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FOR THE PROVINCE OF NOVA SCOTIA.

TEACHERS' ASSOCIATION.

TEACHERS' Associations or kindred institutions are not uncommon. Where systems of public schools prevail, if an ambition for elevating and extending such institutions exist, we invariably find them. That Teachers and the friends of Education should unite in Associations and Institutes, is to be expected and, by all means, to be encouraged. The different professions have their Societies, Clubs, and Associations, the aim of which is to watch over the interests of those who compose them, and, when needed, throw the united influence of the whole body around the commonweal. Hence, we have Medical Societies, Law Associations, Chambers of Commerce, Arts' Union, Trades' Associations and many other societies, the object of which is to watch over the interests of the members, and as far as they have a common claim exercise a fostering supervision. Educators would certainly appear to a disadvantage did they not take a hint from these almost numberless organizations, and unite on some common ground for a common good. Such institutions are a necessity, especially to teachers, who, by their engagements, are so sundered from each other that opportunities for personal interchange of sentiment and views are rare privileges, and who, from being exposed to varied influences and conflicting inducements, are—unless they have some central and recognized organization—sure to be exposed to all the disadvantages of a people aiming to promote common good, by contradictory and conflicting views and efforts.

An association is, therefore, evidently necessary to centralization and unity, in order to promote whatever may relate to the common good of the profession. But on this point—"what is the common good?"—intelligent men may entertain diverse and opposing notions; opinions are formed according to the standpoint whence the view is taken, or different facts may be so presented that men of equal ability for forming a correct judgment may arrive at conclusions widely sundered and even of hostile tendency. Associations bring intelligent men into contact with each other—opinions meet opinion—arguments confront argument—a large amount of knowledge and experience is so brought to view, that the direction in which the commonweal lies is readily discerned, and, when once seen, little effort is needed to prompt the ambitious to certain success. Such advantages result from Teachers Associations, and are motives which urge to form and maintain them with jealous solicitude, as means to a valuable end. But there are dangers, some of which are common to all such bodies—some few peculiar to Educational organizations. Designing and cunning men not unfrequently obtain a footing with the design of using them as the means to gratify personal ambition, t' ugh such may be subversive of the very design for which the were formed. The wily, artful politician, or sly and cunning partisan, not unfrequently subordinates to his own base purpose the best efforts of the unsuspicious and confiding, so that valuable energy and capability for good are often perverted. There is much of this in many Associations, as the members of various Clubs have found by bitter experience—where misdirected energy, misapplied influence, and misapprehended worth and zeal have rendered abortive the well-meant labors of societies of honest men.

The teaching staff of a Province like this must necessarily be scattered and in contact with every diversity of character and ambition, acting as disintegrating agencies, with little to abate their forces. If success is contemplated with any degree of certainty at the outset, the Association must guard against the danger above suggested, and make escape from such a primary consideration. The purpose for which the Association is organized, and for which the co-operation of its members is invited, should stand out with all possible distinctness in a well-formed Constitution, so unambiguous and unequivocal as to defy artifice, affording at once protection to the virtuous and a barrier to baffle the artful. The principles and aim of the Association being set forth in a well-digested Constitution, but little difficulty will be found in working out the purpose of the organization; for every member knowing the law will have a keen eye to order and constitutional authority. The Constitution should cover the ground to be cultivated, it should also confine all activities to a legitimate sphere. If such limitations are not sharply and carefully guarded, the presiding officer will find his powers questioned and at times disregarded and defied, and the meeting, instead of being one of order, a scene of perplexing tumult and strife. If officers are to know their duties, and honorably discharge them: if members are to understand their rights and privileges, so as to exercise them; if the Association is to act with a conviction of its own dignity and position, and if the esteem of those without is to be claimed and possessed, then must the Association have a carefully digested code of laws and by-laws, defining and fixing the position and rights of all the members. With such a basis, efficient action is secured, and the fraternal commingling of thought and sympathy with the whole brotherhood. As a result, the best men will gladly accept offices of responsibility, as those of honor, and quickly impress their own intellectual and moral likeness upon the Society they are called to govern. It is presumable that the Teachers of Nova Scotia will place at the head of the Association their best men, among whom not a few may be found fitted for stations of responsibility and honor.

From causes, which we do not care now to consider, the recent Association, at Pictou, did not obtain the measure of success hoped for by those who attended: though, doubtless, the papers, prepared and read by several teachers, had much to commend them to the attention of the thoughtful, and were evidently the results of talent, learning, and experience: but from want of careful pre-arrangement for these productions and a preparation for the business of the meeting, it was obvious that the committee had not acted in concert.

The failure in arrangement, and apparent deficiency in administrative power, to secure order in the time of animated debate, were but the inevitable consequences of a mere nominal constitution.

The Association elected new officers and a new committee of arrangement, and, next summer, will hold its annual meeting in one of the western Counties. Those who know the present officers, are assured that the governmental responsibility is with those who have ability and will, to make the Institution what it ought to be, and, we are sure, what it will be.

Time should not be lost, but, with as little delay as possible, experienced educationists should be invited, and a bill of fare prepared and printed. Three programmes are not needed—one should suffice.

We remember when Dr. Dawson was at the head of our education movement, and the Teachers' Institutes which he held during his visits to the Counties, and the interest thrown into these meetings, as Teachers of experience exhibited their own modes of giving instruction and developed their individual views and convictions on the art of teaching. We remember how Dr. Dawson drew out the opinions of teachers and made their carefully gathered knowledge avail for the good of all present. We now have the impression that some similar exercises would add much to the value of the contemplated convention.

The arrangements are in good hands: and should the Association meet in the centre of those beautiful western Counties, the gathering will be large, and the enjoyment, intellectually and physically, all that the most fastidious could reasonably hope for.

SCIENCE EDUCATION ABROAD.

A Lecture by J. W. Dawson, L.L.D., F.R.S., &c., Principal and Vice-Chancellor of McGill University, Montreal, being the Annual University Lecture of the Session 1870-1.

EVERY one who reads must know that in our time no subject is more extensively agitated and debated than that of the present lecture. In every civilized country it has become a question of first-rate importance, not only for educators but for business men and statesmen, how the largest amount of success can be attained in the practical application of science to the arts of life. Everywhere, as a means to this end, it is felt to be necessary to provide the widest extent of science education for the mass of the people, and the highest perfection of such education for those who are to take leading places as original investigators or as directors of business undertakings.

From the time when I first had the honour of addressing a Canadian audience, until this day, I have not ceased, in season and out of season, to urge this subject on the attention of the friends of education here, as one of the pressing wants of this country; and within the few past years, feeling that we were falling farther and farther behind other countries, I have made some special efforts to collect additional information as to the state of science education abroad, and to bring this to bear on the public mind here, as opportunity offered.

In my recent visit to Great Britain I had this object specially in view; and found it to be one much before the minds of all educated men, and prominent in conversation and discussion whenever education was referred to. The results of recent industrial exhibitions had painfully impressed the minds of Englishmen with their actual and growing inferiority in important arts and manufacturers to better educated nations. Great efforts were being made to erect new schools of science and to introduce science teaching more effectually into other institutions. The usual expedient in England in all doubtful and urgent matters of national importance, the appointment of a Royal Commission of Inquiry, had been resorted to, while the Commission already engaged in the improvement of the endowed schools had taken high ground on the question of science education. All this was very interesting to me, and I availed myself fully of the many opportunities which offered to visit schools of practical science, and to learn the views of those most concerned in their management; and who, in the true spirit of the brotherhood of Science, were ready to place all means of information at my disposal. What I learned I would now desire in some measure to lay before this audience, with practical deductions bearing on our own condition. While, however, most desirous to convey to your minds the impressions made upon my own, I feel that the subject is too vast to be discussed in an hour, and that I can present but a mere skeleton, unless I confine myself to notices of a few of those institutions which appear to be most instructive with reference to ourselves. I shall therefore, first, shortly define what I understand in this paper by science education, shall then notice a few science schools in England and elsewhere, and shall conclude with some practical applications of the subject.

WHAT IS SCIENCE EDUCATION.

In speaking of science, then, I would restrict your attention to the physical sciences, or those which relate to what we call material things. In this great group of sciences we may recognize three subdivisions, distinguished by the modes in which they are pursued, though shading into each other. (1) Mathematical sciences, or those in which the methods chiefly pursued are those of mathematical reasoning and calculations, as, for instance, astronomy; (2) Experimental sciences, of which chemistry and several departments of natural philosophy may be taken as examples: (3) Observational sciences, such as zoology, botany, and geology. Each of these classes of subjects must be treated according to its own methods; and unless so treated is useless whether as a means of training or for practical application. The learning, for example, of any of the natural sciences, by "getting up" a text book, without actual examples and work, is not of the nature of science education; and much of the undervaluing of science studies as a means of education, on the part of practical teachers, is due to their want of acquaintance with this first truth. Natural history or experimental science taught merely from books, is only an indifferent form of verbal training, and it is no wonder that those who know it only in this way should form a very low estimate of its educational value. To be usefully taught, the pupil must be familiar with the actual objects of study, and must understand experimentally the modes of attaining to results with regard to them. He will then receive a real and valuable kind of education, the benefits of which may be summed up as follows:—(1) The student is taught to observe, compare, and reason for himself, and this in a practical manner, not so easily attainable in other subjects, and tending to give an accuracy of method and quickness of perception and of forming conclusions most valuable in actual life. (2) Much knowledge of a useful and interesting character is acquired; and the student, while learning the uses and properties of common things, may rise to large and enlightened conceptions of the works of God, and the natural laws under which man exists. (3) Men are trained to pursue original investigations, and thus to enlarge the boundaries of science. (4) The means are afforded to utilize natural resources and improve arts and manufactures. With regard to the extent and nature of such science education, it appears to be the result of experience in all the more advanced countries: (1) That there should be special practical schools to train investigators and practical science workers in the departments most important to the welfare of the community. (2) That science study should form some part of a liberal education. (3) That the elements of some of the natural or physical sciences should be taught in all the common schools. (4) That means should be employed to train competent teachers of science. This being what I understand by science education, with reference to its nature, results and methods, let us glance at some of the efforts put forth on its behalf, more especially in the mother country.

THE ROYAL SCHOOL OF MINES.

In London the principal institution for science education, supported directly by the Government, is the Royal School of Mines, Jermyn street, with which is associated the Royal College of Chemistry in Oxford street.

The Royal School of Mines is an outgrowth of the Geological Survey of Great Britain, whose building it shares and whose officers are its chief directors and instructors. This association gives it great advantages, in securing the influence and management of the distinguished head of the Survey, Sir R. I. Murchison, and the services of such eminent practical geologists and naturalists as Ramsay, Huxley, Etheridge and Smyth, as professors, in giving the students access to large and admirable collections in Geology and an extensive scientific library, and in placing the young men under the immediate superintendence of those who have the best opportunities for opening up to them the paths of usefulness and success. The very atmosphere of such an institution savours of practical science, its appliances for work and study are of the most inviting description, and it has several prizes and scholarships for its more deserving students, and gives the title of "associate" to those who pass its final examinations. Notwithstanding these advantages, though it has many occasional or partial students, the number of regular students has been much smaller than could be desired. This may in part be accounted for by its situation in a city not directly interested in mining, and remote from the great manufacturing districts; in part, perhaps, by the want of appreciation of the advantages of science training on the part of the English public. It is certain, however, that the School of Mines, though its instructing officers are second to none in the world, is inferior to the great science schools of America and the continent of Europe in its academical organization, in the completeness of its course, more especially in the direction of literary and mathematical culture, and in the standard of attainment required for entrance. Were it improved in these respects, and enabled to offer a larger number of direct prizes to students, its usefulness might be greatly increased.

Still, with these limitations, the success of the school has been great. It has trained a succession of competent men for geological surveys in the United Kingdom and the colonies. Among others, the present head of the Geological Survey of Canada is one of its graduates. It has also sent forth a number of trained men into mines and manufactures, who have been very successful, not only in introducing new inventions and improvements, but in realizing fortunes for themselves; and it is stated that the demand for these men is much greater than the supply. The course of study in the school of mines extends over three years, and in the senior year the students are allowed options, by virtue of which they may devote themselves specially to chemistry, mining or geology.

The Royal College of Chemistry is a distinct institution, situated in a different part of the town, which is a cause of some inconvenience to the students of the School of Mines, who have to attend its lectures and classes in practical chemistry. It was established originally by a private subscription, but has been adopted by Government. Under the able management of Prof. Frankland, it is a useful institution, and always crowded with pupils. It has, however, accommodation for only 42 practical students, and this by no means of the airy and sumptuous character to be found in the laboratories of the continent of Europe and the United States. Crowded among the shops of a noisy business street, it has no room for extension, and its teachers and students have to submit to many inconveniences which might readily be obviated were it removed to a more suitable locality, and provided with a laboratory fitted up with modern improvements. It must, however, be admitted that the utmost possible use has been made of its too limited accommodation.

THE DEPARTMENT OF SCIENCE AND ART.

The Royal College of Mines, as well as the Royal College of Science, Dublin, and the Edinburgh Museum of Science and Art, are under the direction of the Government Department of Science and Art; but its largest sphere of operations is in the great South Kensington Museum, and the schools connected with it throughout the country. In its last report these schools and classes are stated at 525 in all, with an aggregate of 24,865 pupils. This represents much science teaching; all, however, of an elementary character, and of a small amount relatively to the great population of Britain and Ireland. Much of the teaching is necessarily done by teachers of a very humble grade of scientific attainment; but the most effectual means are taken to ascertain that it is faithfully done, and to give it opportunities for improvement. The principle

adopted is that of giving money aid to teachers, building grants, grants for apparatus, &c, scholarships and exhibitions, medals and prizes to pupils. All of these are awarded on the results of rigid examination, conducted by papers sent from London and reported on by examiners, among whom are some of the first scientific men in the country. The aids to teachers are at the rate of £2 per annum for each first-class pupil, and £1 for each second-class pupil; and the teacher, in order to receive aid, if not a University graduate, must have obtained at least a second class in the advanced grade of these examinations. Of the aids given to pupils a number are in the form of exhibitions in aid of attendance on higher science schools, and in the case of the higher Government schools the fees are remitted in favor of students taking these exhibitions. It would be difficult to imagine a system likely to do more good, as all that is wanted is that it should be further extended and that more thorough means should be adopted for training the teachers.

SOUTH KENSINGTON MUSEUM.

The most conspicuous part of the establishment at South Kensington is its museum, embracing a vast collection of objects illustrative of industrial products, art and manufactures, and one of the most popular and useful places of instruction by the eye in London. It is proposed to remove to the extensive buildings at South Kensington the vast Natural History collections of the British Museum, and also the collections of the Geological Survey, so as to promote science study as well as that of art. Art education on an extensive scale is conducted at South Kensington itself, as well as in a multitude of affiliated art schools. More especially, young persons are trained as teachers, and with reference to practical applications to decorative art of every description. As illustrations of these, I was shown large collections of patterns for wall papers, table cloths, pottery, and coloured and engraved glass, prepared by the pupils for competition for prizes offered by manufacturers; while in a gallery of the museum, assistants were busy in arranging a vast collection of drawings and paintings sent in from affiliated schools for competition. In the Art training school I saw hundreds of pupils engaged in all kinds of work from the elements of drawing to studies in painting and modelling from life. In addition to the study in the schools, the students, of whom there are between eight and nine hundred, have access to the Galleries of Art in the Museum, and to an Art Library of 25,000 volumes and a collection of 55,000 engravings and photographs. Last year 107 schools were conducted under the "Department" with 20,000 pupils; and in addition to these, elementary drawing was taught in 1,094 schools to 120,928 children. Though art is distinct from science, I think it proper, when speaking of South Kensington, to refer to its work in art as well as in science. Not only is science the handmaid of art, but art is also the handmaid of science, and both must flourish or decay together. More especially the study of art in its application to the wants of ordinary life, cannot fail to be auxiliary to the advancement of science. It is a matter of profound regret that the Boards of Art organized in this country more than ten years ago, have been permitted to languish, and have not been enabled to establish here institutes on the plan of those of the Department of Science and Art in England.

THE LONDON UNIVERSITY.

University College, London, has no organized science school, but it trains men for the Bachelor of Science examination of the London University. This is a general science examination, implying the training necessary for matriculation, and subsequent studies in Physics, Chemistry, Animal Physiology, Geology, Logic, and Moral Philosophy. Bachelors of Science of two years standing can go up for an examination for the Degree of Doctor of Science. These science degrees of the University of London do not lead directly to practical work, and this is an important defect in the system, but they are, no doubt, very important as stimuli to the general preparatory training required by every man of science. The Bachelor of Science degree as offered by the University of London, has also undoubtedly tended to raise science to its proper status in connection with the higher education, but it is not as yet largely taken. At the graduations in May last, at which I was present, there were only eleven Bachelors in Science and seventy Bachelors in Arts. This arises in part from the want of prestige and antiquity in the degree itself, and in part from its having to compete with the honours in science which may be taken in courses in arts, and with the special science schools.

The Birbeck laboratory of University College accommodates 24 practical students; and I was pleased with the ingenious arrangement of its theatre, by means of which 98 students can be employed simultaneously in making experiments with tests under the direction of Professor Williamson and his assistants. This is only one among many indications which I observed of the tendency to give to examinations and instructions in science a practical character, an evidence that its true nature is being more and more appreciated.

THE ROYAL INSTITUTION.

It would be wrong to leave London without referring to the remarkable and unique establishment known as the Royal Institution, founded in 1799, at the suggestion of Count Rumford, and celebrated throughout the world as the theatre of the labours of Davy, Farady and Tyndall, while in London itself it is known and valued as an agreeable and popular exponent of science by means of its lectures and discourses. The Royal Institution has a good building in Albemarle street, containing its theatre, laboratories, library, and reading-room. Its function is two-fold. First, it sustains as its professors eminent scientific men, and provides them with the means for prosecuting original research; secondly, it provides, by its afternoon and evening lectures, the means of presenting to the more refined and educated classes, information as to the latest results of scientific discovery, from the lips of the actual discoverers themselves. Its lecture-room is always filled with a cultivated and attentive audience, who have the advantage of learning orally and at first hand what others must gather from reading, or from secondary sources.

The Royal Institution thus occupies a middle place between the general public and those Scientific Societies, like the Royal, Geological and Linnean, whose objects are strictly scientific or special, and whose meetings are consequently almost entirely composed of scientific men. At the same time it promotes original research in a manner peculiar to itself, and in the highest degree successful. It undoubtedly exerts a most important influence in keeping those who move in the higher strata of society in London abreast of the science of the day, and thus in procuring moral as well as material support for scientific researches; more especially for those which, not being of direct educational or practical utility, are liable to be neglected even by the more intelligent portion of a community, engrossed in the accumulation of wealth or in the still more laborious pursuit of spending it.

OWEN'S COLLEGE, MANCHESTER.

In the great manufacturing community of Manchester, academical education rears its head in an institution of no mean repute in the matter of science education. Owens College is, like our own McGill, based on the liberality of a wealthy merchant, whose name it bears, supplemented by numerous additional benefactions. Among these I find a sum of £10,000, subscribed by 118 merchants and others, for a chemical laboratory and a library; a sum of £9,472 subscribed by the principal engineers of Manchester and the neighboring towns, for the foundation of a chair of civil and mechanical engineering, and a fund of £200 per annum to augment the endowment of the professorship of chemistry. These noble benefactions remind us of the liberality of some of our Montreal merchants and professional men, and should act as a stimulus to others.

I am indebted to Principal Greenwood and Professor Williamson for enabling me to learn the nature and results of the science teaching at Owens College, which in many essential respects more nearly resembles one of our Canadian colleges than any other institution which I saw in England. The department of general literature and science, or, as we should say, the course in arts, extends over three years, and, like our own, includes a certain amount of modern languages, and physical, natural, and mental science. The department of theoretical and applied science, or science course proper, also extends over three years. The first is identical with the first in arts. The second and third are occupied entirely with science subjects, along with the French or German language. The students in this department are prepared for the bachelor of science examination at London. This course is said to be suited to prepare "for the higher departments of manufacturing art, and for pursuits and professions purely scientific." It is also said to be "adapted for such as are hereafter to be engaged in commercial pursuits"—a remarkable testimony to the ideas of education on the part of business men at Manchester, who in this respect come up more nearly than any others in England and her colonies, to the standard of the New England cities. The Principal informed me that there were last session 100 students taking this science course. The third department in Owens College is that of civil and mechanical engineering, in which students are prepared for the examinations in engineering in the Indian Public Works Department, and also for entering on the higher branches of the engineering profession. The course extends over three years. It had only twenty students last year.

Another and most interesting feature of Owens College, suited to its position in a great manufacturing town, is the provision made for evening classes. These include the subjects of the general course, and also a pharmaceutical course intended to prepare chemists and druggists for the examinations under the Pharmacy Act. Most of the students in these classes are what we would call partial students; but some study for the Degree of B. A. of London University. The intention of the college is to accommodate those whose business engagements prevent them from attending lectures in the day time; and the number of students last year was no less than 400. This is a remarkable indication of the avidity for learning on the part of the young business men of Manchester, who enter on this somewhat severe course of study as an employment for their evenings, and after the toils of the day. It is further to be considered that many of these young men have to walk or drive considerable distances in order to attend these classes; but in all the cities of England distance is much less regarded than it is in this country. Prof. Roscoe delivers a separate course of lectures on chemistry to women, which, I was informed, had been successful, though I did not note

the number of students. The authorities of the college have under consideration the establishment of a regular academical course for women, which will be largely of a scientific character.

Owens College has its class rooms at present in an old building adapted to its use; but an elegant new building is now in process of erection at a cost of £90,000, and a sum of £130,000 is said to have been raised as a building fund. The foundation stone of this building was publicly laid in September last. It is to be observed that Mr. Owens wisely prohibited any portion of his endowment fund being expended in buildings, and that the Government of Great Britain has given no aid to Owens College, so that this large sum is a product of private munificence, chiefly in the town of Manchester.

SCIENCE TEACHING AT CAMBRIDGE.

The two great English Universities of Oxford and Cambridge are obviously not content to lie under the aspersion some time ago cast on them by an eminent scientist that their "atmosphere" is unfavorable to scientific study. Both are making rapid strides in this direction.

At Cambridge, under the kind guidance of Prof. Stokes, himself one of the most eminent of living physicists, and of the patriarchal Sedgwick, and his able assistant Seeley, I saw the improvements which in late years have been made in the means of study in natural and physical science, and which tend, with other changes, to give greater effect to the regulations in favour of the natural science tripos. Still more recent movements in this direction are the appointment of a university professor of pure physiology, and the movement in aid of a university professorship and demonstratorship of experimental physics, towards the buildings and apparatus necessary for which, the Chancellor, the Duke of Devonshire, has offered a contribution of £6,300.

WHAT OXFORD IS DOING.

Oxford has, however, taken the lead of its sister university in this matter, and I shall therefore notice more in detail what I had the pleasure of seeing there in the way of provision for practical science teaching.

The new museum, now of world-wide reputation, is not merely a museum in the more modern sense of the term, but a series of scientific laboratories and class rooms, attached to a magnificent library and museum. The museum proper had been largely increased and improved in its collections since my last visit in 1865, and its great central glass-roofed court, more than 100 feet square, with its surrounding galleries, is now well-filled with specimens in Geology and Zoology. On the south and west sides, the museum is encompassed with class rooms and laboratories in geology, chemistry, and physical science. On the north side are the laboratories and class rooms in physiology. Prof. Phillips was absent, owing to an attack of illness, and in his department I saw only assistants engaged in laboriously piecing together the huge bones of the Cetiosaurus, a gigantic reptile with thigh bones more than five feet in length, of which a magnificent skeleton has recently been discovered in a quarry not far from Oxford. I had, however, the pleasure of seeing the students at work in the laboratory of practical chemistry, under Prof. Brodie, and of examining the admirable arrangements of Prof. Rolleston for practical work in physiology. Among other things which I saw in the physiological laboratory, were excellent dissections of mullusks and worms made by students as a part of their examinations in the honour course of Natural science.

Though the museum contains rooms for experimental physics, the University has greatly enlarged its means of instruction in this department, by the erection in the vicinity of the museum of a physical laboratory, which I believe will cost about £40,000, and which, in the perfection and completeness of its arrangements, will surpass all similar workshops of science, not only in England, but in the world. Prof. Clinton, who himself showed me the building, and explained its plan, has endeavored to make this laboratory in itself a model of practical science, considered as the art of doing everything in the best way, by applying in the most perfect manner every known improvement and many original inventions of his own, to secure convenience and accuracy of working. The building has a central hall for apparatus, and for certain experiments requiring a large space; a class room, which is a model of acoustic perfection and mechanical arrangement; and a number of work-rooms, in which all the most delicate kinds of operations in weighing and measuring can be carried on with the best apparatus and with every precaution against error. This laboratory was to be opened in the present autumn, and I was informed by Prof. Clinton that he expected to begin with about 30 practical students. The object of the laboratory is two-fold—(1) to train observers and experimentors more thoroughly than heretofore: (2) to undertake original physical researches with more perfect appliances than those now available.

The Oxford new Museum, with the neighboring Physical Laboratory, thus constitutes in itself a great educational institution in physical science, managed by some of the ablest instructors and original investigators of the day, and providing for studies in experimental physics, chemistry, mineralogy, geology, physiology, and zoology; botany being otherwise provided for in connection with the Botanic Garden. It has seven large class rooms and a multitude of working rooms and laboratories, with the scientific department of the Radcliffe Library. These appliances are as yet large in comparison with the number of students who use them; but the number of students is increasing, and this apparently not at the expense of the literary courses of study. It is to be observed, moreover, that the aim of the Oxford Science school is high. Its object is not so much to train practical workers in science as applied to the arts, as to give the education necessary to enable those who receive it to take their places as original investigators in the advancement of theoretical science, and in connection with this to bring out the true value of physical science as a means of securing the highest mental culture. Viewed with reference to those ends, Oxford is undoubtedly an excellent Science school; and a University which offers its highest honours, in courses, in which practical chemistry and physics, and dissections of invertebrate animals, constitute important parts, cannot be regarded as unfavorable to the cultivation of science. It must be admitted however that these improvements have been effected only after severe contests between the advocates of modern science and the conservative element in the University, contests in which my valued friend, Dr. Acland, well known to many of us here, has borne an influential part.

MOVEMENT IN EDINBURGH.

Edinburgh has as yet no organized Science school, and has undoubtedly been falling behind the English schools in its reputation for training in natural science. This is, however, a relative rather than an actual decadence, and there is a very strong desire on the part of many of the friends of the University to restore its ancient reputation in this respect. In evidence of this we have the recent endowment of the Baxter Chair of Engineering, and the still more recent offer of Sir Roderick I. Murchison to give £6,000 as the endowment of a Chair of Geology, which I am informed the Government is likely to supplement with a like sum. The Department of Science and Art has also attached to the University a museum on the plan of that of South Kensington, under Prof. Archer; but no lectures are delivered in connection with it. No Institution in Great Britain has a better field for science education than Edinburgh, and it possesses many excellent teachers, but their action is to some extent paralyzed by want of facility for mutual co-operation, and by want of some professorships necessary to complete the course of study. In the meantime, there are excellent practical classes in chemistry, experimental physics and botany, and there is an academical course for a science degree. In this course the candidate is required to have the degree of B. A., M. A., M. B., or M. D., or to hold certificates of having passed the examinations in two of the departments of the University course, or to have matriculated in the University of London. Otherwise he must pass a preliminary examination. He must then pass a general examination in mathematics, physics, chemistry, zoology, and botany; but may omit this examination if an M. A. who has taken honours in natural science, or an M.B. or M.D. who has taken honours in natural history, and has passed the examinations in physics, higher mathematics, and logic. There is then a final examination, in which the student may select one of three branches in which to pass, viz.: (1) Mathematical science; (2) physical and experimental science; (3) natural science. On passing this examination he is entitled to the Degree of Bachelor of Science, and at the end of twelve months may come up for the degree of Doctor of Science, in the examination for which he must show profound knowledge of a special scientific subject. The number of candidates for these degrees is not as yet large, but is increasing. They might obviously be rendered much more valuable and attractive by connection with special science courses, leading to application to the arts or to definite branches of original research.

It may be well to mention here that the Principal of Edinburgh University, in his inaugural address, has suggested the omission of Greek from the University course for M. A., to make room for science culture, and that the chairman of the Endowed Schools Commission has, as already mentioned, put this idea in a practical shape before the English Universities, in an official letter to the Vice-Chancellors, in which he intimates the design of the Commissioners to establish schools in which Latin alone shall be taught, in addition to science and modern languages and literature, and invites them to open their examinations for degrees and honours to the pupils of such schools. While it is to be doubted whether any such change is required here, where classics have not been so exclusively insisted on in the schools as in England, the arguments adduced by Lord Lyttleton in his circular are well deserving of study, as indicating the strong feeling among parents and educated persons in England that science education for their children is a matter of absolute necessity, and that, if it cannot otherwise be obtained, some portion even of their cherished literary culture must be sacrified to a want, on the supply of which even national existence may depend.

SCIENCE TEACHING IN THE UNITED STATES.

We might now turn to the efforts which have been made in the United States, where, owing to the more general diffusion of elementary education, the value attached to the applications of science to the arts of life, and the liberality of private benefactors and of the State and general Governments, much more has been done than in England, and where such schools as the Lawrence and Sheffield

Schools, the Boston Institute of Technology, and the Cornell University, challenge comparison with any in the world. I shall, however, refer to only one of these, which I had the pleasure of visiting rather more than a year ago, and which, in my judgment, has been one of the most successful.

SHEFFIELD SCIENTIFIC SCHOOL.

The Sheffield Scientific School, is a modern outgrowth of the old University of Yale College; and originated in 1847 in the organization of the "Department of Philosophy and Arts," under Professors Silliman and Norton, representing respectively the subjects of Applied Chemistry and Agriculture. The scheme seems to have been devised by the elder Silliman, and to have had its birth in his private efforts in previous years to give practical instruction to special students. This department was maintained with moderate success for several years; but at length in 1860 Mr. Sheffield, a wealthy citizen of New Haven, came forward to its aid with a handsome gift of a building and apparatus valued at over $50,000 and a fund of $50,000 more to endow Professorships of Engineering, Metallurgy, and Chemistry. This enlightened benefaction at once placed the school on a respectable footing, and in 1863 it was further enlarged by the application to its use of the share of the State of Connecticut in the large grants of land made by Congress in that year for purposes of scientific education, grants which have borne similar good fruit in many other States. The Sheffield School will also be a larger sharer in the benefits which the University will derive from the great Museum founded by Mr. Peabody, and endowed by him with the sum of $150,000. The present extremely valuable collections of Yale College are stored in rooms of quite inadequate dimensions, and are being rapidly augmented and improved, Prof. Marsh and Prof. Verrill alone have vast stores of fossils, corals and other specimens in basements and cellars; and when the whole shall be arranged in Mr. Peabody's Museum, Yale College will be inferior to few Academic institutions in the world in regard to its facilities for teaching the science of nature through the eye. A special collection in the Sheffield School, very valuable and well worthy of study, is that of economic geology. It is admirably arranged, and gives at one view an idea of nearly all the mineral resources of the United States from the Atlantic border to the Pacific.

The building of the Sheffield School is well suited to its purpose, though it is an old medical school adapted to its present use; and the scope of the institution is wide, including six distinct courses, any of which may be followed by the student. These are; 1st Chemistry and Mineralogy; 2nd, Engineering and Mechanics; 3rd, Mining and Metallurgy; 4th, Agriculture; 5th, Natural History and Geology; 6th, A Select Scientific and Literary Course. The class rooms and laboratories struck me as remarkably ingenious and neat in all their arrangements, and combining in a great degree all possible conveniences, while the uncomfortable arrangements too often seen in academic rooms had evidently here been replaced by the exercise of some engineering and mechanical skill and contrivance; and by a combination of lecture room and cabinet the means of illustration had been rendered extremely accessible. In token that the Sheffield School is not altogether a school of mines looking down into the bowels of the earth, its liberal founder has presented it with an Equatorial Telescope, made by Clark with an object glass having an aperture of nine inches. It is placed in a tower constructed for it; and with a meridian circle and other instruments, enables students to learn all the work of a regular observatory, as well as the operations of astronomical geodesy. Any one interested in the training of the young men of Canada can scarcely avoid a feeling of envy in visiting such an institution as this, furnished with so many facilities for enabling the active mind of youth to grasp all that is of practical utility or provocative of high and noble thought in the heaven above and in the earth beneath. At this moment a Canadian Sheffield, judiciously aiding any University having an adequate and permanent basis, would do more to promote the trade and manufactures of this country and its scientific reputation, than can be done by any other agency.

The faculty of the Sheffield School includes twenty-three names, and its roll of students numbers one hundred and forty. It is scarcely necessary to say that several of the professors at Yale are active and successful original workers, and that the place is not only an effective scientific school, sending out each year a large corps of trained men into the higher practical pursuits connected with science, but also an important centre of discovery and original investigation, further materials for which are being constantly accumulated. More especially in geology, mineralogy, palæontology, zoology, and chemistry, are such men as Dana, Silliman, Marsh, Brush, and Verrill adding to the stock of knowledge for the whole world, as well as training their students. And this is one of the results in all cases of a well appointed and efficient school of science.

An additional endowment of about $50,000 has been collected during the past year for this excellent school, which in its provisions for scientific, in connection with academical education, is second to none in the possession of the English race.

One most important feature of the Sheffield School is that it combines all that is valuable in a science degree with the special training of a practical science course. Students who have the necessary literary acquirements may thus obtain the degrees of Bachelor and Doctor of Philosophy along with their special scientific training as civil or mining engineers, assayers, &c., while others can secure the practical advantages without the degree. In a recent article in the Yale College *Courant*, Prof. Dana explains the details of this system and its advantages and economies. He maintains that "the modification in American Colleges, which is demanded by the vast development of the sciences of nature within the past century, and also by the contemporary progress of linguistic and other sciences, is accomplished by the Yale scheme through a method which does not sacrifice in any degree classical education, and which at the same time combines thorough literary culture with the widest range and highest development of scientific education."

GERMANY AND SWITZERLAND.

But though much is being done in England and the United States, science and technical education are carried to a still higher point in Germany and in Switzerland, which perhaps excel all other countries in this respect. In the former country, while every one is educated, general education is made to lead to technical education in a great variety of schools, suited to persons in all conditions of life, and culminating in the great technical Universities, a kind of institution as yet unknown in the English-speaking world, unless Cornell University can be regarded as a step in this direction. In Germany there are now no less than six technical Universities, and a large number of technical colleges or higher schools to train students for these Universities, or for directly entering into employment in arts and manufactures.

TECHNICAL UNIVERSITIES.

Mr. Scott Russell, in his work on Technical Education, takes the Polytechnicon, or Technical University of Switzerland, as an example of the most perfect organization of this kind; and I may abridge from his notes the following facts as to its scope and organization. Its courses of study are arranged under 145 subjects, divided among 31 professors, 10 assistant professors, and 16 private teachers and lecturers. They consist entirely of science, applications of science to the arts, and modern languages, literature and history. Among the few subjects not included under these heads are the Swiss federal constitution and rights, and the Biblical History of Creation, a subject scarcely thought of in the English world, even in the education of the theological students. The students are either regular or "free," the latter taking selected courses; but of 762 students only 173 are free or occasional. In the regular programme of study the 145 subjects above referred to are divided into groups: (1) Preparatory subjects necessary for those who come imperfectly prepared; (2) subjects relating to architecture and building; (3) civil engineering; (4) mechanical engineering; (5) practical chemistry; (6) agriculture and forestry; (7) subjects necessary for scientific workers, professors and teachers; (8) a general course of philosophy, statesmanship, literature, art, and political economy. In aid of these courses of study the University possesses an astronomical observatory, arranged for teaching observers; a chemical and mechanical laboratory, for experiments in new inventions, &c.; a chemical laboratory, for ordinary practical teaching, which Mr. Scott Russell calls a palace of science in comparison with similar places in England; collections of drawings, models and machines; a collection of architectural models and sculpture; collections in zoology, geology, and antiquities; and a botanical garden. To the foundation of the University the Federal Government of Switzerland contributed £20,000, and the canton of Zurich £130,000. Its annual expense is very moderate, being only £13,459 sterling. From such institutions in Germany and Switzerland, annually proceed numbers of educated young men who are prepared to advance every branch of art by the applications of science, who are distancing England in so many manufactures, and who are now contributing so largely to the wonderful success of the German armies. It is well for us to remember that the Technical University of Zurich ministers to the wants of a population of only two millions and a half, or considerably less than that of Canada, and that even the little state of Wurtemberg, with a population of less than two millions, has its Technical University at Stuttgardt, with no fewer than 57 professors and teachers. It is further to be observed that these Universities are but the higher pinnacles of a complete system of technical education, descending from them to the humblest schools of practical science, for the children of labourers. It is scarcely necessary to add that they do not detract from or interfere with the great general Universities of Germany, in which scholarship and philosophy have reached so high a pitch of development.

A recent English writer thus eulogizes the Prussian system:—

"The Prussians, whatever their other qualities, are emphatically a scientific people, and to that predominating characteristic first and foremost are their recent military triumphs due. We do not mean that because they are great chemists, astronomers, and physicists, therefore are they necessarily great soldiers; so narrow a proposition would hardly be tenable. What we mean is that the spirit of science possesses the entire nation, and shows itself, not only by the encouragement given throughout Germany to physical research, but above all by the scientific method conspicuous in all their arrangements. What does the word Science, used in its wider sense, imply? Simply the employment of means adequate to the attainment of a desired end. Whether that end be the constitution of a government, the organization of an army

or navy, the spread of learning, or the repression of crime, if the means adopted have attained the object, then science has been at work. The method is the same, to whatever purpose applied. The same method is necessary to raise, organize, and equip a battalion, as to perform a chemical experiment. It is this great truth that the Germans, above all other nations, if not alone amongst nations, have thoroughly realized and applied. In all the vast combinations and enterprises with which they have astounded the world, no one has been able to point to a single deficiency in any one essential element. Every post has been adequately filled and every want provided for, from the monarch, the statesman, and the strategist, to the lowest grade in the army. This is the method of science, literally the same method which teaches the chemist to prepare his retort, his furnace, and his re-agents, before commencing his experiment."

WANT OF SCIENCE TEACHING IN CANADA.

Let us now turn to our own country, and study its means and appliances for the pursuit of practical science. The task is an easy one, for with the exception of two or three small and poorly supported agricultural schools, this Dominion does not possess a school of practical science. With mining resources second to those of no country in the world, we have not a school where a young Canadian can thoroughly learn mining or metallurgy: and, as a consequence, our mines are undeveloped or go to waste under ruinous and unskilful experiments. With immense public works, and constant surveys of new territories, we have not a school fitted to train a competent civil engineer or surveyor. Attempting a great variety of manufactures, we have not schools wherein young men and young women can learn mechanical engineering, practical chemistry, or the art of design, or we are very feebly beginning such schools. We have scarcely begun to train scientific agriculturists or agricultural analysts. Our means for giving the necessary education to originally scientific workers in any department, or of training teachers of science are very defective. Hitherto we have been obliged to limit ourselves to the provision of general academical courses of study, and of the schools necessary for training men in medicine, law and theology. Other avenues of higher professional life are, to a great extent, shut against our young men, while we are importing from abroad the second-rate men of other countries to do work which our own men, if trained here, could do better. Let us enquire then what we are doing in aid of science education, more especially in this commercial and manufacturing metropolis of Canada, which we may surely venture to regard as at least a Canadian Manchester, and something more important than a Canadian Zurich.

WHAT IS BEING DONE IN MONTREAL.

(1) We have at least advanced so far as to regard physical science as a necessary part of a liberal education. In this University some part of natural or physical science is studied in each year of the College course, and we provide for honour studies in these subjects, which are at least sufficient to enable any one who has faithfully pursued them to enter on original research in some department of the natural productions and resources of the country, and to receive some considerable portion of the training which such studies can give. We have provided in our apparatus, museum, and observatory, the means of obtaining a practical acquaintance with several important departments of science, But in a general academical course of study too many other subjects require attention to allow science to take a leading place; and 'tis not the proper course of educational reform to endeavour to intrude science in the place of other subjects at least quite as necessary for general culture. We require to add to our general course of instruction special courses of practical science, presided over by their proper professors, and attended by their own technical students.

(2) The lower departments of science education are to some small extent provided for by the teaching of elementary science in the schools. This, imperfect though it is, is of value, and I attribute to the partial awakening of the thirst for scientific knowledge by the small amount of science teaching in the ordiry schools in the United States and in this country, much of that quickness of apprehension and ready adaptation to new conditions, and inventive ingenuity which we find in the more educated portions of the common people. The Provincial Board of Arts and Manufactures also deserves credit for the attempts which it has made, under many discouragements, to provide science and art classes for the children of artisans. Proposals are also before the Local Legislature for Schools of Agriculture. The Local Government has procured reports on this subject from the Principals of the Normal Schools, and has also sent a special agent to study and repor on the Agricultural Schools of France and Belgium, which are well worthy of imitation. A still more important suggestion has been made to the Dominion Government by the Director of the Geological Survey for the erection of a School of Mining.

These arrangements and proposals are valuable as far as they extend; but they fall short of providing the full measure of the higher science education, whether with reference to the training of original investigators, or of the various kinds of professional men required for the development of the resources of the country. Let us enquire how this wider and higher science culture can be secured.

SUGGESTIONS FOR HIGHER SCIENCE TEACHING.

The higher technical and science education may be provided for in either of the following ways. (1) We may have special schools of mining, engineering, &c., each pursuing its own course, and not connected with any general institution. The objections to this are, that it is not economical, that it cannot provide the necessary literary and general training, that the pupils of such schools are very likely to be of various degrees of excellence and very partially trained. Such objections are applicable to schools like the Royal School of Mines in London, and I think they would prove fatal to the influence of such schools in this country. (2) We might imitate the German technical universities. This would be the most thorough course possible; and were the means forthcoming, I cannot conceive of any greater educational benefit to this country than the institution of such an University. But it may be long before we shall find in our Legislatures, general and local, the wisdom and patriotism which actuated those of Switzerland in establishing the Zurich School; and we may have to wait quite as long for the appearance of a Canadian Cornell to give and to stimulate legislative liberality by his giving. (3) The last, and, it appears to me, the only practical course at present, is to ask for endowment similar to those of Lawrence and Sheffield, and thus to establish special courses of Science in connection with academical institutions, on the plan so well carried out in Owens College, Manchester, and in the Sheffield School of Yale. This has proved the course most successful in the United States and in the Mother Country, and I have no doubt will prove so here. It is to be observed in this connection that I would not propose merely the institution of a Science degree. We have in this University the means to do this now, but I doubt its expediency, more especially as our honor course in Mathematical and Natural Science is equivalent to that for such a degree and something more, and can be as readily pursued. Nor would I follow the advice above referred to as given by the Principal of Edinburgh University and the Chairman of the Endowed Schools Commission, to curtail the classical part of the ordinary course in favor of science studies. Such an arrangement would, I have little doubt, injure the literary part of the academical course more than it would benefit science. I would prefer a regular and definite science school, with a course extending over three or four years—the first year to be identical with or similar to that of the ordinary course, or an equivalent examination to be exacted, at least, in modern literature and science; and the remaining years to be occupied with mathematical, physical and natural science, and the modern languages, branching in the closing two years into special studies leading to particular scientific professions. The staff and appliances of such an institution would depend on the extent of its range; and this, to ensure success, should not be small.

In this University large provision has been made in apparatus, collections and teaching power, for the foundation of a good science school; but to enable us to undertake the task effectually would require, in addition to our present means:

1. The separation of our mathematical and physical chairs, or the employment of an assistant professor.

2. The division of our natural science chair into two, or the appointment of an assistant professor.

3. The endowment of a chair of civil engineering and surveying.

4. Professors, lecturers, or tutors in mining, assaying and metallurgy, practical chemistry, agriculture, and agricultural chemistry, and mechanical drawing.—Some of these departments might be taken up by persons otherwise employed, and not depending for their whole support on the University.

5. Some improvement of and additions to our present apparatus, and the addition of collections of models, machines, and objects relating to the arts.

This might involve an additional annual expenditure of say $8,000, a very trifling sum in comparison with the cost of similar institutions elsewhere. With this, and the fees of students, we might here establish an efficient School of Practical Science and Technology for the Dominion of Canada, which would at once raise the character and reputation of this city throughout the world, and confer incalculable benefits on education and arts of life. Such an Institute is wanted to crown the educational fabric reared here by the liberality of Montreal merchants, with its highest success and the full measure of its utility. I would go further than this, and hold forth the hope of the full realization of the object in view, if an annual revenue or even half the sum above mentioned could be secured at once by private endowment. We could begin on an economical scale, and with the more important subjects only, and could, surely, with some reason expect the Government of the country to supplement such a private endowment with a like sum.

It may be asked, would students be forthcoming? I may with confidence answer the question in the affirmative. From the applications made to me on the part of young men for whom I can do little or nothing, I believe that one central well-appointed technical university in this Dominion, would be well sustained, in so far as the number of students is concerned; and that the extension of population, of mines, manufactures, railroads and other works, would afford an ample outlet for all the men it could train,

while the professional work of such men would itself tend to increase the demand.

It is certain, however, that if the Government of this country could be induced to sustain a system of elementary technical schools similar to those of the Department of Science and Art in England, or similar to those of Prussia, a double benefit would be secured, in so far as the higher science education is concerned, in finding occupation as teachers of science for some of the graduates, and in giving the necessary preliminary training to students. At the same time the effects of such schools would be of incalculable importance to the working classes of this country. Local benefactors might do something for such schools; but for a proper system the Legislature must intervene, and it can secure the end only by payment for results on the English system, under proper arrangements for examination and inspection.

CONCLUSION.

In conclusion, I may remind some of my audience and inform others, that the views advanced in this lecture, and which are now sweeping on in a resistless tide in every civilized country, are not new with me. When, in 1855, I entered with much diffidence on the arduous and then not very hopeful office which I now have the honor to occupy, I held views on this subject as advanced as those which I hold now, and saw quite as clearly as at this moment, the improvement and extension of science education to be the greatest educational movement of our time. I had then studied the reports of the University Commissioners in England, and had read the admirable exposure of the evils of the existing systems made by Sir Charles Lyell. I was familiar with the details of the Prussian system. I had recently been engaged, with several leading educationists, under the presidency of Sir Edmund Head, in the organization of a scheme for the reform of the University of New Brunswick. I had just returned from conference with leading educational and scientific men in England and the United States. I was strongly impressed with the necessity of science education in this country, zealous for its introduction here, and hopeful that, if any kind of education would commend itself to the good sense of a progressive, commercial community, this would.

Confessing in my inaugural address that I came among you "in the hope of promoting the study of the subjects to which I had devoted myself, and at the same time advancing the cause of education," I maintained that the spirit now abroad with regard to University reform "had for its object to make the carefully elaborated learning of all the great academical centres become more fully than it has yet been the principal moving power in the progress of practical science, of useful art and of popular education," and I specially indicated the institution of schools of civil and mining engineering and of scientific agriculture, as enterprises which should be at once entered upon.

When I look back on the hopes and struggles of those earlier years, though I entertain a feeling of profound thankfulness to God for the measure of success and prosperity which has attended this University, and though I am most grateful to its many benefactors, I cannot forget the disappointment of my own hopes. Much has been done for general education, and McGill College has grown to be a comparatively great and prosperous institution. But all that I have done toward this any one could have done. The one thing that I could have done, for which I was willing to sacrifice all that I could have gained as an original worker in Geology, and which would have been of more real importance, not only to Montreal, but to all this great country from Red River to Newfoundland, than all the rest, has not been done. I confess I often almost sink under the despairing feeling that it will not be done while I live; and that I may never have the opportunity of doing for this community the only great service that I believe myself competent to confer upon it.

Yet I know that much good preliminary work has been done, that material has been accumulated and tastes for science created; and I am reluctant to abandon the hope that I may yet see in Montreal a thoroughly equipped Institution, in which any young man, with the requisite ability and preliminary education, may learn the scientific facts and principles, and receive the training in scientific methods, necessary to qualify him for mining, metallurgy, assaying and engineering, agriculture, chemical manufactures, or other applications of science to art. Until this can be realized, I shall feel that the work of my life has been only very partially and imperfectly successful; and I shall know that this city has not taken the means to prepare itself fully for that greatness which its position and advantages mark out for it, but which it cannot attain, except as the educated metropolis of an educated country—educated not merely in general learning and literature, but in that science which is power, because it wields the might of those forces which are the material expressions of the power of the Almighty Worker.

EXPERIMENTS have been made at the Hotel-Dieu Hospital, Paris, of an electrical heating apparatus, the trial of which has been successful that it is proposed to warm all the other hospitals of Paris with it, instead of coal.

PRONUNCIATION OF THE LATIN AND GREEK.

THERE is at least a hopeful prospect of a reformation in the school pronunciation of Latin and Greek. For more than a century and a half now, most Englishmen "have applied to the Latin tongue the principles which regulate the pronunciation of their own." Why the same principles (!) have not been applied as fully to the Greek language; why they have not been applied at all in the case of the Hebrew and other ancient tongues; why they might not almost as well be resorted to in the case of Italian and French, are questions which it is useless to ask. Let one pronounce five lines of French as if it were English, or five lines of English as French, and he will see the appropriateness of applying to one language the orthoepic and accentual rules of another.

Latin used to be a possible means of intercourse between scholars who were mutually ignorant of each other's native tongue. But now an American, however proficient in the language of Cicero, is unable to understand, or make himself understood by, a German or Frenchman, if Latin is the medium of conversation. It was not always thus with the English-speaking people, though the corruption dates its beginnings back of Milton. It will be remembered that he advises a "distinct and clear pronunciation, as near as possible to the Italian, especially in the vowels." "To smatter Latin with an English tongue," he says, "is as ill a hearing as Law-French." Phillips, who taught Latin to princes in the middle of the last century, complains of their calling *amo, emo*; and *imo, aimo*; but adds that "many gentlemen in England still speak Latin *like men, ore rotundo*." The correct pronunciation of the Latin vowels was taught in Winchester College until about 1750 when they concluded it was best to go wrong with the rest, of the nation. Ainsworth, the Latin lexicographer, says in a preface, that "foreigners hold us little better than barbarians in many parts of pronunciation." He finds especial fault with the prevalent neglect of the quantity of vowels, and the "depraved sound" of C and G before *e, i*, etc. American school editions of his work, however, suppress everything which he says on these matters. This suppression or misrepresentation of the views of eminent scholars upon this point is common to nearly all cis-atlantic editions of European grammars and dictionaries. They are, almost without exception, "doctored" to suit this latitude, and the original truth is not in them.

Our readers will remember that the learned committee of the Philological Convention, which met at Poughkeepsie in the summer of 1869, recommended the use of the so-called continental sounds of the vowels in Greek and Latin. The men who stand behind this sensible recommendation are among the foremost of American linguists. And now we are rejoiced to see their advice reinforced by that of Harvard University, which favors the use of the following sounds in Latin: *a* as in *father*, *e* like *a* in *fate*, *i* as in *machine*, *o* as in *hole*, *u* as in *rude*; with like shorter sounds of the short vowels; *j* like *y* in *year*, *c* and *g* like Greek *kappa* and *gamma*. This oldest of American colleges also requests instructors to teach their pupils to pronounce Greek with the *Greek accents*, and with the continental sounds of the vowels and diphthongs. Now, if Yale once takes ground with Harvard, as seems likely from the action of certain of her faculty at the Poughkeepsie Convention, the preparatory schools which act as feeders to these two great institutions, will fall in line at once, and the other colleges will not be long in following suit.

And when this is done, a real and valuable reform will have been effected. We have no patience when we think of the *months* we have wasted in studying and teaching these two languages, because of the prevalent absurd, incoherent no-system of pronunciation, which has somehow been foisted upon these helpless tongues. We cannot take space here to discuss such a matter fully enough to show the grounds of an opinion, but we may say in a word, that only loss can come from disregarding the *genius* of a language or science; that it is only a waste of precious time and strength to teach in words and rules what we forbid or ignore in practice; that the development and etymology of these tongues is inexplicable, so long as we adhere to the present "English" pronunciation of them; that it unfolds itself according to phonic laws, which are rudely broken, if a new set of sounds is imported to interpret its characters; that falsities cannot be expected to be more fruitful of good in the field of grammar than in that of science. If any excuse is needed for saying thus much on a matter that cannot interest everybody, we trust it may be found in the fact, that in every village in the land, scores of young men and women are busy with the Latin accidence. They will get none too much Latin in the use of the best methods.

Another welcome feature in the Harvard catalogue, is the announcement that students, soon after their admission, will be examined in reading English. For the year 1870, they were asked to prepare themselves in Craik's English of Shakespeare (Julius Cæsar) or in Milton's Comus. It is high time that our English speech should have more and more critical attention paid to it, both in colleges and high schools. We plead for more English without asking for less Greek. Perhaps, in many cases, less Greek would be about the same thing as no Greek at all.—*New York Teacher.*

COUNTY FUND.

In aid of Public Schools, appropriated to Trustees of School Sections for the Term ended Oct. 31st, 1870.

The asterisk (*) indicates the Poor Sections

CO. OF ANTIGONISH.

SECTION.	No. of pupils registered.	Grand Total days attendance made by all the pupils.	Amount from County Fund
Antigonish,	216	13264	$181 68
ntigonish Harbor,	31	2005	27 46
Antigonish Harbor,	23	1267	17 36
Morristown,	29	852	11 67
Morristown Lake	81	5201	21 21
Cape George S. S.	41	2603	35 66
Cape George Point,	44	1826	25 01
Cape George N. S.	52	1665	22 80
Cape George B. Sett.	31	1013	13 87
Georgeville,	62	2205	30 19
Malignant Cove,	60	3198	43 80
Arisaig,	40	1419	19 43
MacAars' Brook,	52	3992	54 68
Summerville,	38	3600	49 31
Brown's Mountain,	25	1947	26 67
*Eig Mountain,	31	1645	22 53
Pleasant Valley,	42	1525	20 88
Yankee Grant,	25	1281	17 54
William's Point,	47	1671	22 98
Lower S. River,	53	2876	39 40
South S. Harbor,	33	1539	21 07
Middle Pomquette	52	2736	37 48
Pomquette Forks	41	1708	23 39
Bayfield,	43	2015	39 93
Little River,	48	2184	29 92
Cross R.Tracadie,	77	3921	53 70
Tracadie,	51	3098	42 43
E. S. Tracadie,	35	1717	23 51
Little Tracadie,	44	2980	40 81
Harbour A. Bouche,	121	7113	97 42
B. S. Tracadie,	44	1450	19 85
Fraser's Grant,	32	1431	19 60
Black River,	44	1462	20 01
Caledonian Mills,	60	2439	33 40
Manchester Road	38	1817	24 87
St. Andrews,	94	4072	55 77
Big Brook,	47	1620	22 19
Fraser's Mills,	88	4388	60 10
S. R. Lake	63	2480	33 97
L. Lockaber,	43	1765	24 18
L. Lockaber, W. S.	47	1914	26 22
Head Lockaber,	58	8579	35 32
Glen Road, Upper,	64	2970	40 68
Glen Road, Lower,	39	2074	28 41
Salt Springs,	58	2852	39 07
W. River Road,	42	2334	31 96
Beaver Meadow,	60	4067	55 70
Pinkie Town,	43	1402	19 19
M. S. W. River,	54	2220	30 40
Stewart's Mills,	34	1500	20 54
Keppock,	53	2510	34 38
Big Clearing,	44	4147	56 80
Briley Brook,	47	3328	45 58
Back S. B. Brook,	36	2163	29 62
Beech Hill,	20	777	10 64
Pitcher's Farm	25	948	12 98
Springfield,	54	2332	31 94
Lower N. Grant,	62	3421	46 86
Upper N. Grant,	13	767	10 51
Old Gulf Road,	30	1281	17 55
Hollowell Grant,	21	1037	14 21
Hollowell Grant,	53	1742	23 86
Hollowell Grant,	41	1632	22 38
Malignant Brook,	30	1468	20 11
Gut of Canso,	36	1479	20 26
Copperfield,	16	1022	14 00
Black River,	22	746	10 22
B.S. Tracadie Border,	13	267	3 66

CO. OF COLCHESTER.

North River, F. J.	75	4346½	43 66
East " "	95	4994½	50 16
West Economy,	45	2233	22 42
Central "	108	5381	54 06
Upper "	74	3922½	39 39
Bass River,	90	5285½	53 08
Portaupique,	101	4689	47 13
Highland Village,	44	2838	28 59
Great Village,	160	9051½	90 92
Cumberland Road S.	46	2053	20 62
Acadian Mines,	88	3114½	31 28
Folly Mountain W.	86	3198	35 11
East Village.	61	2676	26 88
Folly,	89	4456	44 75
Masstown,	57	3366	33 80
De Bert River,	80	3880½	38 77
Folly Mountain, E.	28	2103½	21 12
Chigonois,	50	2437½	24 48
West Onslow,	65	3186	31 99
Central "	24	827	8 30
Upper "	53	2883	28 94
North Mountain,	14	490	4 91
North River,	52	2115½	21 24
South Branch N. R.	46	1881½	18 88
East Mountain,	72	4499	45 18
Greenfield,	20	2078	20 87
Harmony,	83	2065	30 74
Teviotdale,	55	3263½	32 77
Truro,	424	26720	269 51
Bible Hill,	47	3191	32 04
Lower Truro.	57	3186	32 00
Old Barns,	48	3091	31 03
Clifton,	32	1837½	18 01
Beaver Brook,	46	3088½	31 02
Princeport,	43	2366	23 76
Green's Creek,	35	2875	28 87
" "	45	2333	23 44
Pleasant Valley.	62	3692	37 09
Fort Ellis,	21	1069	10 74
Lower Stewiacke, W.	33	1444	14 49
" " E.	78	5425	54 50
Shubenacadie,	54	2728	27 28
Gays River,	47	4049	40 67
Upper River,	37	2331	23 42
Middle Stewiacke.S.O.	00	0000	00 00
South Branch,	49	3054	30 68
Cross Roads,	49	3440	44 55
Newton Mills.	53	4290	43 09
Eastville,	55	2997	13 10
Pembroke,	45	1516	15 21
Upper Stewiacke. V.	75	5350½	53 74
Otter Brook,	36	1823½	18 30
Middle Stewiacke,	31	2301	23 12
Forest Glen,	10	453	4 54
Brookfield,	80	5442½	54 67
Clarkeville,	40	2858	28 70
Meadowvale,	37	2269	22 79
Hardwood Hill,	23	1251	12 61

STIRLING.

Tatamagouche.	121	6794½	68 24
Tarbet,	67	2612	26 23
Forest,	52	3261	32 75
Waugh River,	56	3299	33 10
River John Road,	70	3440	34 56
French River,	52	1871	18 79
Tatamagouche Bay,	72	3682	37 05
Murphy's,	69	3127½	31 41
Mill Brook,	35	1487	14 93
Oliver's Bridge,	44	2309	23 19
West New Annan.	63	2547	25 58
Byers' Mills,	49	1440	14 45
Wilson's,	68	2823½	28 37
Hingleys Mills,	80	3568½	35 84
Rossville,	36	1776	17 82
Earltown,	64	2193½	22 04
Brule,	64	3389	30 06
G. Sutherland's	32	2247	22 57
North Earltown,	36	1078½	10 87
*Maccan Road,	38	1327	17 77
*Castleiregh,	28	1233	16 51
*Cumberland Road N.	52	2531	33 91
*Folly Lake,	32	1792	24 10
*Upper Chigonois,	36	1506½	20 19
*W. Branch N. River,	20	1186	15 89
*Upper " "	20	794½	10 64
*Kemptown,	29	1123½	15 04
*Upper Pictou Road	31	863	11 54
*Smithfield,	19	1575½	21 10
*Earltown Road,	33	1601	21 44
*Colters,	13	970	12 99
*Alma,	30	1549	20 73
*Riversdale.	60	3739½	50 08
*Union,	26	1337	17 90
*Stewiacke Road,	20	1306	17 49
*Lake Road,	51	2100	28 12
*West Earltown,	34	1577	21 12
*A. McKay's Mills,	33	1828	24 46
*Slades,	49	1978	26 49
*Berichan,	28	881	11 78
*Truro Road,	39	1249	16 72

CO. OF CUMBERLAND.

Malagash Point,	56	2662	831 46
N. Shore Malagash,	36	1586	18 74
State Road,	44	2282	36 97
Shoal Bay.	61	2303	27 21
Goose River,	50	1970	23 28
Wallace,	107	6140	72 53
Six Mile Road,	42	1358	16 05
Wallace Bridge,	40	2174	25 69
Wallace River,	47	2717	32 11
Wentworth,	35	1718	20 30
"	28	1285	15 18
North Wallace,	40	1701	20 10
Fox Harbor,	36	1684	19 90
Lower Gulf Shore,	34	1725	20 48
Upper Gulf Shore,	33	1383	16 34
Pugwash,	241	15008½	177 35
North Wallace Bay,	30	1511	18 21
Head Wallace Bay.	25	1286	15 19
Doherty Creek,	38	1436½	16 97
Pugwash River,	40	2044	24 15
" "	50	2555	30 19
Wallace Bridge,	43	2573	30 40
Port Philip,	39	2079	24 57
Roslim,	31	951	11 23
Guys Road.	40	1265½	14 95
Victoria,	34	1339	15 82
Crawford Settlement,	38	1568	18 53
Goose River,	43	2043	24 14
Upper Shinnimicas.	42	2337	27 62
Lower "	37	1649	19 48
Mouth "	27	1910	22 57
Tidnish Cross Road,	50	1809	21 38
Head Amherst,	47	2125	25 11
" "	36	2068	24 44
" "	29	1600	18 91
"	329	18776½	221 89
Fort Lawrence,	41	2751	32 51
Amherst Point,	29	1292	15 27
Lower O. B. Set'mt.	54	2975	35 14
Nappan,	65	2585	30 55
Maccan,	42	2714	32 04
River Hebert,	25	1415	16 72
Barronsfield.	29	1027	23 95
Minduie,	80	4301	51 87
Joggin Mines,	70	4661	55 08
Jackson Settlement	47	1759½	20 79
Little Forks,	60	2531	29 91
Maccan,	43	2403	20 46
West Brook,	46	1906	22 52
Central Maccan.	23	1066	12 58
Springhill,	32	1346	15 90
Claremont,	50	2617½	30 90
Halifax Road.	49	2283½	26 98
Salem,	20	1730	20 44
Fenwick,	60	2543	30 05
Upper Nappan,	56	2865	33 84
Street's Ridge,	38	1324	15 64
Leicester,	46	2338	27 63
Little River,	48	2258	26 68
Mount Pleasant,	45	1451	17 14
Oxford,	67	3092	36 54
T. H. River Philip,	61	3442½	40 65
River Philip,	18	1113	13 15
E. B. River Philip.	45	1649	19 48
Westchester,	55	2317	27 38
Eel Creek,	42	2520	29 78
River Hebert,	45	2497½	29 51
*Dewar River,	35	1999½	31 51
*Toney Bay,	35	1457	22 95
*Mouth R. Hebert,	24	1065	16 78
*Chapman Settlement,	47	2645	41 68
*Tidnish River,	43	2054	32 34
*Head River Hebert.	17	1266	19 25
*Maccan Mountain,	32	1370½	21 59
*Windhamhill,	41	1581½	24 92
*Glenville,	40	1868½	29 48
Leicester,	36	1914	30 16
*Greenville,	47	2135½	33 65
* "	20	933	14 70
*Richmond,	40	2314	36 46
*Millvale,	28	1898	29 90
*Wertchester Lake.	27	1175	18 51
*Mount Pleasant,	53	827½	13 04
*W. B. R. Philip,	31	1515	23 89
*Glenville Cross Road,	34	602	9 48

PARRSBORO.

Patridge Island,	21	513	6 41
Port Greville,	76	6890	81 40
Kirk's Hill,	42	2249	26 58
Diligent River,	60	2722	32 17

Diligent River,	18	2175	25	70*
Brookville,	33	2639	31	19
Spencer's. Island,	43	2925	34	57
Advocate,	81	4802	56	75
Halfway River,	30	1560	18	43
New Canaan,	26	1824	21	55
Fraserville.	60	3398	53	50
Salem,	20	1301	20	50
Sugar Hill,	30	1958	30	85
*Black Rock,			9	50†

CO. OF DIGBY.

Hillsburg,	30	1900	19	45
Bear River,	167	7000	77	85
Hillsburg,	43	3004	31	35
Smith's Cove,	48	1952	20	00
Hillgrove,	50	3164	32	35
North Range,	65	4394	45	00
Marshalltown,	38	1882	19	25
St. Mary's Bay,	106	6564	67	20
" "	122	5004	51	20
The Barrens	75	4213	43	80
Weymouth,	60	3734	83	20
Weymouth Bridge,	60	4857	49	70
Weymouth Mills,	40	2066	21	15
Digby,	211	12810	13115	
Rossway,	71	4833	49	65
Waterford,	19	1030	10	51
Sandy Cove,	84	7221	74	35
Little River.	45	2947	30	15
Tiverton,	60	3701	37	85
Freeport,	110	7492	76	65
Westport,	146	9135	93	20
*Milford Corner,	27	1749	23	85
*The Ridge,	26	1219	16	60
*South Range,	44	2204	30	05
*Mistake,	21	951	12	98
*Wagoner,	40	2446	33	35
*Broad Cove,	48	2501	34	15
*Digby Neck Road,	41	3664	50	00
*Lakeside.	30	1745	23	80
*East Ferry.	33	2185	29	80
*Long Island,	26	2164	29	15
*Middle (L.I.)	25	829	11	30
*Doucet Section,	60	4603	62	75

DISTRICT OF CLARE.

Grossecoque,	79	5557	54	25
Port Acadie,	77	6249	61	05
Comeauville,	85	5859	57	24
Saulnierville.	116	8641	84	60
Meteghan River,	108	6465	63	15
Meteghan,	162	11714	114	44
Therian,	44	23195	22	65
Cape Cove,	55	4370	42	68
LesConcessions.	57	5274	51	52
*Cheticamp,	79	3534	46	03
*New Tusket,	26	1587	20	65
*Havelock,	36	1737	22	62
*Rosedale,	44	1864	24	18
*Cedar Lake Road,	75	4192	54	60

BORDER SECTION.

*Southvale,	32	681	8	85
*Cedar Lake,	38	2372	30	89

CO. OF GUYSBOROUGH.

Guysboro,	153	10462	$133	39
Intervale,	87	3005	38	31
Roman Valley,	63	2037	25	97
Cook's Cove,	53	3607	45	98
Salmon River,	56	2431	30	99
Salmon River Lakes,	41	1582	19	53
New Harbor,	57	2284	29	12
Black Point,	20	861	10	97
White Head,	60	2488	31	72
Port Felix,	65	3689	47	03
Charlo's Cove,	58	4275	54	50
Torbay,	58	3211	40	94
Gammon's Point.	15	1414	18	02
Manchester,	71	3242	41	33
Manchester	85	5039	64	24
Clam Harbor,	72	3391	43	23
Goose Harbor,	32	9481	12	08
Tracadie,	55	1589	20	25
Port Mulgrave,	105	7808	99	54
Pirate Harbor,	42	2992	38	14
Steep Creek,	63	2738	34	90
Sand Point,	57	3542	45	16
Sand Point	12	2800	35	70
Oyster Ponds,	40	1729	22	06
Co. Harbor Border,	39	1730	22	06
Country Harbor.	32	1760	22	44
Country Harbor,	17	1661	21	21
Lawes Harbor,	70	4382	55	87
" "	33	1698	21	61
Island Harbor,	22	1691	21	59
Giants Lake,	49	2374	30	20
Argyle Border,	50	720	9	18
*River Side,	33	1752	29	77
*Colored People,	30	889	15	10
*Salmon River,	28	1522	25	86
*Halfway Cove	31	1920	32	61
*Middletown,	19	1653	28	10

DISTRICT OF ST. MARY.

Sherbrooke,	138	9152	$93	22
Stillwater,	43	2135	21	78
Forks (Glenelg),	37	2186	22	30
Caledonia,	52	3381	34	49
Caledonia,	42	2288	23	51
Caledonia,	38	1433	14	62
Cameron Settlement.	20	1218	12	42
Trafalgar,	8	716	7	30
Melrose,	46	2441	24	90
Cross Roads,	50	2420	24	68
East River,	42	1875	19	13
Lochaber,	41	1808	18	44
Liscomb,	38	2473	25	22
Wine Harbor,	52	3733	38	08
Indian Harbor,	75	5183	52	87
Lonora	45	2351	23	98
Goldenville.	135	8714	88	88
Goshen,	40	2208	22	52
Goose Island,	35	2105	21	67
*Church Section	16	1191.	16	20

DISTRICT OF HANTS.

Windsor,	369	21784	$229	90
Wentworth.	81	6306	58	50
Curry Corner,	105	7353	68	21
Martock,	44	1963	18	21
Forks,	37	1873	17	37
Fal. Village	63	3311	30	99
Centre Falmouth,	55	1327	12	31
Mt. Denson,	73	3918	36	34
Avondale,	97	6345	58	86
Belmont,	70	7014	65	34
Poplar Grove,	59	4461	41	38
Brooklyn,	99	6215	57	65
Burlington,	117	7000	64	93
Kempt,	99	5528	51	28
Cheverie,	76	4468	41	45
Scotch Village,	83	4585	42	53
Woodville,	31	2281	21	16
McKay,	28	2084	19	33
Newport Road,	51	2818	26	14
St. Croix,	82	4662	43	25
Ellerhouse,	74	3510	32	84
*3 Mile Plain.	31	4849	59	97
*Vaughan,	26	1746	21	60
*South Waterville,	31	1263	15	64
*Great D. Kennetcook,	20	1019	12	60
*Brookville,	82	4824	59	66
*Pembroke,	55	3300	40	81
*Cogmagun,	36	2553	31	57
*Greenhill,	21	993	12	28
*Ardoise,	37	1797	22	22
*Stillwater,	38	2718	33	61
*5 Mile Plain,	27	1420	17	56
Newport & Douglas,	36	3651	24	87
Hantsport,	33	13251	101	58
Walton,		1260	11	70
Hillsdale,		650	8	04

DISTRICT OF HANTS.

Rawdon Church,	53	2848	$22	99
South Rawdon,	73	4258	34	37
East Gore,	48	2030	16	39
East Rawdon,	71	2891	23	34
Upper 9 Mile River,	57	3035	24	50
West M. Road,	39	1979	15	98
9 Mile River,	39	2215	17	88
Belman,	30	1692	13	66
Mt. Pleasant,	37	2703	21	82
Welsford,	77	4325	34	91
Mill Village,	60	2881	23	26
Ryan Creek,	28	1443	11	65
Rockville,	114	8573	69	20
Maitland,	109	9147	73	84
Upper Selma,	85	4496	36	29
Lower Selma,	62	3052	31	90
East Noel,	12	2305	18	61
Noel,	63	4392	35	45
Moosebrooke,	61	3050	24	69
Tenecape,	44	2532	20	44
Kennetcook Church.	69	4437	55	82
Head Kennetcook.	65	4552	36	74
5 Mile River,	60	2811	23	26
Whale Creek,	44	2089	16	86
Barney Brook,	30	2241	18	09
Gore,	60	2723	21	98
Uniacke Gold,	53	2836	22	88
*Pleasant Valley.	34	1694	18	23
*West Gore,	27	1762	18	58
*Mt. Uniacke,	31	2164	23	20
*East Indian Road,	41	1409	15	17
*North Salem,	35	2055	22	06
*New Dublin,	37	2208	23	77
*Urbania,	49	2077	28	[illegible]
*Noel Road,	32	2108	22	69
*Shad Creek,	21	1140	12	27
*North Noel Road,	35	2183	23	59
*South Noel Road,	34	1710	18	40
*Northfield,	31	2001	21	53
*Georgefield,	30	1833	19	73
*Greenfield,	31	2218	23	87
*North B. Bank,	12	654	7	14
Enfield,	67	3910	31	56
Elmsdale,	46	3188	25	73
Walton,	72	5010	40	68
*Hillsdale,	37	1341	14	43

CO. OF HALIFAX.

Hubbard's Cove,	93	5525	$57	35
Black Point,	57	2306	23	95
St. James,	44	2343½	24	35
Victoria,	56	3549½	36	85
Albert,	53	3269	33	95
Lower Ward,	59	3862	40	10
Hagget's Cove,	43	2547½	26	45
Indian Harbor,	64	4831	50	15
Peggy's Cove,	37	1578	16	40
Upper Prospect,	84	2913	30	25
Sambro,	46	2130	22	10
Herring Cove,	85	5162	53	60
Hammonds Plains,	64	4410	45	80
Bedford,	62	3893	40	40
Lower Sackville,	57	3340	34	70
Upper Sackville,	42	1559½	86	29
Dartmouth,	509	33071½	343	40
Waverley,	92	4391½	45	60
Oldham,	75	4250	44	20
Preston Road,	62	2854	29	65
Preston,	61	2603	27	05
Eastern Passage	60	3454	35	85
S. E. Passage,	59	3161½	32	85
Cow Bay,	41	2947½	30	69
Cole Harbor,	56	2577	26	75
Lawrencetown,	30	2058	21	35
Lake Porter,	54	2402	24	95
Seaforth,	47	2284	31	00
Chezzetcook,	232	13047	135	45
*Boutilier's Point,	35	2147½	29	70
*Head Harbor,	39	1721	23	85
*West Dover.	45	1758	24	35
*East Dover,	49	3300	45	75
*Blind Bay,	7	405	5	60
*Beech Hill,	23	861½	11	95
*Lower Prospect,	36	2850	59	45
*Terence Bay.	70	3027	41	90
*Pennant,	32	2155	29	80
*Harrietsfields,	12	842	10	65
*Spryfield,	37	1319	18	25
*Ketch Harbor,	88	3741	51	75
*Portuguese Cove,	61	2308	31	95
*Furguson's Cove.	57	5379	74	45
*Beaver Bank Sta.	21	1602½	22	15
*Windsor Junction,	46	2752½	38	10
*Grand Lake,	35	1738	24	05
*Devil's Island,	25	1492	20	65
*Salmon Hole,	20	1387	19	20
*Middle,	28	871½	12	05
*Head Chezzetcook,	58	2327	32	20
*Low. E. Chezzetcook,	59	3093	42	80
Musquodoboit Hr.	62	3579½	37	15
Upper Jeddore, W.	55	2596	26	95
Lower Jeddore, W.	43	2343	24	30
Oyster Pond.	58	3534	36	70
Owl's Head,	31	2088	21	70
Ship Harbor, N.	57	4218	43	75
Murphy's Cove,	58	3748	38	90
Shoal Bay,	54	3107	32	25
Tangier,	90	5330	55	35
Pope's Harbor,	35	1892½	19	65

*Return of 1869 ordered to put on by Parrsboro Board
†‖ " " " " " " "

Spry Harbor,	56	85o6¼	36	4o
Spry Bay,	51	1511	86	75
Sheet Harbor W.	63	151o	17	65
" " E.	66	4648	18	25
Lower E. Sheet H.	33	1818	18	85
Salmon River,	49	1953½	20	39
Newly Quoddy.	71	5995	62	25
Kirker's,	62	3769	39	15
Moser's River.	37	2778	28	85
*Petpezwick,	46	3032½	41	95
*Petpezwick West,	21	1503½	20	80
*Musquodoboit Hr.	31	2556	35	35
*Lower Jeddore. E.	35	1068	14	80
Lakeville	39	2013	27	85
*Clam Harbor.	43	3122½	43	20
*ShipHarbor.	11	3314	45	85
*Mooselands,	18	951½	13	15
*Guard's Island,	28	1771	24	50
*Nicumtaux,	No	Return.		
Lowell's.	11	2118	22	00
Cook's,	51	2330½	21	30
Meagher's Grant,	51	2215	22	30
Little River,	73	3985	11	40
Gladwin.	61	4022	41	75
North School,	49	3528	39	65
Taylor's,	48	2018	27	20
Reid's	35	1881	19	55
Higgins,	74	2650½	27	80
Sedgwick,	32	1629	16	90
Archibald's,	52	2513	26	10
Hutchinson,	66	3957½	31	75
Henry.	63	3767	32	10
*Dutch Village,	21	1641	22	80
*Lake Egmont,	48	2920	40	45
Kerr's,	26	1346	18	15
*Dean,	46	3146	43	55
*Chaplain,	29	1235½	17	10

BORDER SECTION.

*Glenmore,	28	1825	25	25

DISTRICT OF KINGS.

Greenwood,	60	3817	$38	17
Waterville, (A)	31	1608¼	16	02
Morristown,	73	4550	45	50
Sand Hill,	36	2226	22	26
Dempsey Corner,	36	2751	27	54
Brooklyn, (A)	28	1414½	14	14
St. Mary's.	30	2896	27	96
Piedmont,	55	2771	27	71
Long Point.	58	3544	35	44
Weston,	46	2991½	29	92
Welsford.	36	2305	23	05
Somerset.	61	3764	37	65
wick,	72	4073½	40	73
Berwick.	54	2730½	27	31
aterville, (C)	68	4157½	41	57
Grafton,	73	4707	47	07
Kinsman's Corner.	82	5660	57	60
E. Black Rock.	50	2938	29	38
Chipman Brook,				
E. Hall's Harbor.	65	3601	36	01
Lakeville,	84	5978	59	70
Billtown,	66	3425	34	25
Brooklyn, (C)	36	2369½	23	70
Cambridge,	39	2409	24	09
Cold Brook.	42	2666	26	66
Beech Hill,	46	2575	25	72
Lake Millo.	37	2193	21	93
Canaan,	39	1922½	19	22
Kentville.	76	4426	44	26
Steam Mill,	65	3236½	32	37
Sheffield Mills.	74	4929½	49	30
N. Scots Bay,	39	3237	32	37
Lower Pereau.	46	1925	19	25
Upper, Pereau.	41	2806½	28	06
Medford,	90	4125	41	25
Habitant.	37	1850	18	50
Canning,	147	8639	86	39
Woodside,	68	4390	43	90
Randville,	46	2114½	21	15
U. Canard.	103	7125	71	25
L. Canard,	103	7125	71	25
Town Plot,	47	2313½	23	14
Church Street,	36	2721	27	21
U. Church St.	50	3121½	31	22
Port William,	60	4041	40	44
New Minas,	60	3621½	36	22
Greenwich,	61	3470	34	70
Wolfville,	181	10261	102	61
Black River,	69	2612	26	12
Davison Settlement,	34	897	8	97
Gaspereaux,	63	3169	31	69
Lower Gaspereaux,	54	2080½	26	80
Lower Horton,	46	2411	24	11
Avonport,	73	4740½	47	41
Lockhartville,	142	9833	98	33
Bloomfield,	40	2110	21	10
South Mt. Prospect.	25	1836	18	36
Grand Pre,	125	6799	67	99
S. Scot's Bay,	57	2508½	35	08
M. Pereau,	38	3185	34	85
U. Gaspereaux,	41	1356	13	57
Pleasant View,	41	2897	28	97
*Harmony,	31	2512	33	51
*Lake George,	19	1428	19	06
*Clermont,	45	2396	31	97
*Morden,	47	2827	37	74
Ormsby Road,	26	1737	23	18
Fair View,	41	1070	14	36
*Black Rock GivanMt.	83	4296	57	30
*Blue Mountain,	37	2461½	32	85
*Banter's Harbor,	57	2318½	30	91
*Pero Mountain,	49	2320	30	95
*Scot's Bay Mountain,	61	3577	47	71
*Greenfield,	52	1760	23	49
*Australia,	31	1509½	20	15
*West Cornwallis Mt.	52	3125	45	60
*West Black Rock,	67	2334	31	11
*North River,	16	1341	17	90
*Lake Paul,	23	1776	23	70

BORDER SECTIONS.

Kingston,	42	2296	22	96
*Dalhousie,	27	1091	14	55
Tremont,	48	3353	33	53

CO. OF LUNENBURG.

Lunenburgh Town,	202	22545	$237	63
1st Peninsula,	44	2887	30	42
2nd Peninsula, Upper	37	2335	21	60
Upper Centre.	29	1921	20	21
Garden Lots,	18	1578	16	62
Lower South,	61	3211	33	83
Upper South,	48	3057	32	21
Febz South,	36	1668	17	57
Upper Rosebay.	27	2192½	23	09
Lower Rosebay,	42	2825	30	77
Ritcey's Cove.	58	4923½	51	88
Lower LaHave,	28	1975½	20	70
Ferry,	65	4523½	43	67
Summerside,	40	2280	24	02
Snyder's LaH. Road,	30	1831	19	29
North-west Range,	65	3418½	36	01
Mader's Cove,	64	3342	34	22
Mahone Bay,	130	8042	84	77
Oakland,	61	4645	48	95
Martin's River,	71	2869½	30	23
Langille's	39	2304	24	28
Centreville, N. G.	71	4143½	43	66
Stambourne,	38	2147	22	62
Rosedale,	46	2840	29	93
Hirtle's N. G. Road.	30	3170	32	40
New Canada,	50	5039	32	02
Meisingher's(Branch)	34	1822	19	20
Knock's, Ohio Road,	44	2075	21	86
Snyder's (Branch),	37	2093	22	05
2nd Peninsula, Lower,	34	2587	27	86
Tancook Island,	105	5325½	56	12
Bridgewater,	194	14980	157	77
Conquerall Bank,	56	4450	46	89
Pleasantville,	48	1265	13	32
Pentz's, West Ferry,	57	3143	33	12
Petit Reviere,	71	4009	42	22
Broad Cove,	38	2349	14	75
Vogler's Cove,	36	1604	16	90
Conquerall,	53	2969	31	28
Hebb's,	26	1530	16	12
Selig's P. R. Road.	23	721	7	59
Baker's,	32	1229	12	94
Chelsea, No. 2,	45	2314	24	38
Waterloo,	25	1405	14	80
*Blue Rocks,	51	8131½	53	98
*Black Rocks,	46	3517	49	4
*Heckman's Island,	21	1660	23	32
*North West Range,	45	2566	36	05
*Weinacht's,	29	1596	32	00
*Indian Point,	40	2473½	34	93
*Lower Cornwall,	20	1050	14	74
*Falkland,	47	3020	42	44
*West Northfield,	34	2258	31	71
*Penny's,	25	1582	22	22
*Big Lots.	20	1051	14	78
*Ironbound,	7	636½	8	92
*Frelig's,	28	2535	39	45
*LaHave Islands,	53	4119	58	29
*New Cumberland,	50	3092	42	18
*Crouse Town,	29	2488	34	94
*New Italy,	26	2663	37	40
*Newcombville.	47	2926	39	70
*Wile's,	23	1243½	17	45
*Lakeville,	26	1879½	26	37
*New Elm.	35	2137	30	01
*Lapland.	41	2102½	29	53

DISTRICT OF CHESTER.

Chester Town.	112	7612½	$101	91
East Chester.	82	3905	77	93
Basin,	65	3391	67	66
Windsor Road,	38	1579	31	50
Cross,	39	2011	40	12
Blandford,	48	2175	43	39
Bayswater.	20	1047	20	88
Pine Plains.	55	2867½	67	20
*Grant,	22	1237½	32	89
*Aaldersville,	22	1202	33	56
*Back of Lake,	39	1791	47	64
*Dalhousie,	7	196	5	18

COUNTY OF PICTOU.

Picton Town,	647	39285½	$442	99
Cairiboo River.	42	1358	15	81
Toney River,	57	2288	25	79
Cape John McLeod,	92	1347	15	18
Cape John Cr. Bridge	27	1351	15	28
Cape John, S Shore,	43	1369	15	53
Elmsville,	48	1868	21	05
Land Marsh,	28	1131	12	75
Louisville,	32	1730	19	50
River John Village,	214	13481½	152	00
Welsford (Bigney.)	57	2035	22	94
Welsford Bridge,	41	2081	23	46
West Branch Church,	61	3470	39	12
LogansvilleDalhousie,	57	2527	28	49
Mount Dalhousie,	31	1715½	19	33
Roger Hill, Up.	33	1494	16	94
Carriboo Meadows.	52	3466	39	07
Scotsburn,	59	3315	37	38
Hardwood Hill,	55	2429	27	38
Roger Hill, Rogers,	77	3801	42	85
Six Mile Brook,	41	2443½	27	54
Brookland,	32	1334	15	04
Salt Springs,	68	3494	39	39
Mount Tho. Old Road	46	2067	23	30
Mount Thom Lower,	45	1660	18	71
Watervale.	68	3236½	36	40
West River Station,	44	2064½	23	27
Gairlock,	44	2500	28	10
New Lairg, Upper.	64	3625	40	87
Mill Brook,	25	1344½	15	15
Loch Broma,	24	1383	15	59
Pleasant Valley,	32	1813	20	43
Fanuel Hall,	43	3243	36	56
Green Hill, Upper,	50	3080	34	72
Green Hill Lower,	38	2352	26	51
Union Hall,	27	2308	26	02
Central West River,	53	2840	31	98
Durham,	55	3824	43	11
Lyons Brook,	72	3913½	44	11
Fisher Grant,	72	3996	45	05
Cariboo Central.	44	2562	28	88
Sandy Cove.	32	3113	35	10
Three Brooks,	58	2958½	33	34
Picton Island,	40	2632½	29	07
New Glasgow,	460	34105½	384	50
Alma,	40	1955	22	03
White Hill,	49	3085	34	88
Marsh W. Br. River,	43	1864	21	11
Big Brook,	52	1531½	17	05
Hopewell, Lower,	30	1890½	20	30
Fish Pools,	42	2822	31	81
Island,	37	2571	28	98
Hellerton,Acadia M.	118	8210½	92	87
Albion Mines,	390	22916	258	39
Springville,	55	2926	32	93
Bridgeville,	54	1549½	17	46
Elmsville,	73	1964½	22	14
Sunny Brier R.	70	1981	24	34
Blanchard, River.	43	1810½	20	47
Blue Mountain,	57	2935½	33	31
Moose River,	32	2568	28	95
Garden of Eden,	48	1993	22	38
Watervale,	44	1812½	20	42
McPherson's Mills,	43	2626½	29	00
Marsh McLellen's Mt.	44	2500	28	13
McLellan's Brook, L.	46	2308	26	02
Fraser's Mt. South,	34	1823	20	54

McLellan's Br. Up.	12	20324	22	91
Churchville,	59	28662	32	31
Loading Ground,	16	2715	30	60
Frasers, Mt. North,	29	14454	16	29
Little Harbour.	41	2005	22	60
Pine Tree,	11	1326	14	95
Sutherland River,	39	2330	26	27
Merigomish, West,	35	1718	19	36
Merigomish, Mid.	50	2872	32	37
Piedmont,	61	2612	29	15
Avondale,	52	2586	29	11
Barneys River, Lowr.	60	3859	43	50
Bailey's Brook Lowr.	78	31024	34	97
Knoidart,	30	1141	12	86
Big Island,	27	83914	9	44
Smithfield,	57	2812	31	70
McKenzieville, B. R.	25	757	8	53
Barneys R.(McKay's)	41	1902	10	91
French River East,	67	35414	39	92
French River West,	58	2620	29	53
Little Harbour Mid.	29	1411	16	24
MiddleRiver(Collies)	37	6804	7	66
Brooklin,	21	9164	10	66
Wentworth Grant,	39	1758	19	81
Westville,	255	16139	181	98
*River John Road.	21	1162	17	46
*Mountain Road,	29	13594	20	42
*Johnston's Road,	22	559	8	26
*College Lands,	25	1432	21	52
*West Br.(McIntosh,)	35	1750	26	30
*Black Brook,	52	2685	10	36
*Roger Hill, (Fork's)	34	1235	18	55
*Brookland S. Hill,	42	2372	35	65
*Cariboo Island,	23	1404	21	10
*LowerCariboo,River.	19	1471	22	10
*Mid. Set. Mid.River,	20	9704	14	50
*Fox Brook,	26	1959	29	45
*Marsh Head E.River,	22	1445	21	72
*St. Mary's Upr.	29	1483	22	29
*St Marys Lower.	27	1261	18	99
*McLellan's Mt. L.	39	181124	27	21
*Big Grot,	31	1607	21	16
*Chance Harbor,	17	1048	15	77
*Bailey's Brook, Upr.	51	2803	42	13
*Marshy Hope,	16	5944	8	02
*Marsh Head, B. R.	30	1604	24	10
*New Lairg, Lower,	37	18164	27	30
*Wentworth Grant,L.	33	16414	24	67
*WentworthGrant,U.	19	897	13	48
*McLellan's'Mt. Upr.	28	13194	19	82
*Hopewell Upr.	28	11524	17	31
*Barneys River East	17	945	11	20

COUNTY OF RICHMOND.

Acadiaville,	224	14215	$131	82
Port Royal,	89	35154	32	69
Arichat,	211	29852	191	64
Poulamond,	85	7617	70	81
Martinique,	41	2951	19	01
Petit deGrat,	60	4991	46	28
Little Ance,	60	4911	45	51
Cape LaRonde,	80	4586	42	63
D'Escouse,	53	7575	70	25
Carribou Cove,	38	3951	36	61
Kempt Road,	32	3708	33	68
Sporting Mountain,	18	1206	11	18
Scott's River,	19	1724	15	20
Points,	32	2780	25	07
St. George's Channel.	24	264	5	24
S. Mountain,	51	2881	26	72
Beaver Cove.	21	1681	15	21
St. Peter's Island.	61	4247	48	66
L'Ardoise,	67	5711	52	10
Point Michean,	45	1825	16	12
Grand River,	36	2476	23	24
L'Archerique,	43	2976	24	81
Head L. Lomond,	45	28114	26	07
S. S. L. Lomond,	44	2222	20	71
N. S. L. Lomond.	25	1815	16	85
Bay Cove,	35	2876	26	67
Lewis's Cove,	24	2627	24	36
Salmon River,	34	3869	37	31
River Bourgeois, E.	52	4721	44	75
River Bourgeois, W.	44	4103	38	05
St. Peter's,	51	4193	42	29
Framboise,	34	2788	25	88
Gut of Canso.	39	1341	12	66
Rocky Bay,	41	3269	30	51
Orange,	10	6947	56	08
Cape Auguet,	45	4218	39	11
River Tear,	37	3372	31	27
Maracho,	47	4492	41	67
Peter's Mountain,	42	3625	34	34
Brymer,	43	5374	49	83
Edward's	26	2346	21	76
McDougall,	56	12924	82	80
Lewis Cove Road,	10	804	7	45
*Janorin's Island,	13	1741	12	52
*Lochside,	15	1156	11	28
*Basin, R. I	39	3851	17	70
*St. Esprit,	23	2352	22	08
*Grand River Road,	17	1706	21	08
*Bray,	21	1558	19	16
*Highland,	21	16871	13	44
*McNab's,	23	2092	23	15

BORDER SECTIONS.

Black River,	27	902	8	91
Cape Breton,	21	1958	18	15

COUNTY OF SHELBURNE.

Sable River	52	3297	$35	52
Louis Head	25	1874	20	19
Little Harbour	33	2318	24	97
Ft. Ragged Islands	33	1997	21	51
Head Ragged Islands	22	1690	19	12
Osborne	29	1798	19	37
Lockeport	38	6165	65	41
Jordon Ferry, E. S.	23	2186	23	55
Jordon Falls	24	2356	25	27
West Jordon Ferry	17	1696	18	27
Lower Sand Point	31	1899	20	46
Shelburne	182	13476	145	16
Brick Town	35	3134	33	76
Gunning Cove	35	2515	27	03
Roseway	43	3918	42	82
Black Point	33	2368	24	83
North E. Harbour	33	2821	30	85
Indian Brook	19	1972	21	03
Lower Ohio	29	2054	22	08
Upper Ohio	38	2476	26	61
Middle Clyde	20	1794	19	32
Power's Brook	17	831	8	94

BORDER SECTION.

Lower Clyde	30	1927	20	75

DISTRICT OF BARRINGTON.

Lyle's Falls	12	1356	14	37
Cape Negro	12	1438	12	84
Cape Negro Island	18	2290	19	63
Upper Port la Tour	43	3239	28	81
Lower Port la Tour	43	4348	38	81
Baccaro	61	4593	46	30
Hibbert's Brook	20	2029	16	35
Passage	30	6997	29	31
Doctor's Cove	10	5033	12	34
Bear Point	41	3021	27	04
Shag Harbor	70	4136	36	92
Lower Woods Harbor	13	4400	48	74
Upper Woods Harbor	8	3715	34	03
Mcgray's	22	4104	36	03
Newell's	22	5567	49	03
Clarke's Harbor	22	5019	44	92
South Side	22	3109	28	42
Strong Island	22	4159	37	42
Barrington Head	22	4115	36	42
Up'r Port la Tour (colored)	15	1189	10	62
*Blanche	12	752	9	62
*Hill	13	956	11	61
*Oak Park	19	2115	17	18
*West Woods Harbor	16	1210	11	41

BORDER SECTION

Pubnico Beach	60	3780	33	86

COUNTY OF VICTORIA.

Baddeck	106	6582	$76	12
Big Baddeck	44	2561	29	53
East side Baddeck	15	782	8	63
Mill Brook	21	985	11	12
Upper Baddeck	29	2718	31	38
Up. Settlement, Baddeck	29	1748	20	17
Rear Baddeck	21	1164	13	42
Baddeck Bay	29	1674	19	29
Hunter's Mountain	46	1696	19	56
L. side Middle River	27	1905	21	30
Church Middle River	12	1201	13	50
Middle River	22	795	9	87
Up. Sett. Middle River	42	2946	33	91
Gallander Mountain	24	1068	12	32
W. side Middle River	48	2229	25	82
St. Patrick Channel	27	1730	19	26
N. side Little Narrows	11	697	8	63
Washabuket	23	1755	20	25
McKinnon Interval	22	2157	24	23
Grand Narrows	37	4114	47	47
Red Head	15	1713	19	77
Cape Dauphin	23	1509	17	41
Great Bras d'Or	33	2750	31	13
Big Bank	35	2789	31	80
Boulardarie	37	2224	25	12
Kempt Head	43	1704	19	93
Point Clear	28	2516	29	74
Plaud Point	29	1691	19	32
Big Hill	27	1264	14	57
South Gut	64	5075	58	65
English Town	21	2305	23	65
Munro's Point	37	2445	28	19
North River	24	2458	28	55
Eel Cove	24	2316	26	06
Indian Brook	46	2653	30	40
Plaster N. Shore	43	3125	35	14
Wreck Cove	22	1912	22	98
South Ingonish	31	5084	58	74
Big Interval	48	2128	24	55
Middle Harbour	30	1776	20	49
North Harbour	36	2006	23	14
Bay St. Lawrence	62	2190	25	26
Cape St. Lawrence	41	1227	15	99
New Haven	7	425	4	99
*Crowdle Mountain	27	1511	18	24
*New Glen	33	1189	18	28
*Peter Brook	24	1328	20	42
*Inlet	22	1492	22	93
*Ship Yard	21	1049	16	14
*Grant	18	713	10	97
*S. side Little Narrows	24	1711	28	32
*Cain's Mountain	28	1859	28	28
*Plaster	27	1656	23	93
*Big Harbour	22	1471	21	84
*Up. Sett. N. River	41	2171	33	38
*Smith Mountain	31	1529	25	53

COUNTY OF YARMOUTH.

Chebogue Point	48	4200	$43	98
Lower Town	121	15583	162	72
Central	316	21650	135	74
Milton	265	16204	169	23
Overton	20	2241	21	47
Sanford	72	3476	36	40
Norwood	41	1118	11	70
Ohio	91	4854	50	52
Wellington	50	4103	42	97
Hebron	115	8479	88	80
Pleasant Valley	40	2494	26	12
Arcadia	54	5019	53	84
Cent. Chebogue	52	4237	34	42
Salem	50	2904	30	40
Brooklyn	54	3524	34	80
Sand Beach	30	3991	38	65
Burnside	53	4037	42	26
*Lower Town	65	2159	30	16
*Richmond	44	1878	26	82
*Bloomfield	28	706	9	82
*Carlton	45	3876	51	45
*W. Kempkville	129	1089	23	53
*Canaan	43	1029	14	80
*Pinkney's pt.	133	2155	30	10
*N. Kemptville	132	2108	29	43
*Salmon River	87	950	13	26

DISTRICT OF ARGYLE

L. E. Pubnico	54	1966	19	70
U. E. Pubnico	58	5700	67	15
Pubnico Head	40	3028	30	82
U. W. Pubnico	53	5870	53	98
L. W. Pubnico	45	3718	37	26
CentralArgyle	54	4029	40	40
Robert's Island	74	5385	54	02
Argyle Head	29	2041	28	55
El. Lake	21	5407	54	18
Cent. Kempt	37	2740	37	46
U. El. Brook	18	1965	19	30
Shice Point	49	4354	43	85
Tusket	101	7477	74	93
Plymouth	43	3447	34	72
Upper Wedge	37	3222	32	81
Middle Wedge	34	3831	38	48
Wedge Point	16	1200	12	12
L. El. Brook	32	3177	31	83
*Argyle Sound	35	3704	49	02
*Forks	23	1873	25	02
*Abram's River	45	1900	25	40
*U. N. Kempt	18	1350	20	70

A CHANGING NATION.

WITHIN the last seventy-five years France has been three times a republic, three times an imperial monarchy under the Bonapartes, three times a Bourbon kingdom, once a constitutional monarchy under Louis Philippe, and once a military dictatorship under Cavaignac. But even that statement does not show all the changes in the form of government within the period named. The first Napoleon was Consul for a term of years, then Consul for life, then Emperor. Louis Napoleon was first President, then President for life, then Emperor. Of all these various forms of governments the republics have been the shortest-lived, with the single exception of the "hundred days" of the first Napoleon, from March to June, 1815. The duration of the rule of Louis Napoleon, from 1848 to 1870, as President and Emperor, was the longest of all: and next to that was the reign of the "constitutional king," Louis Philippe, from 1830 to 1848. of those who were sovereigns for life, or who have held executive power for a specified term of years in France, from the days of Louis XV. down to the present time, only one man, Louis XVIII., reached the end of his term. Louis XVI. died on the scaffold; his republican successors were either guillotined or assassinated; the First Consul declared himself Emperor and died in exile; Charles X. was driven from the throne by the revolution of 1830, and died in exile; Louis Philippe was dethroned by the revolution of 1848, and ended his career as an exile; the provisional republic of Lamartine, which succeeded him, was a short-lived failure, succeeded by the military dictatorship of Cavaignac; then came the Presidency of Louis Napoleon, which was ended by his *coup d'état* of December, 1851, to be followed by the "Empire" in December, 1852, and this, after a lapse of eighteen years, is followed by captivity, dethronement, and exile in 1870. —*Phil. Ledger.*

☞ We have received "Scribner's Monthly" for February. This work promises to take a high stand among American periodicals. The matter is at once interesting and entertaining, and must suit the taste of a large class of readers.

$100,000,000,000 OF SILVER IN THE OCEAN.

ALREADY twenty years ago, Durocher and Malaguti and late Field, found traces of silver in solution in the ocean. Piesse found, ten years ago, silver and copper, while Field made a quantitative analysis, and consequent estimate, of the amount of silver in the whole ocean: he found it to be more than two million tons, or over 4,000,000,000 pounds, worth about 1000,000,000 dollars. The quantity is unquestionably there, but the difficulty is in getting it out cheaply: unfortunately, by our present method, the expense of extracting would far exceed the value of the amount gained. It is the same with Philadelphia bricks. They contain gold to such an extent that every medium-sized house can be said to contain about $30 worth of gold in its bricks; but we have no cheap method which permits of the extraction of this gold at a profit.

The existence of silver in sea-water is most easily demonstrated by the old yellow metal torn from ship bottoms. This is an alloy of copper and zinc, which, by prolonged contact with the ocean, becomes partly oxidized and dissolved; but by galvanic action receives in return a deposit from the more electro-negative metal dissolved in the water, on the same principle as a copper solution deposits this metal on iron with which it is brought in contact. Sheets of metal which have been on ocean-going vessels for at least six years, contain always one part of silver in about three thousand parts of metal. As every year about 1,000,000 pounds of metal are used, which must be renewed every six years, there are in that length of time some 167 by 6, or 1000 pounds, of silver reduced from the ocean, if we assume that about one half of the original weight of copper and zinc has disappeared in that time. This silver, however, is not utilized; but the old metal is simply melted over to make new sheets out of it.

The average depth of the Atlantic Ocean is set down at thirteen thousand four hundred feet, and that of the Pacific at eighteen thousand. On the western side of St. Helena, soundings have been made, it is said, to the depth of twenty-seven thousand feet—five miles and a quarter—without touching bottom.

OFFICIAL NOTICES.

The number of prescribed Teaching days in the present School Term will be 120.

The Examination in March next will be on the Syllabus as heretofore. The change as stated in the manual will not be observed

A. S. HUNT, Supt. of Education.

I. School Books—Superior School Grants.

In consequence of the increased drafts required for Teachers of Common Schools, the Council finds the funds at its disposal inadequate to meet all the expenditures contemplated by the School law. At the same time the Council is desirous of resuming the supply of Books and Apparatus to the Schools at reduced rates for another year. It is therefore ordered, with the concurrence of the Superintendent of Education, that no further sums be paid to competitors for the grant to Superior Schools, and that the sum allowed by the law for that purpose be applied towards furnishing the Schools with Books and Apparatus at the rates fixed by the order of October, 1868. [This Order is not to affect the unpaid grant of the past term]

October 15th, 1869.

II. Address of Inspectors.

J. F. L. Parsons B.A.	Halifax.
Rev. D. M. Welton, M. A.	Windsor.
Rev. Robert Sommerville, B.A	Wolfville.
Rev. G. Armstrong, M.A.	Bridgetown.
A. W. Savary, M.A.	Digby
G. J. Farish, M.D.	Yarmouth.
Rev. W. H. Richan	Barrington.
Rev. Charles Duff	Liverpool.
W. M. B. Lawson	Lunenburgh.
H. C. Upham	Great Village.
Rev. W. S. Darragh,	Shinimicas, Cumberl'd Co.
Daniel McDonald	New Glasgow,
Angus McIsaac	Antigonish.
S. R. Russell	Guysboro'.
John Y. Gunn	Broad Cove.
Alexander Munro	Baddeck.
Edmund Outram, M.A.	Sydney.
Rémi Benoit	D'Escousse.

III. Examination of Teachers.

"The half-yearly Examination for license to teach in the Public Schools, shall be held in March and September of each year. Examinations to begin on Tuesday the ninth day preceding the last Thursday of said months."—*Reg. Council Public Instruction.*

NOTICE IS HEREBY GIVEN, That the next semi-annual Examination will begin on

TUESDAY, 21st MARCH next, at 9.30 o'clock, A.M.

Deputy Examiners will be strictly forbidden to admit any person to be examined who fails to be present on the day and hour named.

Candidates are required to forward to the Inspector, not later than MARCH 1st, a written notification of their intention to be examined, and of the grade of license for which they will apply. No application can be received after this date. Candidates are to undergo Examination in the grade of which they have notified the Inspector. Seats will not be reserved for any who do not forward notification as above. Applications may be made for examination at one of the following stations:

STATION.	ADDRESS.
Sydney	E. Outram, Sydney.
Baddeck	A. Munro, Boulardarie.
Margaree Forks / Port Hood.	John Y. Gunn, Broad Cove.
Arichat	Remi Benoit, D'Escousse.
Guys'boro' / Sherbrooke	S. R. Russell, Guysboro'
Antigonish	A. McIsaac, Antigonish.
Pictou / New Glasgow	D. McDonald, New Glasgow.
Amherst	Rev. W. S. Darragh, Shinimicas,
Truro / Tatamagouche	H. C. Upham, Great Village.
Halifax / Tangier	J. F. L. Parsons, 18 Albro St., Hx.
Windsor	Rev. D. M. Welton, Windsor.
Kentville,	Rev. Robt. Sommerville, Wolfville
Bridgetown	Rev. Geo. Armstrong, Bridgetown
Digby	A. W. Savary, Digby.
Yarmouth	G. J. Farish, Yarmouth.
Shelburne	Rev. W. H. Richan, Barrington.
Liverpool	Rev Chas. Duff, Liverpool.
Lunenburg	W. M. B. Lawson, Lunenburg.

Candidates are to furnish their own writing material.

Candidates already holding license of any grade from the Council of Public Instruction, are required to give the number of the same at the Examination.

All Candidates for License will be required, on presenting themselves for examination, to furnish a written certificate of good moral character, signed by a minister of Religion, or by two of Her Majesty's Justices of the Peace. These certificates are filed in the Educational Department, together with the other papers relating to the candidate's Examination.

The use of books or manuscripts will be strictly prohibited.

Persons not intending to engage as Teachers in the Public Schools will be required, on presenting themselves for Examination, to make payment to the Deputy Examiner as follows:—Grade E, $0.37; D, $0.50; C, $0.75; B, $1.00, A, $4.00. Also, teachers wishing to be re-examined in any grade for which they already hold a license, will be required to make payment to the Deputy Examiner as above.

☞ Candidates for license of the grade who have already made an average of 75 or upwards on Grade B, are to work papers on those subjects only which are peculiar to grade A. Such Candidates are required to present themselves for examination (with their licenses or memoranda) on THURSDAY noon. Other candidates for grade A will present themselves at the opening of the Examination on Tuesday.

An exercise in spelling will be held on Thursday afternoon at 3 o'clock, for Candidates who at any previous examination made an average of 60 or upwards in the Examination for 1st Class, and were debarred from receiving license of the 1st Class by reason of bad spelling. The list will contain a number of ordinary English words to be written at Dictation,

and any such candidate not making more than 6 errors will be granted a license of the 1st Class without further examination.

*** Every person examined will be informed by mail of the result of his or her examination, as soon as decided

IV. Holidays and Vacations.

Notice is hereby given to Trustees of Schools and others, that CHAPTER XI, of the COMMENTS AND REGULATIONS OF THE COUNCIL OF PUBLIC INSTRUCTION. "Of Time in Session, Holidays, and Vacations" has been revised as follows:

HOLIDAYS.

The following Regulations have been added to SECTION 3, of the Chapter above-named.

a. When for any cause the Trustees of a school shall deem it desirable that any prescribed Teaching Day should be given as a Holiday, the school or schools may be kept in session on the Saturday of the week in which such Holiday has been given, and such Saturday shall be held to be in all respects a legal Teaching day..

b. When, owing to illness, or for any other just cause, a teacher loses any number of prescribed teaching days, such teacher shall have the privilege of making up for such lost days, to the extent of SIX during any Term, by Teaching on Saturdays; But

c. No School shall be kept in session more than five days per week for any two consecutive weeks;

d. Nor shall any Teacher teach more than FIVE DAYS PER WEEK on the average (vacations not being counted) during the period of his engagement in any term.

The Anniversary of the QUEEN'S BIRTHDAY shall be a Holiday in all the Public Schools, as heretofore; also any day proclaimed as a public holiday throughout the Province.

VACATIONS.

The following Regulations have been made in lieu of SECTION 4, of the Chapter above-named:—

1 The CHRISTMAS VACATION shall remain as heretofore, the "eight days" being held to mean week-days other than Saturdays

2 Instead of two vacations during the summer term (a week at seed time and a fortnight at harvest) as heretofore, THREE WEEKS (15 week-days other than Saturdays) shall hereafter be given as vacation during the summer term, at such time or times as the Trustees shall decide: Nevertheless

3. In order that the due Inspection of Schools as required by law, may not be interfered with, each Inspector shall have power, notwithstanding anything in the foregoing Regulations, to give notice of the day or days on which he proposes to visit any school or schools in his county for the purpose of Inspection, and to require that on the day or days so named such school or schools shall be kept in session.

July 1867.

V. Teachers' Agreements.

The attention of Teachers and Trustees is again called to the necessity of complying with the provisions of the Law in relation to the disposal of the county Fund. It appears from the School Returns of the past Term that some teachers have in their agreements with Trustees in respect to salary, *assumed all risk as to the amount to be received from the County Fund.* Such proceeding is contrary to the provisions of the law and directly subversive of a most important principle of the School system, since the pecuniary penalty imposed upon the inhabitants of the section by the absence and irregular attendance of pupils is thereby inflicted upon the teacher, while the pecuniary rewards consequent upon a large and regular attendance of pupils at school is diverted from the people to the teacher. These results clearly tend to prevent the growth and development of a sentiment of responsibility and interest among all the inhabitants of each section, and thus measurably defeat the object of the whole system—the education of every child in the Province.

The Superintendent of Education, therefore, calls the attention of Teachers and Trustees to the following

NOTICE

1. The COUNTY FUND is paid to the TRUSTEES of the section The amount depends upon the number of pupils, the regularity of their attendance, and the number of prescribed teaching days on which school is open in any section during the term.

2 Teachers must engage with Trustees at a *definite sum or rate* The Provincial grant is paid to teachers *in addition* to such specified sum.

3. The following form of agreement is in accordance with the law.

[FORM OF AGREEMENT.]

Memorandum of Agreement made and entered into the ——day of—— A.D. 186 . between [*name of teacher*] a duly licensed teacher of the—— class of the one part, and [*names of Trustees*] Trustees of School Section No.—— in the district of——of the second part.

The said [*name of teacher*] on his (or her) part, in consideration of the below mentioned agreements by the parties of the second part, hereby covenants and agrees with the said [*name of Trustees*] Trustees as aforesaid and their successors in office, diligently and faithfully to teach a public school in the said section under the authority of the said Trustees and their successors in office during the School Year (or Term) ending on the thirty-first day of October next, (or the thirtieth day of April, as the case may be.)

And the said Trustees and their successors in office on their part covenant and agree with the said [*name of teacher*] Teacher as aforesaid, to pay the said [*name of teacher*] out of the School Funds under their control, at the rate of ——dollars for the School Year (or Term.)

And it is hereby further mutually agreed that both parties to this agreement shall be in all respects subject to the provisions of the School Law and the Regulations made under its authority by the Council of Public Instruction.

In Witness whereof the parties to these presents have hereto subscribed the names on the day and year first above written.

Witness, [*Name of Witness*] [*Name of Teacher*] [*Names of Trustees*]

4. Each Inspector is instructed to report every case of illegal stipulation on the part of teachers, in reference to the County Fund.

VI. To Trustees of Public Schools.

1. "A relation being established between the trustees and the teacher, it becomes the duty of the former, on behalf of the people, to see that the pupils are making some progress, that there is life in the school both intellectual and moral,—in short, that the great ends sought by the education of the young are being realized in the section over which they preside. All may not be able to form a nice judgment upon its intellectual aspect, but none can fail to estimate correctly its social and moral tone. While the law does not sanction the teaching in our public schools of the peculiar views which characterize the different denominations of Christians, it does instruct the teacher "to inculcate by precept and example a respect for religion and the principles of Christian morality" To the Trustees the people must look to see their desires in this respect, so far as is consonant with the spirit of the law, carried into effect by the teacher."—*"Comments and Regulations" of Council of Public Instruction, p. 51, reg. 5.*

2. Whereas it has been represented to the Council of Public Instruction that Trustees of Public Schools have, in certain cases, required pupils, on pain of forfeiting school privileges, to be present during devotional exercises not approved of by their parents; and whereas such proceeding is contrary to the principles of the School Law, the following additional Regulation is made for the direction of Trustees, the better to ensure the carrying out of the spirit of the Law in this behalf:—

ORDERED, That in cases where the parents or guardians of children in actual attendance on any public school (or department) signify in writing to the Trustees their conscientious objection to any portion of such devotional exercises as may be conducted therein under the sanction of the Trustees, such devotional exercises shall either be so modified as not to offend the religious feelings of those so objecting, or shall be held immediately before the time fixed for the opening or after the time fixed for the close of the daily work of the school; and no children, whose parents or guardians signify conscientious objections thereto, shall be required to be present during such devotional exercises.

March, 1867.

3. "The hours of teaching shall not exceed six each day, exclusive of the hour allowed at noon for recreation. Trustees, however may determine upon a less number of hours. A short recess should be allowed about the middle of both the morning and afternoon session. In elementary departments, especially, Trustees should exercise special care that the children are not confined in the school room too long "—*"Comments and Regulations" of Council of Public Instruction, p. 48, reg. 2*

VII. The Provincial Normal School.

FIRST TERM begins on the first Wednesday in November, and closes on the Friday preceding the last Thursday in March.

SECOND TERM begins on the first Wednesday in May, and closes on the Friday preceding the last Thursday in September.

*** Students cannot be admitted after the first week in each term, except by the consent of the Principal.

FACULTY OF INSTRUCTORS.

NORMAL COLLEGE

Method, and the Natural Sciences:—J. B. CALKIN, Esq.
Principal of the Normal College and Model School
English Language, Geography &c.:—J. A. MACCABE, Esq.
Mathematics:—W. R. MULHOLLAND, Esq.
Music:—Miss M. BECKWITH.
Drawing: ——

MODEL SCHOOL.

High School Department, Mr. EDWARD BLANCHARD.
Preparatory " Mr. JAMES LITTLE.
Senior Elementary " Miss FAULKNER.
Junior do. " Miss A. LEAKE.

None but holders of valid licenses will be admitted to the Normal School as pupil-teachers. The license (or memo) must be presented to the Principal at the opening of the Term.

Extracts from the Regulations of Council of Public Instruction:—"Before being enrolled a Student at the Normal School, every pupil-teacher shall make the following declaration, and subscribe his or her name thereto: *'I hereby declare that my object in attending the Provincial Normal School, is to qualify myself for the business of teaching; and that my intention is to teach, for a period not less than three years, in the Province of Nova Scotia,—if adjudged a Certificate by the Examiners.'* In consideration of this declaration, instruction, stationery, and the use of text books (except Classical) shall be furnished pupil teachers, free of Charge."

Persons wishing to enrol as Candidates for High School or Academy certificates must, in addition to a good knowledge of English, be thoroughly familiar with the Latin and Greek Grammars, and be able to parse with ease any passage in some elementary work in each language. In Mathematics, they must be competent to solve any example in the advanced Nova Scotia Arithmetic, to work quadratic equations in Algebra, and to demonstrate any proposition in the first four books of Euclid."

VIII. Bond of Secretary to Trustees.

"The Secretary of the Trustees shall give a bond to her Majesty, with two sureties, in a sum at least equal to that to be raised by the section during the year, for the faithful performance of the duties of his office; and the same shall be lodged by the Trustees with the Clerk of the Peace for the county or district."—*School Law of 1866, Sect. 42*

This bond is to be given annually, or whenever a Secretary is appointed, and Trustees should not fail to forward it by mail or otherwise, to the Clerk of the Peace, immediately after they have appointed their Secretary. The following is a proper form of bond:—

PROVINCE OF NOVA SCOTIA.

KNOW ALL MEN BY THESE PRESENTS, THAT WE, (*name of Secretary*)

as principal, and (*names of sureties*) as sureties, are held and firmly bound unto our Sovereign Lady VICTORIA, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, &c., in the sum of of lawful money of Nova Scotia, to be paid to our said Lady the Queen, her heirs and successors, for the true payment whereof, we bind ourselves, and each of us by himself, for the whole and every part thereof, and the heirs, executors and administrators of us and each of us, firmly by these presents, sealed with our Seals and dated this day of in the year of Our Lord one thousand eight hundred and and in the year of Her Majesty's reign.

WHEREAS the said———— —has been duly appointed to be Secretary to the Board of Trustees of —— School Section, No. —— in the District of————

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, That if the said (*name of Secretary*) do and shall from time to time, and at all times hereafter, during his continuance in the said Office, well and faithfully perform all such acts and duties as do or may hereafter appertain to the said Office, by virtue of any law of this Province, in relation to the said Office of Secretary to Trustees, and shall in all respects conform to and observe all such rules, orders, and regulations as now are or may be from time to time established for or in respect of the said office, and shall well and faithfully keep all such accounts, books and papers, as are or may be required to be kept by him in his said office, and shall in all respects well and faithfully perform and execute the duties of the said office; and if on ceasing to hold the said Office, he shall forthwith, on demand, hand over to the Trustees of the said School Section, or to his successor in office, all books, papers, moneys, accounts, and other property in his possession by virtue of his said office of Secretary—then the said obligation to be void —otherwise to be and continue in full force and virtue.

Signed, sealed, and delivered } [*Name of Secretary*] (*Seals*)
in the presence of } [*Names of Sureties*] (*Seals*)
[*Name of Witness.*]

WE, THE SUBSCRIBERS, two of her Majesty's Justices of the Peace for the County of————do certify our approbation of———— (*name of Sureties,*) within named, as Sureties for the within named—— (*name of Secretary,*) and that they are to the best of our knowledge and belief persons of estate and property within the said County of———and of good character and credit, and sufficiently able to pay if required, the penalty of the within bond. Given under our hands this day of A. D. 186 [*Names of Magistrates*].

IX, Prescribed School Books, Maps and Apparatus.

MINUTE OF COUNCIL.

(*Passed November 23rd, 1870.*)

WHEREAS the contract under which Messrs. A. & W. McKinlay & Co. have supplied Prescribed School Books and Apparatus to the Public Schools, has now expired.

And Whereas, it is deemed expedient that all Booksellers be authorized to supply the Trustees of Public Schools with the prescribed Books, Maps, Stationery, and other Apparatus for the Public Schools, at the same rates and upon the same terms, as the Council authorized in its Minute of Oct. 15, 1869—excepting that diagrams, maps and globes, shall be supplied at the same rate as Book and Stationery.

It is Therefore Resolved, That when any Bookseller in this Province shall supply the Trustees of Public Schools with prescribed Books, Maps, Stationery, &c., for the use of Schools under the management of such Trustees, and may present to the Superintendent of Education the prescribed affidavit, the Superintendent is authorized to pay one-fourth of the cost of Books, &c., furnished to ordinary sections, and one-half of the cost of Books furnished to Poor Sections.

A. S. HUNT,
Sec'y. to Coun. of Pub. Inst

In pursuance of an Order of the Council of Public Instruction,

NOTICE IS HEREBY GIVEN

That in ordinary School Sections, Trustees will be supplied with the prescribed School Books, Maps, Globes, Diagrams, Stationery, and at three quarters of the cost.

And that, Trustees, of poor Sections will be supplied at one half the cost.

Trustees will carefully note &c

Reg. 1.—Application must be made in the following form, and addressed to (*The name of any Bookseller*), who, by the above minute of Council is duly authorized to attend to all orders.

FORM OF APPLICATION.

(*Date*)

To (*name of the Bookseller*),
Halifax,

SIRS,—We enclose (*or forward by* ——) the sum of $———— for, which you will please send us the following articles provided by the Superintendent of Education for use in the public schools. The parcel is to be addressed————(*here give the address in full*) and forward by————(*here state the name of the person, express, company, or vessel; and, if by vessel, direct the parcel to be insured, if so desired.*)

LIST OF ARTICLES.

(*Here specify distinctly the Books, Maps, &c., required, and the quantity of each sort.*)

We certify that each and all of the articles named in the above list are required for use in the Public School (or Schools) under our control, and for no other purpose whatsoever; and we engage strictly to carry out the Regulations of the Council of Public Instruction for the management and preservation of school books and apparatus

(Signed) ———— } *Trustees of————School Section,*
———— } *No. ——, in the County of————*
————

Reg. 2.—Any application not accompanied with the money will not be attended to.

Reg. 3.—All costs and risk of transportation of parcels must be borne by Trustees, (*i. e.*, by the Sections on behalf of which they act, and not by the Education Department.)

☞ If Trustees so direct in their application, goods (except Globes,) transported by *water* will be insured for the amount paid for the same by them, at the following rates:—

Parcels shipped during the First Term of the School year, 2½ per ct.
" " Second Term " " 1½ per ct.

Trustees must forward with their application the amount required to effect the insurance, otherwise parcels will not be insured. No charge will be made for policies.

Reg 4.—Applications will, as far as the articles in stock permit, receive attention in the order of their receipt

REGULATIONS

The following are the Regulations of the Council of Public Instruction with reference to all Books, Maps, and Apparatus furnished to Trustees through the Education Department

Reg 1.—They shall be the property of the School Section, and not of private individuals, (except as specified in Reg 5.)

Reg. 2.—Any pupil, shall be entitled, free of charge, to the use of such school books as the teacher may deem necessary.

Reg 3.—Any pupil shall have the privilege of taking home with him any books, &c., which, in the opinion of the teacher, may be required for study or use out of school.

Reg 4.—Pupils, or their parents or guardians, shall be responsible for any damage done to books beyond reasonable wear and tear.

Reg. 5.—Any pupil desiring it, may be allowed to purchase from the trustees the books required by him, provided the same be done without prejudice to the claims of other pupils; the price to be, in all cases, the same as advertised in the official notice published from time to time in the *Journal of Education*. No pupil who has been allowed to purchase a book shall have any claim on the trustees for the free use of another of the same kind.

Reg. 6.—Any section neglecting to provide a sufficient supply of books, maps, and apparatus, may be deprived of the public grants.

Reg. 7.—Trustees shall make such further regulations, agreeably to law, as may be necessary to ensure the careful use and preservation of books, maps, and apparatus belonging to the section.

Any section infringing in any way upon the above regulations will forfeit the privilege of purchasing books, &c., through the Education Department.

LIST OF TEXT-BOOKS, MAPS, AND APPARATUS.

☞ The following list of books will be extended, and other articles of apparatus included as the fund at the disposal of the Superintendent permits.

The prices placed opposite each Book is the three-fourth price which is to be sent to the Bookseller by the School Trustees. The one-half price may be known by taking one third from the three-fourth price.

PUPILS' WEEKLY RECORDS.

Weekly Record (for one Term) 1½ cent each.

THE NOVA SCOTIA SERIES OF READING BOOKS.

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