very small portion of my three-score years and ten, my boy, and I will not now detail the many events which sadden my memory, and induce the heartfelt prayer that you may be taught so to number your days, that each shall add lessons of wisdom and works of acceptance in the sight of our holy Judge; not that by any works of righteousness we can merit His favor, but that we may thus prove how much we love Him who first loved us and gave Himself for us."

Mr. M— paused, but the boys perceived he had more to say, and their attention being more fully roused, they begged him to proceed.

"We have spoken of your profession for this life, my dear grandsons, but your decision for eternity is of infinitely greater importance."

"Of course," said Owen, "I should not think of neglecting public worship, omitting to read the Bible, and when I am a little older and settled in life, I shall think what more I can do."

"Would not wisdom suggest that you should first seek the salva-

tion of your soul, Owen. Life is frail, and many a healthy youth has been cut off suddenly by accident or disease, just as the most promising prospects were opening before him. Others have been arrested by the veiling of the mental faculties; insanity has abridged the day of grace; but when once you have planted your foot firmly on the Rock of Ages, and have been admitted into the Church of the living God, it is highly necessary, that you should become transformed into a living epistle of his Spirit, that may be known and read of all men. In these days of latitudinarian theories, and multifarious 'phases of faith,' young people should be well grounded in the 'sound doctrines' so strongly insisted upon by the apostle Paul. Cling first, then, to the Word of Truth, which is able to guide you in that 'path which shineth more and more unto the perfect day.'"—*British Mothers' Journal.*

VIII. Educational Intelligence.

—GRATIFYING LIBRARY OPERATIONS IN HOWARD.—The Trustees of School Section No. 12, write to the Department as follows:—"At our school meeting in January last, there was ten dollars voted to our Librarian for trouble, and which he declined to accept, but proposed it to go for books to increase our School Section Library. It was then moved and seconded that the Trustees do add ten dollars more, which was carried; and now we enclose you the twenty dollars, which with your liberal addition of 100 per cent. will pay for the books and apparatus ordered. You are aware we had much opposition to a library at first, but it is withered, and will, we think, soon die. We have the pleasure to say, the books have been well read, and hope the small addition now ordered will prove a stimulant. The first invoice, 273 volumes, the number read the first year was 252 volumes; the number read the second year, 290 volumes; the third year 281 volumes, and the current year promises well so far.

—INFLUENCE OF PRIZES IN THE COUNTY OF HURON.—On this subject John Nairn, Esq., Local Superintendent, thus remarks in transmitting his Annual Report:—"The influence which prizes exercise is unquestionably beneficial and improving. The chance of a prize is a powerful incitement to study and perseverance, and when it is gained the taste for reading receives fresh impulse, and becomes almost insatiable. The volume presented may disclose so much elevated sentiment, and detail such interesting incidents of perseverance, application and integrity as to stimulate the scholar to enter upon a like course, by which he may secure honor and distinction in the world. If no prize had been awarded the youth may never have heard of the noble example which is set before him for imitation, and therefore as a means for circulating such instructive books as we find in the catalogue you have published, and bringing them to the notice, not merely of the scholar, but of all the members in his family; prizes ought to receive every encouragement.

—NECESSITY FOR LIBRARIES IN THE COUNTY OF HURON.—This is obvious as a condition of establishing a jail library, as will be seen by the following extract from a late report of the Educational Committee of the County, which has been transmitted to this Department.

"Circular from Chief Superintendent of Education in reference to the establishment of Prison Libraries under consideration.

"Your Committee refrain from expressing any opinion in reference to the propriety of such a measure. They consider it time enough to take action in the premises, when every Common School District or Township Ward in these Counties shall have been supplied with public libraries."

IX. Literary and Scientific Intelligence.

—METEOROLOGICAL PROGNOSTICS ACCOUNTED FOR.—M. Babinet, of the Institute, who has been for some time past in the habit of publishing his meteorological prognostics every now and then, has just written to the *Debats* to explain why he lately foretold a severe winter commencing from the 22nd of last December. The following is the substance of his letter:—"Although meteorology, he observes, is still in its infancy, there is one fact established beyond a doubt—viz., that the dominant wind of France, and of the greater part of Europe, is the south-west, which carries the warm air of France to Russia. The dominant wind being ascertained, it is an acknowledged fact in meteorology that the next strongest, or subdominant wind is the opposite one—viz., the north-east, so that after the Franco-Russian current we may expect the Russo-French one, which will bring the cold of Russia over here. It generally blows at uncertain intervals between November and March,

and seldom continues more than three or four weeks without interruption. This change from the warmer to the colder current, is owing to the sun being now in the opposite hemisphere. No doubt, we have seen several years without this counter current, owing probably to the strength of the south-western one, which in our latitudes carried all before it in 1856. But since last year the counter-current has given signs of re-appearance, and, being unable to force the dominant current, it has made its way by a circuitous route through the whole of Southern Europe, and been accordingly severely felt at Constantinople.—*Times*.

— THE LATE COMET.—A document has been issued from Harvard University, relating to the recent comet which attracted the vision of the whole human race.

This celestial visitor, which slipped so gracefully along its invisible line in space, was some 240,000,000 miles from us at the time of its discovery in June, and it was then travelling at the rate of 65,000 miles an hour. This velocity constantly increased as the grand phenomenon approached the sun; and like the swelling dimensions of the illusive phantasmagoria, it seemed daily to expand in bulk as we surveyed its filmy outlines. Its maximum velocity was nearly 130,000 miles an hour, excelling the speed of the planet Mercury. This was at its perihelion point. 52,000,000 miles seems to have been the measure of its distance from us October 11, or some 4,000,000 nearer the earth than it approached the sun. The difference between its aphelion and its perihelion velocity seems to be the difference between 480 miles and 128,000 miles in an hour. The difference between its remotest and its nearest solar distance is 14,244,000,000, or nearly eight times the distance of the planet Uranus. This immense reach, however, would hardly carry it into another system, when the nearest fixed star is billions of leagues from us. Its period of orbital revolution is about twenty or twenty-five centuries.

The size of its nucleus varied as well as its speed. That ranged from two thousand miles diameter when about 140,000,000 miles from us, and only 500 miles when less than one third that distance. The intensity of its light was deeper at its smaller phase.—That nucleus evolved a number of luminous envelopes, which in aggregate formed a beautiful amphitheatre to the spectator at the Cambridge Refractor. To smaller glasses these concentric arches were conglomerate, and formed a hood-halo, or brilliant bow over the nucleus. Indeed, the halo appeared larger than a semicircle, even nearer the sweep of an entire circle. It certainly closed in, until the dark axis prevented its further penetration or progress toward the formation of a whole periphery.

On the 10th of October its train extended over 50,000,000 miles in length and exhibited a spread of 10,000,000, in width. Both these dimensions varied; the length shrank to 10,000,000, and the breadth narrowed to 1,500,000. Faint steamers also darted from or flashed forth occasionally at an inconceivable rate of velocity, sometimes to the remoteness of 50,000,000 miles.

— ECLIPSES IN THE YEAR 1859.—There will be six eclipses this year, two of the moon and four of the sun, as follows:

1. A partial eclipse of the sun, February 2d, invisible in the United States.
2. A total eclipse of the moon, February 17th, early in the morning, visible throughout the United States.
3. A partial eclipse of the sun, March 4th, invisible in the United States.

A partial eclipse of the sun, July 20th, in the afternoon. This eclipse will be very small, lasting only a few minutes, and occurs about an hour before sunset. Visible in the Eastern, Northern and middle States.

5. A total eclipse of the moon, August 13th, invisible in the United States.

6. A partial eclipse of the sun, August 28th, invisible in the United States.

— WHEN EASTER COMES.—It will be interesting to learn that Easter, which will be on the 24th of April this year, last fell on that day in 1791, and will not fall on the same date again till 2011. Since the introduction of the Gregorian Almanac this has only been the case in the years 1639, 1707 and 1791. The period in which Easter can fall, reaches from the 22nd of March (earliest date) to the 25th of April (latest date,) leaving thirty-five different days for the celebration of this festival. In this century Easter will fall only once (1886) on the latest date, the 25th of April.

— BARON HUMBOLDT.—At the late funeral of Varnhagen Van Ense, a well known European patriot, were gathered all the literary notabilities of Berlin, and prominent among them was the venerable Humboldt. His grief

was affecting. Varnhagen was his intimate friend—had been so for fifty years. One by one the old man's friends are dropping off, until it seems as if he will be kept to walk alone toward the deep waters of the river of death. He says publicly that the conviction has seized him that he is to die in 1859, and his failing strength makes it but too evident that before many months the sad prophecy must be fulfilled. Still he labors cheerfully upon his great life work, and wishes only for strength to finish it, and complete his earthly task.

X. Departmental Notices.

PUBLIC SCHOOL LIBRARIES.

"Township and County Libraries are becoming the crown and glory of the Institutions of the Province."—*Lord Elgin at the Upper Canada Provincial Exhibition, September, 1854.*

The Chief Superintendent of Education is prepared to apportion *one hundred per cent.* upon all sums which shall be raised from local sources by Municipal Councils and School Corporations, for the establishment or increase of Public Libraries in Upper Canada, under the regulationsided prov according to law. Prison Libraries, and Teachers' County Association Libraries, may, under these regulations, be established by County Councils, as branch libraries.

SCHOOL MAPS AND APPARATUS.

The Chief Superintendent will add one hundred per cent. to any sum or sums, not less than five dollars, transmitted to the Department by Municipal and School Corporations on behalf of Grammar and Common Schools; and forward Maps, Apparatus, Charts, and Diagrams to the value of the amount thus augmented, upon receiving a list of the articles required. In all cases it will be necessary for any person, acting on behalf of the Municipality or Trustees, to enclose or present a written authority to do so, verified by the corporate seal of the Corporation. A selection of articles to be sent can always be made by the Department, when so desired.

PRIZES IN SCHOOLS.

The Chief Superintendent will grant one hundred per cent. upon all sums not less than five dollars transmitted to him by Municipalities or Boards of School Trustees for the purchase of books or reward cards for prizes in Grammar and Common Schools. Catalogues and Forms forwarded upon application.

POSTAGE REDUCED ON TRUSTEES' RETURNS.

The Hon. Postmaster General has recently issued the following circular notice to Postmasters in Upper Canada; "The Half-Yearly School Returns made by School Trustees to the Local Superintendents of Schools, may, though the printed form be partly filled up with the names of the pupils and the days of attendance, in writing, be transmitted by Post, in Canada, as printed papers, at one halfpenny each, *to be prepaid by Stamps.*"

SCHOOL REGISTERS.

School Registers are supplied gratuitously, from the Department, to Grammar and Common Schools Trustees in Cities, Towns, Villages, and Townships by the County Clerks—through the local Superintendents. Application should therefore be made direct to the local Superintendents for them, and not to the Department. Those for Grammar Schools will be sent direct to the head Masters.

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☞ All communications to be addressed to Mr. J. GEORGE HODGINS, Education Office, Toronto.