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Continuous pagination.

Page 85 is incorrectly numbered page 8.

The Parish School Advocate,

AND FAMILY INSTRUCTOR:

FOR NOVA SCOTIA, NEW BRUNSWICK, AND
PRINCE EDWARD ISLAND.

THE PARISH SCHOOL ADVOCATE, and FAMILY INSTRUCTOR: is Edited by ALEXANDER MONRO, Bay Verte, New Brunswick, to whom Communications may be addressed,—post paid; and Printed by JAMES BARNES, Halifax, N. S.

TERMS . . . 3s. 9d., Per Annum. Single copies . . . 4d.

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VOL. I.

JUNE, 1858.

No. 6.

ACADIAN GEOGRAPHY.

GEOLOGY.

IN further pursuance of the subjects under this head will be found a brief outline of the leading systems into which Geologists have appropriated the provinces of Nova Scotia, New Brunswick, and Prince Edward Island, with an account of the principal minerals of commerce found therein.

The science of *Geology* treats of the materials composing the earth's crust, their arrangement, and the causes which have produced that arrangement. *Geology* should be taught in the schools of the provinces.

NOVA SCOTIA.

[Continued from page 69.]

LESSON THIRD.

NEW RED SAND-STONE.—This System is confined to a narrow belt which circles the head of Minas basin and Cobi-quid bay, and a narrow ridge extending from Annapolis basin along the bay of Fundy, and within five miles of the last named bay, or the Minas basin.

MINERALS.—The minerals of this sys-

tem are not sufficiently extensive to warrant mining operations; the principal are magnetic and specular iron ore, copper, quartz, and a great variety of finely crystalized minerals not of much use in commerce, though of importance to the geologist in ascertaining the geological character of the country.

CARBONIFEROUS, OR COAL DISTRICTS.

This district forms a large part of the counties of Cumberland, Colchester, Hants, Pictou, Sydney, Guysborough, and the island of Cape Breton.

Minerals.—Coal in great abundance and of good quality, grindstone, limestone, gypsum, iron ore, grey oxide of manganese, galena, or sulphate of lead, sand-stone, brick and pottery clay, sulphate of barytes, used as a substitute for white lead, and coperas. Coal is raised at Pictou, Joggins, and Sydney.

DEVONIAN AND UPPER SALURIAN ROCKS—This system lies in detached spots, in the counties of Digby, Annapolis, Kings, Cumberland, Colchester, Pictou, Sydney, Guysborough, and the southern Atlantic coast of Cape Breton island.

Minerals.—Iron ore very plentiful and

of good quality at Great Village, Colchester; Moose river and Nictau in Annapolis; and East river of Pictou. The varieties of iron ore are specular, magnetic, and brown hematite, along with anthracite and other ferugeneous substances. The other minerals of this system are copper in small quantities; sulphate of barytes, white, coloured, and spotted marble; porphery and quartz.

THE METAMORPHIC DISTRICT—Extends along the Atlantic coast of Nova Scotia proper, from Chedabucto bay to Saint Mary's bay. Its length is 250 miles, breadth 40 miles; it consists of altered rocks, such as clay-stone, quartz rock, mica stone, granite, gneiss, etc.

The minerals of this district are of but little value in commerce.

NEW BRUNSWICK.

[Continued from page 71.]

LESSON THIRD.

THE CARBONIFEROUS, OR GREY SANDSTONE DISTRICT, covers over one-third of the area of the province: the counties of Westmorland, Kent, Northumberland, and large portions of Gloucester, York, Sunbury, Queens, and Albert are within this district. The commercial value of the New Brunswick coal field is but partially known as yet; the principal deposit is that of the *Albertite*, of Albert county, which is a very abundant and highly bitumenous species of coal, of great value in the manufacture of gas and oil, and in other commercial relations.

Minerals.—Iron ore, lime stone, gypsum, grindstone, brick and pottery clays, oxide of manganese, with many other minerals less useful.

UPPER SILUREAN SYSTEM.—This system includes the northern region of the province; the counties of Restigouche, Victoria, and parts of Carleton and Northumberland—forming nearly one-third the area of the province.

Minerals.—Granite, trap, gypsum, limestone, and iron ore.

LOWER SILUREAN SYSTEM.—The rocks of this system are of a slaty nature, and form a narrow ridge, beginning in Albert, and running along the bay of Fun-

dy coast of the counties of Saint John and Charlotte.

Minerals.—Limestone, copper, and Plumbago: the latter is found in great abundance near the city of Saint John.

THE CAMBRIAN, OR CLAY SLATE ROCKS, form two bands, both beginning near Bathurst harbour in the bay Chaleur, and running south-westerly to the state of Maine; the most southerly belt doubles round the western extremity of the coal field. It is a question among geologists whether this formation can be separated from the Silurean system.

Minerals.—Lime-stone and iron ore; the latter is very abundant and of excellent quality at Woodstock, where smelting is carried on.

RED SAND STONES.—The tract covered by these rocks is very limited,—principally confined to the counties of Westmorland, Albert, Kings and Carlton, along with a narrow belt beginning at the bay Chaleur and doubling round the westerly and southerly extremity of the coal field, between this field and the southerly belt or ridge of the cambrian system.

Minerals.—Gypsum and coal.

THE GRANITE REGION is principally confined to a band beginning at Bathurst harbour, running south-westerly to the

boundary of Maia. It lies between the two belts of the cambrian system. This region consists of gneiss and mica stone.

TRAP.—The country over which this division runs is not very extensive in any one place; yet there are beds of it interspersed throughout the other formations, except the grey sand-stone, or coal formation. The trap rock of this province, is principally confined to the counties of Kings, Saint John and Albert.

Our knowledge of the geology of New

Brunswick, from the partial explorations made, must necessarily be very limited. The principal minerals of commerce as yet discovered in the province are, coal, iron ore, lime-stone, hydraulic limestone, marble, graphite or plumbago, roofing slate, copper, carbonate of lime, manganese ores, galena, or lead ore, grind stones, free stone, amethyst, agate, jasper, gypsum, potter's clay and salt springs.

PRINCE EDWARD ISLAND.

LESSON SECOND.

RED SAND STONE.—This island “consists almost entirely of soft red sand-stone and arenaceous shale, much resembling the new red of Nova Scotia, and like it having the component particles of the rock united by a calcereous cement,” except “a few limited spots on the south side, which present brown and grey sandstones, and shales.” The only minerals of economic value known

to exist on the island are some thin beds of limestone.

NOTE.—In condensing the geological descriptions of the lower colonies, we have been guided principally in that of Nova Scotia and Prince Edward Island by the works of J. W. Dawson, Esq.; and in the New Brunswick description by Professor Johnston.—the best authorities on the subject.

“THE AGRICULTURAL CAPABILITIES OF A COUNTRY depend essentially upon its Geological structure.”

Professor Johnston.

AFTER removing the loose covering of the earth, the underlying soils will be found to partake of the chemical character and composition of the rocks on which they rest,—if sand-stone, the soil is sandy,—if lime-stone, it is more or less calcareous,—if a clay-stone, it is more or less stiff clay,—and if these substances are all found intermingled with each other, that is, sand-stone, lime-stone, and clay-stone, the soil will be found to be composed of a similar mixture. Soils, therefore, generally speaking, have been formed by the crumbling of the solid rock; and no doubt there was a time in the world's history when these rocks were naked and without any covering of loose materials.

1. The soils of the red sand-stones are easily and cheaply worked, and form some of the richest and most productive arable lands,—as those of Prince Edward Island, parts of Nova Scotia and New Brunswick.

2. The soils of the coal measures—grey sand-stones, generally form second rate soils, which require much labour

and skill in order to a profitable cultivation. However, from the great variety of soils found within this formation in these provinces—meadows, flat lands, and other alluvial deposits, composed of the remains of crumbled rocks and decayed vegetation, good crops are obtained in many parts of the grey sand-stone districts.

3. The soils formed by the rocks of the silurean systems, cambrian, mica slate, gneiss, and trap systems, are not generally favourable to agricultural operations; though in some places, in consequence of the presence of lime and magnesia in some of these rocks, good soils are produced.

4. Good soils are often found where two different kinds of rocks meet,—“as where a lime-stone and a clay mingle their mutual ruins for the formation of a common soil,” or when trap soils, as in some countries, composed of large quantities of lime and magnesia—fertilizing properties, are mixed with other rocks.

5. In many places in those provinces

good soils are met with which are composed of transported materials, as sea alluvium, as the marshes around the bay of Fundy; or river deposits such as the flat lands present, of most all the rivers in the provinces.

EXPLANATION.

Fossil.—Anything dug up: as petrified vegetables and animal remains.

Petrified—*Petrifications*.—To change into a stone.

Stratum—*Stratified*.—Spread out: as rocks lying in succession upon each other.

Unstratified.—Rocks lying without any parallel arrangement, as ridges, mountains, hills.

SUPERFICIAL ACCUMULATIONS:—

Alluvial.—To wash together: as land brought together by the action of water.

Diluvium.—Deposits of gravel, clay with boulders, made by unusual operations of nature.

Sediment.—Matter settled down from solution in water.

Deposite.—Matter which has settled down from water.

Debris.—Material arising from the disintegration of rocks.

Massive.—Without any determinate form: as granite.

Exuvia.—The external integuments of animals: as the skins of snakes.

Volcanic.—Applied to matter discharged by recent volcanoes: such as lava, tufa, etc.

Trap.—Those step-like rocks formed by the sides of hills: as basalt, greenstone, clay-stone, porphery.

Silicious.—Rocks having a flinty texture: as quartz.

Argillaceous.—Rocks composed principally of clay.

Cambrian.—Countries composed of clay slates.

Mica Slate and Gneiss.—Consists of hard slaty rocks.

Devonian.—A term sometimes applied to the old red sand stone system, because extensively developed in Devonshire, in England.

Manganese.—A metal resembling iron.

Carboniferous.—Rocks containing coal, peat and lignite.

Bitumens.—This term is applied to the resinous and asphaltic matter often found mingled with earthy impurities.

Anthracite.—A variety of coal almost without bituminous matter.

Metamorphic.—Rocks which have been altered: such as quartz-rocks, slates, gneiss, and granite.

Graphite, or Plumbago.—Is the well known substance commonly called black-lead.

Galina.—Sulphate of lead.

Calcareous.—Rocks principally composed of lime and chalk.

Tertiary Strata.—An irregular strata of limestone, marl, clay, sand, gypsum, marble, etc.

Schist.—A term applied to rocks easily split: like slate.

Arenaceous.—Rocks principally composed of sand.

Grits.—Rocks in which the grains are sharp and angular: as grindstone-grits.

Silurian.—A name given to designate those calcareous and argillaceous beds, which are found to lie between the granitic and old red sandstone.

Greenake—*Grey Rock*.—The grayish coloured slates of the transition strata.

Transition.—This term implies a change in the causes of formation,—as the world has passed from an uninhabited to an inhabited state.

Byrites.—A yellow coloured mineral, composed of sulphur and iron—and is very abundant.

Anthracite.—A carbonate of iron, lime and manganese.

Old Red Sandstone.—Consists principally of red sand stones, yellow stones and grey micaceous beds. It underlies the carboniferous system.

New Red Sandstone.—A term applied to a set of red sandstones, mixed with purple, green, yellow shales, and cream coloured limestones. It underlies the carboniferous, or coal measures.

Porphery.—Rocks containing imbedded crystals, distinct from their mass.

Sulphur.—A yellow, brittle mineral generally found in iron, lead, copper and among the earths and rocks.

Gypsum.—Is a sulphate of lime found to be very valuable; when calcined and preceded with water, it forms the well-known plaster of Paris.

QUESTIONS.

What does geology treat of? Where is the new red sandstone of Nova Scotia situated? In what does its minerals consist? Where is the carboniferous district, and what are its minerals? Devonian and upper Silurian rocks, where situated, and of what kinds are its minerals? The metamorphic district,—where situated, and of what kinds are its minerals?

Describe the various geological systems and

minerals of New Brunswick,—where situated, and of what extent?

To what geological system does Prince Edward Island belong? How are soils formed? What kind of soils, agriculturally considered, do the red sandstone, grey sandstone, Silurian, Cambrian, mica, slate, trap, and gneiss systems form? Why does trap form good soils in some places? What sort of soils does transported materials form?

For the meanings of the systems, etc., see title—"Explanations."

REMARKS ON THE NEW BRUNSWICK SCHOOL BILL.

In the April number of the *Parish School Advocate* we gave an outline of the contents of this bill as submitted by the government; in the present number the reader is presented with the act in full.

The country has not yet forgotten the dissatisfaction everywhere manifested against the bill as submitted to the legislature by the government; and the act even now, after having passed through the legislature, much improved though it be, does not give general satisfaction. It contains the principles of the last act, slightly altered.

The most important alteration in the bill, in its passage through the legislature, was the bold and manly manner in which the reading of the sacred scriptures was introduced and secured to every child whose parents do not object to it,—Protestants to use their own version, and Catholics theirs also. This is just as it should be; and we hope this part of the law will be practically carried out, and that every child may be thoroughly made acquainted with the Divine Law,—the best passport to prosperity.

Another important alteration is the paragraph enjoining teachers of first and second class schools to teach the "geography, history, and resources of the province of New Brunswick, and the adjoining North American colonies."—But where is the proper book from which this geography, history and resources are to be taught? The *book* is much wanted.

The section referring to the establishment of "superior schools," is also improved, and may in some places be carried out to advantage.

The act fixes the salaries of officers as follows:

	Per ann.
Superintendent,	£300
Travelling charges and contingencies of office of superintendent, not fixed—say,	100
Clerk,	150
Four inspectors, each £250	1000
Training master,	250
Male teacher of model school,	125
Female " " "	75
	£2000

The cost of administering this law will amount at least to £200 or £300 more than that of any other act ever promulgated in the province: besides about £500 spent in legislating the bill into existence.

We were in hopes that the inspectorship on the present system would be done away with, and the trustees appointed to that service. But, no: £2000 per annum, the half of which, at least, will be wasted, while the men who are required to divide the country into school districts, and make reports of the same; agree with the inhabitants in employing teachers; suspend or displace teachers, and report the same; advertise and call as many meetings of rate-payers as there are school districts, for the purpose of electing school committees; accompany inspectors in the examination of schools; examine schools once a year; employ assistant teachers when necessary; and apportion all monies raised for schools by local assessment;—and for all this labour, and much more, do not get one farthing: while they may be made liable to pay two penalties, one of £10 and another of £20. Members of school

committees may be made liable to a penalty of £20, and teachers of district schools £10; while the inspectors, who get £250 per annum, may only be made liable, in case of making a false report, to a penalty of ten pounds, and the other officers may do as they please—no word of penalties. There appears to have been a great want of proper judgment on the part of the legislature in the awarding of penalties connected with the school law; the officers who are under the greatest responsibility, the trustees, get no pay, handle little or no money, are liable to the highest penalties for misapplying monies, etc.

However, the bill is now become law; and the only thing which can be done is to make the best of it. A great deal will depend, in order to make it useful in the advancement of education, upon the ability and energy which may be displayed by the officers who get the salaries,—for it will not do to place much dependence upon the local officers, trustees, and school committees, who have little time to devote to the public interests without remuneration.

Having given our views of this bill, we shall now endeavour, as far as our influence goes, to use every fair means in our power to assist the public in rendering its provisions as useful as we can for the advancement of general education.

AN ACT RELATING TO PARISH SCHOOLS.

<i>Section.</i>	<i>Section.</i>
1. Chief Superintendent and Clerk, appointment and pay of.	18. County Assessments, proceedings towards.
2. Board of Education, constitution of.	19. If ordered, Sessions to determine the amount; and
3. Inspectors, appointment and pay.	20. To apportion the money raised.
4. Of the Board of Education.	21. Money to be paid to County Treasurer.
5. Of the Superintendent.	22. Relief of assessed Districts when the County is assessed.
6. Of the Trustees.	23. Assessment principle, how annulled.
7. Of the Committee of School Districts.	24. Schools supported by Assessments to be free.
8. Teachers, their duties and qualifications.	25. Evidence of bounds of School Districts.
9. Superior Schools, provision for.	26. Salary of Training School Teachers.
10. Libraries.	
11. Assessments, how levied.	

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| 12. Assessment Byelaws, by Municipalities. | 27. Warrants on Treasury for allowances voted. |
| 13. Amount receivable under Assessment principle. | 28. Penalty for misapplying money. |
| 14. Parish or District Assessments, how made. | 29. False reports, registers, etc., penalty for. |
| 15. Warrant to Assessors on affirmative resolution. | 30. Tenure of Lands for School purposes. |
| 16. Assessors and Collectors, proceedings by. | 31. Rate-payers defined. |
| 17. Penalties and allowances. | 32. Act, 21 V. C. 5, repealed. |
| | 33. Commencement of Act. |

Passed 6th April 1853.

BE it enacted by the Lieutenant Governor, Legislative Council, and Assembly, as follows:—

1. The Governor in Council may appoint a Chief Superintendent of Schools, who shall perform the duties of Secretary to the Board, and fix his salary, not exceeding three hundred pounds per year, besides travelling charges and contingencies of office, and a Clerk or assistant, whose salary shall not exceed one hundred and fifty pounds per year.

2. The Governor and Council with the Superintendent of Schools, shall constitute a provincial Board of Education. The Governor with three other members and the Superintendent shall be a quorum.

3. The Governor in Council shall from time to time divide the Province into four Districts and appoint an Inspector of Schools for each District, and fix his salary not exceeding two hundred and fifty pounds per year, including travelling expenses.

BOARD OF EDUCATION.

4. The Board of Education shall have power to establish a Training School, or continue any one now in operation, and a Model School connected therewith, appoint a Teacher of such Training School, and a Male and Female Teacher of the Model School.

To make Rules and Regulations for the government of such Training School; to prescribe the terms on which Students shall be received and instructed therein; and to make such allowance for the expense of Teachers attending the School as shall be deemed necessary, not exceeding six pounds to any Teacher.

To make Regulations for the organization, government, and discipline of

Parish Schools, and the examination, classification, and mode of licencing Teachers, and the mode of certifying the time taught and of paying them.

To appoint examiners of Teachers, and to grant and cancel Licences.

To hear and determine all appeals from the decision of Trustees.

To prescribe the duties of Inspectors of Schools.

To apportion all moneys granted by the Legislature for the support of such Schools among the several Parishes, in proportion to the number and classes of Schools reported to have been efficiently conducted for the preceding year, not exceeding an average of two hundred and fifty pounds to each Parish in any one County, nor three hundred and twenty five pounds to any one Parish therein.

To provide for the establishment, regulation, and government of School Libraries, and the selection of Books to be used therein; but no works of a licentious, vicious, or immoral tendency, or hostile to the christian religion, or works on controversial theology, shall be admitted.

To make regulations for the construction and ventilation of School Houses, and the furniture and apparatus to be provided and used therein.

To make such other regulations as may be deemed necessary to carry into effect this Act

To apply all balances of money arising from the sale of books, maps, and apparatus purchased for the use of Parish Schools, in procuring other books, maps, and apparatus therefor, and to appoint persons in each County to sell the same under their direction.

To divide the City of Saint John into two Parishes for the purposes of this Act.

SUPERINTENDENT.

5. The Superintendent shall have a general supervision and direction of the Inspectors, the Training and Model Schools, and the Parish Schools, subject to the order of the Board of Education.

He shall enforce and give effect to all the regulations made by the Board.

He shall collect information on Education, and hold public meetings in different parts of the Province, to which he shall invite the attendance of the Inspector, Teachers, and Inhabitants, and

address such meetings on the subject of Education, using all legitimate means to excite an interest therein.

He shall cause copies of this Act, with the Regulations of the Board of Education, together with all necessary forms and instructions, to be printed and furnished to the Inspectors, Trustees, School Committees, and Teachers.

He shall adopt the necessary measures to promote the establishment of School Libraries.

He shall provide the necessary plans for the construction of School Houses, and recommend the proper furniture and appendages for the same, and the improvement and embellishment of the grounds on which they are situated.

He shall have power to sue for books, maps and apparatus, purchased for the use of Parish Schools, and for all moneys due on the sale thereof; and every such action shall be brought and prosecuted by him in his name of office, and shall not abate by reason of any vacancy or change of officer.

He shall annually prepare a Report upon the condition of the Schools and School Libraries, with such other information upon the system and state of Education generally, and the amount expended in promoting it, with such suggestions as he may deem necessary, accompanied with a return of the moneys received from the sale of books and apparatus, which shall be laid before the Legislature within ten days after the opening thereof.

TRUSTEES.

6. Three Trustees of Schools shall be annually elected in each Town and Parish, at the time and in the same manner as other Town or Parish officers, who shall be subject to the same pains and penalties for neglect or refusal to act, or the non-performance of their duties as other Town and Parish officers; and when any Town or Parish fails to elect, the Sessions shall appoint as in other cases: in incorporated Towns, Cities or Counties, the Council shall appoint the Trustees; but the Trustees in office at the time of the passing of this Act shall continue to act until others are appointed in their stead.

It shall be the duty of Trustees to divide their respective Parishes into convenient School Districts, and from time to time to reconstruct them, and to define in writing the boundaries of each

District, and file a description thereof with the Clerk of the Peace, and in incorporated Counties with the Secretary Treasurer, and a copy thereof with the Town Clerk.

They shall give any licenced Teacher authority in writing to open a School in a District where the inhabitants have provided a sufficient School House, secured the necessary salary, and with their assent agree with such Teacher.

They may suspend or displace any Teacher for incapacity, or any improper or immoral conduct, and shall forthwith transmit a copy of their proceedings to the Superintendent for the decision of the Board.

They shall immediately after ratifying the engagement of a Teacher, and annually thereafter, call a meeting of the Rate payers of the District for the purpose of electing a School Committee to consist of three persons, giving seven days notice, to be posted on the School House, specifying the time, place and object of such meeting.

The Trustees, when convenient, shall accompany the Inspector in the examination and inspection of the Schools in their respective Parishes.

They shall at least once a year examine all the Schools in their respective Parishes, pursuing as near as may be the mode of examination adopted by the Inspector.

In any Town, Village, or populous District, the Trustees may authorize such number of Schools as the wants of the population may require; and when they deem it necessary, authorize the employment of an assistant licenced Teacher in any large School.

Wherever a convenient District can be laid off so as to include a portion of two Parishes, the Trustees of the two Parishes may lay off such District with the consent of a majority of the inhabitants thereof.

The Trustees shall apportion among the School Districts in their respective Parishes, any money raised by County or parish assessment for the support and maintenance of the Schools therein, in such manner as they shall deem just and equitable.

Any Parish or District adopting the principle of assessment, and the sum required for the Teacher being assessed and paid, shall for every year such assessment is so made and paid, receive

from the Province Treasurer ten per cent, over the allowance to Schools of the same class in parishes or Districts not so assessed, to be apportioned and paid the Teacher therein.

COMMITTEE.

7. The inhabitants of the School District being Rate-payers, shall at the meeting called by the Trustees as aforesaid, elect by a majority of votes, three persons who shall constitute a School Committee for that District, and shall continue in office for one year or until others are elected in their stead.

The School Committee shall have the immediate charge of the School House, with the furniture, apparatus and grounds.

They shall, when necessary, call meetings of the inhabitants of the District for the purpose of providing a School house, books, maps, apparatus, School furniture and fuel, and for the support of the school and the comfort of the scholars.

They shall have the immediate control of any Library provided by the District, and may appoint a Librarian, Secretary, and Treasurer.

They shall receive and appropriate any money raised in the District for the purpose of providing a Library or increasing the same.

The School Committee may admit so many free scholars, and also children at reduced rates, being the children of poor and indigent parents, as they may deem prudent and just; and they may employ the amount so received to the support of the School.

DUTIES AND QUALIFICATIONS OF TEACHERS.

8. The Teachers, male and female, shall be divided into three classes, qualified as follows:—

Male Teachers of the first class to teach spelling, reading, writing, arithmetic, English grammar, geography, history, book-keeping, geometry, mensuration, land-surveying, navigation and algebra;—of the second class, spelling, reading, writing, arithmetic, English grammar, geography, history and book-keeping;—of the third class, spelling, reading, writing and arithmetic.

Every Teacher of the first and second class shall be qualified and enjoined to impart to his pupils a knowledge of the geography, history, and resources of the

Province of New Brunswick, and of the adjoining North American Colonies.

Female Teachers of the first class to teach spelling, reading, writing, arithmetic, English grammar, geography, history, and common needle-work;—of the second class, spelling, reading, writing, arithmetic, English grammar, geography, and common needle-work;—of the third class, spelling, reading, writing, arithmetic and common needle-work.

Every Teacher shall keep a daily register of the scholars, which shall be open for inspection at all times; a Visitor's book, and enter therein the visits of Inspectors, Trustees, and School Committees respectively; maintain proper order and discipline, and carry out the regulations made for his guidance.

Every Teacher shall take diligent care and exert his best endeavours to impress on the minds of the children committed to his care, the principles of Christianity, morality, and justice, and a sacred regard to truth and honesty, love of their country, loyalty, humanity, and a universal benevolence, sobriety, industry, and frugality, chastity, moderation, and temperance, order and cleanliness, and other virtues which are the ornaments of human society; but no pupil shall be required to read or study in or from any religious book, or join in any act of devotion objected to by his parents or guardians; and the Board of Education shall, by regulation, secure to all children whose parents or guardians do not object to it, the reading of the Bible in Parish Schools—and the Bible, when read in Parish Schools by Roman Catholic children shall, if required by their parents or guardians, be the Douay version, without note or comment.

The Teachers shall be entitled to receive from the Treasury according to the following rates:—Male Teachers of the first class, thirty seven pounds ten shillings; of the second class, thirty pounds; of the third class, twenty two pounds ten shillings: Female Teachers of the first class, twenty seven pounds ten shillings; of the second class, twenty two pounds ten shillings; of the third class, seventeen pounds ten shillings.

No Teacher shall be paid for a less period than six months without the sanction of the Board, nor in any case unless the inhabitants shall have raised by assessment, or paid for his support, an

amount equal to the Provincial allowance, or shall have furnished him with board, washing, and suitable accommodation during his engagement.

SUPERIOR SCHOOLS.

9. When the inhabitants of any School District shall raise by assessment or otherwise, for the support of a Superior School, the sum of fifty pounds or upwards, and shall have engaged, with the consent of the Trustees, a competent Teacher, they shall receive from the Province a sum equal to the amount so raised, not exceeding the rate of seventy five pounds per annum, to be paid to the Teacher upon the Certificate of the Inspector that the School has been taught to his satisfaction, and the payment made to the said Teacher at the rate of fifty pounds per annum by the inhabitants, but not more than one such School shall be allowed in one Parish.

LIBRARIES.

10. Whenever any School District shall raise a sum of money for the purpose of establishing a Library, or increasing any one already established, they shall be entitled to receive from the Province Treasury a sum equal to half the amount so raised, to be expended in the purchase of Books therefor, not to exceed five pounds in any one year.

ASSESSMENT.

11. Whenever any County, Parish, District, or Municipality, determines to provide for the support of the Schools therein by assessment, such assessment shall be levied and collected in the same manner in all respects as other County or Parish rates.

12. If the Council of any Municipality determines to support their Schools by assessment, they shall have power to make such Bye Laws as they shall deem necessary to levy and collect such assessment.

13. Every County or Municipality adopting the assessment principle, shall receive a sum equal to the amount so raised, if it shall not exceed the average of two hundred and fifty pounds to each Parish; but the whole shall be expended in the payment of salaries of Teachers.

14. A public meeting of the rateable inhabitants of any Parish or District may be called by the Trustees on the

written application of twenty or more resident freeholders or householders in any Parish, or three or more resident freeholders or householders in any School District, by notice advertised at least fifteen days in a newspaper published in the Parish or District, if any, and in five or more of the most public places of the Parish, or two of the District, for the purpose of determining upon the propriety of raising the necessary amount of money required for School purposes by assessment, at which meeting the senior Trustee present, or in case of his absence, such person as the majority of the rate-payers present may appoint, shall preside; and it shall be the duty of the Chairman to take the sense of the meeting upon the question of assessment, if it is decided in the affirmative, then on the amount to be raised and the object.

15. If a majority of the rate-payers present agree to raise a sum by assessment either for the support of the Teacher, the purchase of land whereon to erect a School House, or other buildings for School purposes, the purchase or maintenance of a library, the building or repairing of any School House, the supplying the school with fuel, light, and other necessaries, the purchase of books, maps, or apparatus for the use of any such School, or for any of such purposes, the Chairman shall transmit the vote or resolution specifying the sum to be raised, to the Assessors of Rates for the Parish, in one of the forms following:—

If the Assessment be made upon the Parish, the following to be the Form:—
To _____ Assessors of the Parish of _____

You are required to levy and assess the sum of _____ in and upon the Parish of _____ being the amount voted at a Parish Meeting for the purpose of [here specify the object] and cause the same to be collected according to Law, and paid to _____ the Trustees of Schools for the said Parish.

Dated this _____ day of _____
A. D. 18 _____

C. D., Chairman.

If the Assessment be made upon a District of the Parish, the following shall be the form:—

To _____ Assessors of the Parish of _____

You are required to levy and assess

the sum of _____ pounds in and upon School District number _____ in the Parish of _____ being the amount voted at a meeting of the said District for the purpose [here specify the object] and cause the same to be collected according to Law, and paid to _____ the School Committee for the said District.

Dated this _____ day of _____
A. D., 18 _____

C. D., Chairman.

16. The Assessors shall, without delay, make out the Assessment List as near as may be in the form prescribed for County or Parish rates, and deliver the list to the Collector of Rates, with a precept endorsed thereon in the form prescribed for County or Parish rates; if the Parish have been divided into several Districts, with a District Collector for each, they shall furnish each Collector with a separate list, for the purpose of assessing the whole Parish; but if only a School District be assessed, they shall deliver the list to the nearest Collector, and, in every case, file a duplicate thereof with the Clerk of the Peace; and such proceedings shall be had and taken thereon for the levying and collecting the same, as are provided in other cases of County or Parish rates; and the money, when collected, shall be paid over to the Trustees, if the assessment be made for the whole Parish, and to the School Committee, if for a School District, to be appropriated for the purpose previously determined by the rate-payers.

17. The Assessors and Collectors shall perform their duties under the same pains and penalties as in all other cases, and receive the same fees and allowances.

18. Whenever a written application shall be made to the Clerk of the Peace of any County not incorporated one month before the time of holding the annual election for the Town and Parish officers, signed by at least fifty freeholders or householders of the said County, requesting him to ascertain whether the rate-payers will adopt the principle of assessment for the support of Schools, he shall notify the Town Clerk of each Town or Parish thereof, whose duty it shall be to give notice, with the notice of the annual election of Town or Parish officers, that the question will be put to the vote of the rate-payers at such annual meeting, and the Chairman shall put that question to the meeting, and

take the vote of those voting in the affirmative and negative, and certify the number so voting to the Clerk of the Peace, with the list of Town or Parish officers elected, and the Clerk of the Peace shall lay the return before the Sessions at their next meeting.

19. If a majority of the whole voting at such meeting have voted in the affirmative, the Sessions shall determine the amount to be raised upon the County for School purposes, and cause the same to be levied, assessed and collected as other County rates, and paid into the County Treasury.

20. The Sessions shall apportion the money raised by assessment among the respective Parishes in such manner as they shall deem equitable, having regard to their population and requirements.

21. The money so apportioned shall be paid to the County Treasurer to the credit of the respective Parishes.

22. When a County shall adopt the principle of assessment, any Parish or District therein having been previously assessed for the same year shall not be liable to such County Assessment, nor be entitled to receive any part thereof; and when a Parish shall adopt such principle, no District in such Parish having been previously assessed shall be liable for such Parish assessment, or entitled to receive any part thereof: but such exemption shall not extend beyond the first year in which such County or Parish assessment shall be levied.

23. The assessment principle, when adopted, shall continue until reversed in the same manner as provided for in its adoption.

24. Any District School supported by assessment shall be free to all the children residing therein.

25. A copy of the memorandum mentioned in Section 6, and of any plan therein referred to, if any, certified by the Clerk of the Peace with whom filed, shall be evidence of the laying off of such District by the Trustees and the bounds thereof.

26. The salary of the Teacher of the Training School shall not exceed two hundred and fifty pounds per annum; the salary of the Male Teacher of the Model School shall not exceed one hundred and twenty-five pounds per annum;

and the salary of the female teacher shall not exceed seventy-five pounds.

27. The Governor in Council shall issue Warrants on the Province Treasury for the payment of the several allowances and salaries provided in this Act.

28. Any Trustee or Member of the School Committee, who shall not expend the moneys received by him under any of the provisions of this Act, or shall misapply the same, shall pay a sum not exceeding twenty pounds for each offence, which, when recovered, shall be applied for the benefit of the Schools of the Parish or District.

29. Any Trustee who shall knowingly sign a false report; any Teacher who shall keep a false register, or make a false entry or returns; or any Inspector who shall make a false Report, shall for each offence pay ten pounds; when recovered it shall be paid to the Trustees of Schools for the Parish, to be applied by them for the benefit of Parish Schools.

30. Lands for sites of School Houses or other School Purposes may be conveyed to and held by the Sessions; and in Incorporated Towns, Cities or Counties, by the Municipality.

31. Rate-payers in this Act shall mean Rate-payers upon real or personal property or income.

32. An Act made and passed in the twenty first year of the Reign of Her present Majesty Queen Victoria, intituled *An Act to revive and continue Chapters 48, 49, 50, and 51, Title vii, of the Revised Statutes, "Of Parish Schools," and the Act in amendment thereof*, be and the same are hereby repealed.

33. This Act shall not come into operation or be in force until the fifteenth day of April in the present year of our Lord one thousand eight hundred and fifty eight.

REST AND RECREATION.

I heard a man at his book say, that to omit study some time of the year, made as much for the increase of learning as to let the land lie fallow for some time maketh for the better increase of corn. If the land be ploughed every year the corn cometh up thin; so those who never leave pouring on their books have oftentimes us thin inventors as other poor men.

Roger Ascham.

SELECTED MISCELLANY.

THE NUMBER SEVEN.

SEVEN is composed of the two first perfect numbers, equal and unequal—3 and 4; for the number 2, consisting of repeated unity, which is no number, is not perfect.

SCRIPTURAL USES OF THE NUMBER SEVEN.

In 6 days creation was perfected, the 7th was consecrated to rest. On the 7th of the 7th month a holy observance was ordained to the Children of Israel, who fasted 7 days in tents. The 7th and at the end of 7 times 7 years commenced the grand Jubilee. Every 7th year the land lay fallow; every 7th year there was a general release from all debts, and all bondmen were set free. From this law may have originated the custom of binding men to 7 year's apprenticeship, and of punishing incorrigible offenders 7 years, twice 7 years, three times 7 years. Every 7th year the law was directed to be read to the people.—Jacob served 7 years for the possession of Rachel, and also another 7 years.—Noah had 7 days warning of the flood; and was commanded to take the fowls into the ark by sevens, and clean beasts by sevens. The ark touched the ground on the 7th month; and in 7 days a dove was sent, and again in 7 days after.—The 7 years of plenty, and the 7 years of famine, were foretold in Pharaoh's dream, by the 7 fat and 7 lean beasts, and the 7 ears of full and 7 ears of blasted corn.—The young animals were to remain with the dam 7 days, and at the close of the 7th to be taken away.—By the old law man was to forgive his offending brother 7 times, by the new 70 times 7.—“Cain shall be revenged 7 fold, truly Lamech 7 times 7.”—In the destruction of Jerico, 7 priests bore 7 trumpets 7 days; on the 7th they surrounded the walls 7 times, and after the 7th time the walls fell.—Balaam prepared 7 bullocks and 7 rams for a sacrifice.—7 of Saul's sons were hanged to stay a famine.—Laban pursued Jacob 7 day's journey.—Job's friends sat with him 7 days and 7 nights, and offered 7 bullocks and 7 rams as an atonement for their wickedness. Job had 7 sons.—Solomon was 7 years in building the temple, at the dedication of which a

feast of 7 days was instituted; he made another feast which lasted “7 days and 7 days;” the people, separated on the 23rd day of the 7th month; and the day of atonement was the 10th day of the 7th month. In the tabernacle were 7 lamps; 7 days were appointed for an atonement upon the altar; and the priest's son was ordained to serve his father's government 7 years. The children of Israel ate unleavened bread 7 days.—Abraham gave 7 ewe lambs to Abimelech as a memorial for a well.—Joseph mourned 7 days for Jacob.—Hannah in her thanks says, “that the barren hath brought forth 7.”—In scripture there are enumerated 7 resurrections: the widow's son by Elias; the Shunamite's son by Elisha; the soldier who touched the bones of the prophet; the daughter of the ruler of the synagogue; the widow's son of Nain; Lazarus; and Jesus Christ.—The apostles chose 7 deacons.—Enoch, who was translated, was the 7th after Adam—and Christ the 77th, in a direct line.—Our Saviour spoke 7 times from the cross, on which He remained about 7 hours; he appeared 7 times. In the Lord's Prayer there are 7 sections, contained 7 times 7 words, omitting those of mere grammatical construction. Within this number are connected all the mysteries of the Apocalypse, rendered to the 7 churches of Asia: 7 golden candlesticks, and 7 stars in the right hand of him that was in the midst; 7 lamps before the 7 spirits of God; book with 7 seals; lamb with 7 horns and 7 eyes; 7 angels with 7 seals; 7 kings, 7 thunders, 7 thousand men slain; dragon with 7 heads and 7 crowns; beast with 7 heads; 7 angels bearing 7 plagues and 7 vials of wrath.—The vision of Daniel was 70 weeks. The elders of Israel were 70. 7 heavens; 7 stars. Blood was to be sprinkled 7 times before the altar. Naaman was to be dipped 7 times in Jordan. Apulus speaks of dipping the head 7 times in the sea of purification. The house of wisdom in Proverbs had 7 pillars. 7 days in a week. David cried unto the Lord 7 times in a day. “If thy brother trespass against thee 7 times in a day, and 7 times in a day turn again to thee, saying, I repent, thou shalt forgive him.” Alexander the great subdued Tyre after 7 month's siege. Nebuchadnezzar, for

his wickedness was made "to eat grass as oxen, and 7 times shall pass over thee." The golden candlestick had 7 branches. 7 troubles; 7 abominations; 7 women; horn 7; punish 7 times for your sins; 7 other spirit. No Jewish child was circumcised till after the 7th day. Elijah ordered his servant in looking for rain to "go again 7 times." "Heat the furnace one 7 times more than it was wont to be heated." 7 devils cast out of Mary Magdalene. In many instances the number of animals offered in sacrifice were limited to 7.—Perfection is likened to gold 7 times tried.

The number *seven* in scripture is often put for any round whole number; and in all solemn rites of purification, purgation, and consecration, the oil or water was 7 times sprinkled.

OTHER APPLICATIONS OF THE NUMBER SEVEN.

There are 7 avenues in the head of man, two of seeing, two of hearing, two of smelling, and one of eating; there are twice 7 bones in the head of man. The teeth of a child spring out in the 7th month, and are shed and renewed in the 7th year. At three times 7 years the faculties are developed—manhood commences, and man is legally competent to transact business; at four times 7 man is in full possession of his strength, at 7 times 7 he is in his apogee, at eight times 7 he is in his first climatrix, at nine times 7 he is in his great climatrix, or years of danger; and ten times 7 or 70—three score and ten, by the prophet has been set down as the natural period of longevity of human life.—There are 7 notes in music.—7 sacraments in the Catholic church.—Some simple people say that the 7th son of the 7th son possesses power to heal diseases spontaneously.—By the laws of some countries, if parties married have not heard of each other for seven consecutive years, they may marry again.—7 jurymen are empowered by the laws of some countries to try causes.—Geographers, in arranging maps of the world, have placed thereon 7 imaginary lines, as north pole, arctic circle, tropic of cancer, equator, tropic of capricorn, antarctic circle, and south pole.—Physiologists say that the 7th day is absolutely necessary as a day of rest.—Rome is built on 7 hills.—There are a people denominationally called 7th day

Baptists.—Every child in Prussia is bound to attend school at the age of 7 years.

NATURAL HISTORY IN PRIMARY SCHOOLS.

'THERE is in the life of every child a time when the thoughts are fixed on external and visible objects. The artless prattle is all about some favorite dog, or pet chicken; something which has been *seen and heard*, fondled in the arms, or led by a string.

Every teacher of a public school has sometimes little gifts of flowers from the pupils; common, perhaps, and wilted by too close pressure of little hands,—but *flowers still*, and tokens of love. Let them not be lightly esteemed.

You are now yourself a teacher. can you not recollect some sunny morning, far back in the past, when with childish delight you gathered violets and daisies to grace the desk of the little country schoolhouse?

I shall never forget *one* such morning, when a large bouquet of buttercups, which I had just presented to our teacher, was hastily thrown out of the window! nor the mortification and grief which followed the disposal of my gift. Do not throw away the flowers: but, on some afternoon when it is best to leave books for a time, select one for the first simple lesson in *Botany*.

Tell the children that a little *seed* was buried in the earth, that the sun warmed it, and the rain came down to moisten it till at length, from one part came forth a stem tending upwards; from another, a root pressing downward. Tell them that the little fibrils took from the soil just the nourishment needed by the plant; and the sap ascended, and the green leaves appeared to feed on the air by day, and drink the dews at night; and as the plant grew strong, in its own appointed season it put forth a tiny bud, which swelled and expanded till it burst into the perfect flower.

Show them the delicate petals, painted by the "Heavenly Artist," and tell them how closely they are folded at night, as if the flowers were going to sleep, like little tired children.

Almost any one can have at command a small magnifying glass, and it will be found of great assistance in examining the structure of the more delicate parts.

Encourage the children to ask questions about the lesson, and by all means use simple language. Do not burden the memory, nor jeopardize the vocal organs, by requiring them to call the buttercup, "*Ranunculus Acris*," or the elder, "*Sambucus Canadensis*." They will easily learn those names after they become acquainted with the dead languages.

In the same manner, from the stones that lie in the yard, may be taught the first principles of geology. The pupils will delight to collect pretty pebbles in their walks, and you will be surprised to see how many really beautiful specimens will be brought together.

Sometimes talk about the flies that buzz so impudently around the children's ears, and walk so easily on the ceiling,—thus introducing *entomology*.

The variety of subjects for lessons from nature is endless. Teach the little ones to be observing,—to find some beauty or utility in all things; and thus they will be led to think of the wisdom and goodness of Him who "clothes the lilies and feeds the ravens." Thus their young hearts will expand with love for all God's creatures.

And above all, remember that by every new view of the wisdom and goodness of the Creator,—by every outflowing of love to His creatures, is hastened the approach of that time for which all true hearts long, while they offer the divine petition, "Thy kingdom come."

Massachusetts Teacher.

THE BOYS.

The correspondent of the *Independent* furnishes an interesting article on boys and their peculiarities. He says:—The restless activity of boys is their necessity. To restrain is to thwart nature. We need to provide for it. Not to attempt to find amusement for them, but to give them opportunity to amuse themselves. It is astonishing to see how little it requires to satisfy a boy-nature. First in the list, I put strings. What grown up people find in a thousand forms of business and society, a boy secures in a string! He ties up the door for the exquisite pleasure of untying it again. He harnesses chairs, ties up his own fingers, halters his neck, coaxes a lesser urchin to become his horse, and drives a stage—which with boys, is the top of human

attainment. Strings are wanted for snares, for bows and arrows, for whips, for cat's cradles, for fishing, and a hundred things more than we can recollect. A knife is more exciting than a string, but does not last so long, and is not so various. After a short time it is lost, or broken, or has cut the fingers. But a string is the instrument of various devices, all within the management and ingenuity of a boy. The first article that parents should lay in, on going into the country, is a large ball of twine. The boys must not know it. If they see a whole ball the charm is broken. It must come forth mysteriously, unexpectedly, as if there was no more!—For indoors, next we should place upon the list, pencils and white paper. At least one hour every day will be safely secured by that. A slate and pencil are very good. But as children always aspire to do what men do, they account the unused half of a letter and a bit of pencil to be worth twice as much as any slate. Upon the whole we think a safe stream of water near by affords the greatest amount of enjoyment among all natural objects. There is wading and washing; there is throwing of stones and pebbles; there is engineering of the most laborious kind, by which stones and mud are made to dam up the water, or change the channel. Besides these things, boys are sensitive to that nameless attraction of beauty which specially hovers about the sides of streams, and though they may not recognise the cause, they are persuaded of the fact that they are very happy when there are stones with gurgling water around them, shady trees and succulent undergrowth, moss and watercress, insect, bird, and all the population of the water courses.

Journal of Education, Upper Canada.

UNEDUCATED.—A parent who sends his son into the world uneducated, and without skill in any art or science, does as great injury to mankind as to his own family: he defrauds the community of a useful citizen, and bequeaths to us a nuisance.

WISDOM.—Lockman, the Ethiopian sage, was asked from whom he had received his first lesson of wisdom, answered, "From the blind, who never take a step till they have first felt the ground before them."

EDITORIAL REVIEW.

NOVA SCOTIA RAILWAYS.

THE following summary, gleaned from the Report submitted to the Legislature of Nova Scotia in 1858, by James Laurie, Esq., Civil Engineer, may not be uninteresting to our readers, inasmuch as this subject, as far as relates to the lower provinces, is pregnant with facts worthy of general attention.

The lines in course of construction are, the main line from Halifax to Truro, at the head of the basin of Minas, 61 2-10 miles, and the Windsor branch, which leaves the main line at 13 1-10 miles from Halifax, thence to Windsor 31 6-10 miles.

Of the Halifax and Truro line, 31 1-2 miles are in operation; and the line to Windsor will be opened, probably in a month, for traffic.

The cost of the main line, of

61 2-10 miles, is set down at	£644,864
Cost per mile,	10,537
Cost of the Windsor branch,	388,002
Cost per mile,	12 025

The average cost of the main line and Windsor branch, taken together, is £11,044 per mile.

In 1855, there were eight miles open for part of the year; in 1856, eight miles; and in 1857, there were 32 1-2 miles in operation for nine months.

The following are the total receipts expences and profits for the three years:

Years.	Receipts.	Expences	Net Profits.
1855	£1,929	£1,053	£ 876
1856	4,107	3,054	1,053
1857	6,279	4,140	2,139

The total expenditure in completing these 93 miles of railway is, £1,032,866; the annual interest of which, at six per cent., the lowest figure, is £62,000.—while the net proceeds per mile, £130, taking the distance open for traffic, would be about £12 000, which will leave a balance against the province of £49,900.

This calculation will not hold good when the lines are completed to their termini: for the profits will no doubt increase very much: but suppose the receipts to be doubled—which will, we think, be all that can be reasonably expected at the beginning, the province will be liable for £37,800, for which no income will be received.

When we consider that the distance from Truro to Pictou, and from Truro

to New Brunswick, an important part of the railway scheme, will embrace as great a distance, and cost as much, as the lines above named, involving the province in an annual burthen of £75,000; the idea of building extensive lines of railways, in thinly populated countries like Nova Scotia and New Brunswick, presents an important financial question.

If the main line through Nova Scotia and New Brunswick, whose respective revenues amount on an average to £150,000, and £180,000 per annum, had been completed before building branch lines, one complete thoroughfare would have been established, bringing the provinces together by a firm commercial bond, the expediency of building other lines would have been fully tested.

We fear that these heavy railway expenditures, both in this province and in New Brunswick, will be a great drawback to the opening of roads, building of bridges, the advancement of education, agriculture, and the general development of the resources of the country.

SCIENCE IN CANADA.

A circular has been sent to all the Mechanics' Institutes in Upper Canada, by the Board of Arts and Manufactures, informing them of its objects, and asking their co-operation. This Board has especially for its aim the increase of the knowledge of the mechanic arts, and it now proposes to form a library and museum of inventions, models and patents, which will no doubt form the nucleus of a valuable educational system. Exhibitions are to be held and prizes distributed for inventions of practical utility for the purpose of stimulating the inventive genius of the country.—We wish them a hearty success; and hope that an honest rivalry may spring up in this branch of industry between them and our northern states, so that both may thereby be benefitted, and liberality and good feeling increased.

Scientific American.

When will the lower provinces concentrate their energies in the establishment of a Board for the Encouragement of Arts and Manufactures, and invite the several Mechanics' Institutes to a co-operation? Other surrounding coun-

tries are advancing in the arts and sciences, and taking prominent steps to give scope and encouragement to the inventive genius of their respective countries, while Nova Scotia, New Brunswick, and Prince Edward Island appear to satisfy themselves with two or three partial exhibitions each of home industry.

Such institutions as that being now established in Canada, when properly established and efficiently carried out, tend to a more complete development of the latent resources of the country. The minds of these provinces are certainly no less capable of advancing in the scale of artistic and scientific skill than those of other countries; and it is evident to those best acquainted with the resources of these extensive provinces, that there is no part of the American continent so well supplied, in a natural point of view, with such rich and varied stores of dormant wealth.

Ed. P. S. A.

Short Paragraphs.

EDUCATION.—The following brief but beautiful passage occurs in an article in *Fraser's Magazine*:—"Education does not commence with the alphabet. It begins with a mother's look—a father's nod of approbation, or a sigh of reproof; with a sister's gentle pressure of the hand, or a brother's noble act of forbearance; with handfulls of flowers in green and daisy meadows; with bird's nests admired, but not touched; with creeping ants and almost emmets; with humming bees and glass bee-hives; with pleasant walks in shady lanes; and with thoughts directed in sweet and kindly tones and words, to nature, to beauty, to acts of benevolence, to deeds of virtue, and to the source of all good, to God himself."

INFANCY OF KNOWLEDGE.—Mankind, but a few ages since, were in a very poor condition as to trade and navigation; nor, indeed, were they much better off in other matters of useful knowledge. It was a green-headed time; every useful improvement was held from them; they had neither looked into heaven nor earth, neither into the sea nor land, as has been done since. They had philosophy without experiment; mathematics without instruments; geometry

without scale; astronomy without demonstration. They made war without powder, shot, cannon or mortars. They went to sea without the compass, and sailed without the needle. They viewed the stars without telescopes, and measured altitudes without levels or barometers. Learning had no printing press, writing no paper, and paper no ink.—Lovers did their courting without epistolary correspondence. They were clothed without manufactures, and their richest robes were the skins of animals. They carried on trade without books; their merchants kept no accounts, their shopkeepers no cash-books; they had surgery without anatomy, and physicians without the materia medica.

KEEPING FARM ACCOUNTS.—Let every farmer make the experiment, and he will find it as interesting as it is useful, and both interesting and useful, to know from year to year the actual products of his farm.

Let every thing, therefore, which can be measured and weighed, be measured and weighed; and let that which cannot be brought to an exact standard, be estimated as if he himself were about to sell or purchase it. Let him likewise, as near as possible, measure the ground he plants, the quantity of seed which he uses and the manure which he applies. The labour of doing this is nothing compared with the satisfaction of having done it, and the benefits which must arise from it. Conjecture, in these cases, is perfectly wild and uncertain—varying often with different individuals, almost a hundred per cent. Exactness enables a man to form conclusions which may most essentially, and in innumerable ways, avail to his advantage. It is that alone which can give any value to his experience; it is that which will make his experience the sure basis of improvement; it will put it in his power to give safe counsels to his friends.

Such a course pursued by farmers who have a large family of sons, would be a good school—teach them to make calculations, and not leave everything to guess work.

The Parish School Advocate,

Will be published once a month, at the price of 4d. per single number, or 3s. 9d. per annum, payable in all cases in advance.