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JOURNAL OF EDUCATION

FOR

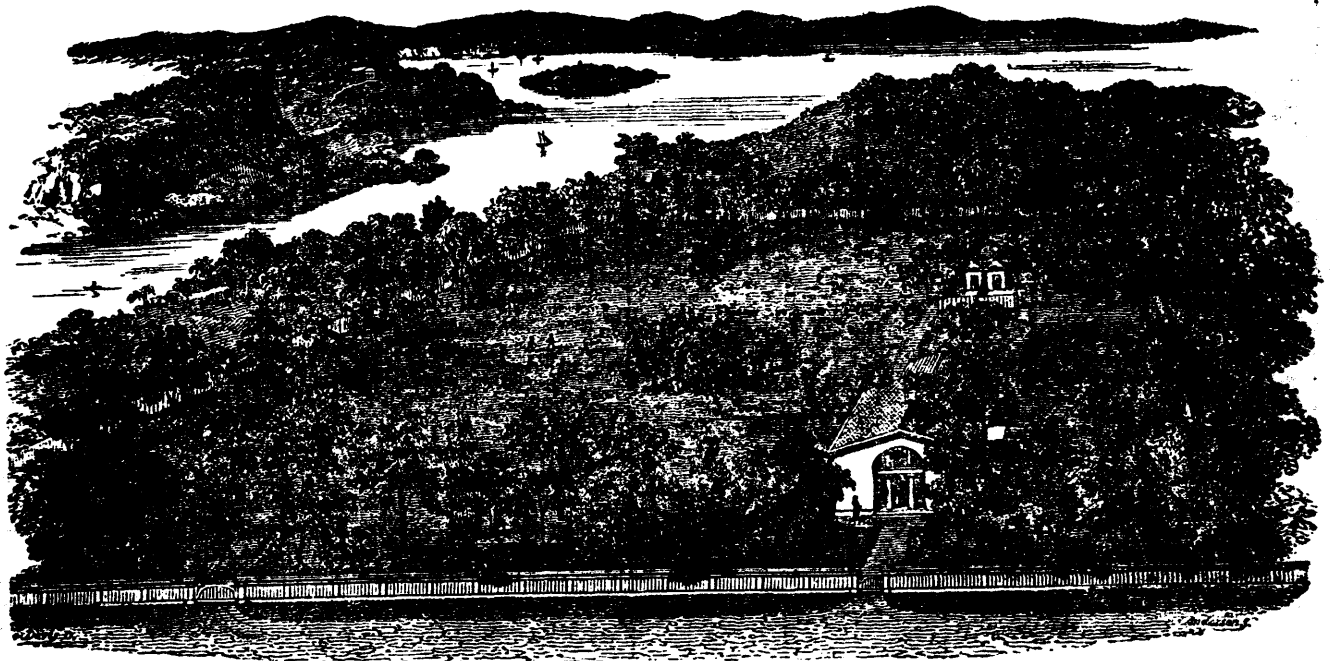
Upper Canada.

VOL. II.

TORONTO, NOVEMBER, 1849.

No. 11.

School Architecture.



Perspective of Schoolhouse, Outbuildings, and Grounds.

In the October number of this *Journal* we introduced some remarks on the proper sites of school-houses, and the various kinds of flowers, shrubs and trees with which the school-grounds ought to be ornamented, and which can easily be procured in this country—they being indigenous to our soil and climate.

The above *Perspective of School-House, Out-buildings and Grounds* furnishes another and a beautiful illustration of what we would recommend on this subject. The size of School-lots must, in some measure, be determined by the facility with which land in desirable situations can be obtained. In country places, and in many towns and villages, School lots of at least half or quarter of an acre each, can be easily procured. But in all cases, whether the grounds be large or small, they ought to be laid out and prepared with a view to both convenience and taste. Every thing around, as well as within a School-house should be attractive to the eye and improving to the taste of the pupils. It is in connexion with the School-house that they receive many of their earliest and most durable impressions. Those impressions should be on the side of neatness, virtue and cheerfulness. This is not likely to be the case where the site of the school-house is in a noisy, dirty thoroughfare of the city, or in a low, damp, or bleak unsheltered place in the country; nor if the attention to comfort and decency be neglected in

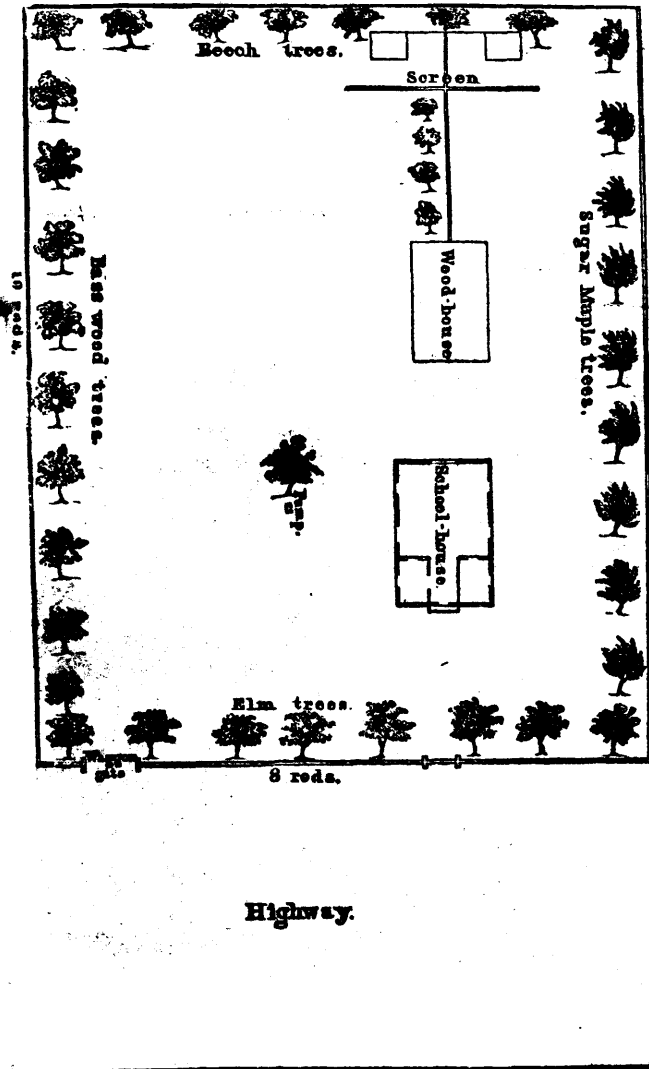
the internal furniture and out door arrangements of the house itself. How different will be the associations, impressions, and feelings of a pupil where the house and grounds are provided as represented in the above engraving, from those of a pupil attending school where the house is dirty and comfortless, where the playgrounds are the high-way or the street, and where indecencies are almost imposed as a necessity from the absence of the requisite provisions against them.

In the above engraving, it will be observed, that the situation is represented as retired, dry, and pleasant; that the ground is made smooth and sown with grass, planted with shady trees tastefully arranged in groups, and round the sides, and protected by a neat and substantial inclosure. In the rear of the building the yard is divided by a high and close fence; each portion appropriately fitted up and provided with suitable conveniences,—the one assigned for the exclusive use of the boys, and the other for that of the girls.—The entire premises exhibit an aspect of seclusion, neatness, order, propriety and cheerfulness, and the absence of every thing calculated to defile the mind, or wound the most sensitive modesty.

We present next a *Ground Plan* of school premises. This plan requires no further explanation than that which will be found on the next page.

In respect to one part of it we remark, that we think the fence or partition which separates the one part of the grounds from the other, ought to extend from the school-house to the wood-house, as well as from the latter to the rear of the premises.

(Fig. 2.)



Plan of Grounds, &c.

We now proceed to make some additional remarks on the interior construction and arrangements of the School-house.

1. **SIZE.**—We observed last month, that each School-house should be sufficiently large to allow every pupil, 1. to sit comfortably at his desk; 2. to leave it without disturbing any one else; 3. to see explanations on his lessons, and to recite, without being incommoded or incommoding others; 4. To breathe a wholesome atmosphere. The arrangements necessary for the accomplishment of the first three of these objects, have been largely explained and illustrated in previous numbers of this journal; and for the accomplishment of the last, we have also stated and shown at large, that at least 150 cubic feet of air should be allowed for every occupant. Nevertheless a few further observations may not be useless.

2. **POSITION.**—It is very desirable that the front of the School-house be towards the south; that the north end be occupied by the master's desk; that this end be a dead wall; that the desks be so placed that pupils, as they sit at them, will look towards the north. Some of the advantages of this arrangement are, that the pupils will obtain more correct ideas upon the elements of geography, as all maps suppose the reader to be looking northward; that the north wall, having no windows, will exclude the severest cold of winter; that the pupils will look towards a dead wall, and thus avoid the great evil of facing a glare of light—or, if a window or two be allowed in the north wall, the light coming from that quarter is less vivid, and therefore less dangerous, than that which comes from any other; lastly, that the door being in the south end, will open towards the winds which prevail in summer, and from the cold winds of winter. If from necessity, the house must front northward, the master's desk

should be still in the north end of the room, and the pupils, when seated, look in that direction.

3. **DESKS AND SEATS.**—On the inconvenience of long seats for pupils we have frequently spoken; as also on the impropriety of having all the desks the same height. The desks and seats for pupils should be of different dimensions. We think it most desirable for two to sit together; and each desk for two may be $3\frac{1}{2}$ or 4 feet long. The younger pupils being placed nearest the master's desk, the front ranges of desks, may be 13 inches wide, the next 14, the next 15, and the most remote 16 inches, with the height, respectively, of 24, 25, 26, and 27 inches. The seats should vary in like manner—those of the smallest class, should be 10 inches wide, the next $10\frac{1}{2}$, the third 11, the fourth or largest class $11\frac{1}{2}$ or 12 inches wide; and being, in height, 13, 14, 15, and 16 inches respectively. All the edges and corners should be carefully rounded.

4. **PLATFORM AND SHELVES.**—The master's platform may be raised about eight inches: and the end of the room occupied by him should be filled with shelves for a library and for philosophical apparatus and any collections of natural curiosities (such as rocks, minerals, plants, shells, &c.,) which may be made in the neighbourhood or obtained from abroad. The books, apparatus, and collections should be concealed and protected by doors, which may be made perfectly plain and without panels, so as to be painted black, and serve as blackboards. They may be conveniently divided by pilasters into three portions—the middle one for books, the others for apparatus and collections. On one of the pilasters may be a clock; on the other a barometer and thermometer; on shelves in the corners, the globes; and over the library, in the centre, may be the study card. One of the pilasters may form part of the ventilating tube. The space for the platform, shelves, &c., between the front range of desks and the north wall, should be from seven to ten or twelve feet, according to the size of the room and the number of pupils contemplated. The sides and front of this space should be furnished with seats, ten or eleven inches wide, for very young pupils when the school is large, and sometimes for classes reciting. By means of a large movable blackboard, this space may be in case of need, divided into two, so that two classes may recite at a time.

5. **ENTRY, &c.**—The entry should be lighted by a window, and furnished with hooks or pins for the accommodation of hats, bonnets, and cloaks; and a wood-closet, large enough to contain one or two cords of wood. By making the ceiling of the entry and wood-closet only seven feet high, two commodious rooms for recitation may be formed above them, lighted from the windows over the front door, and accessible by stairs from within the school-room.

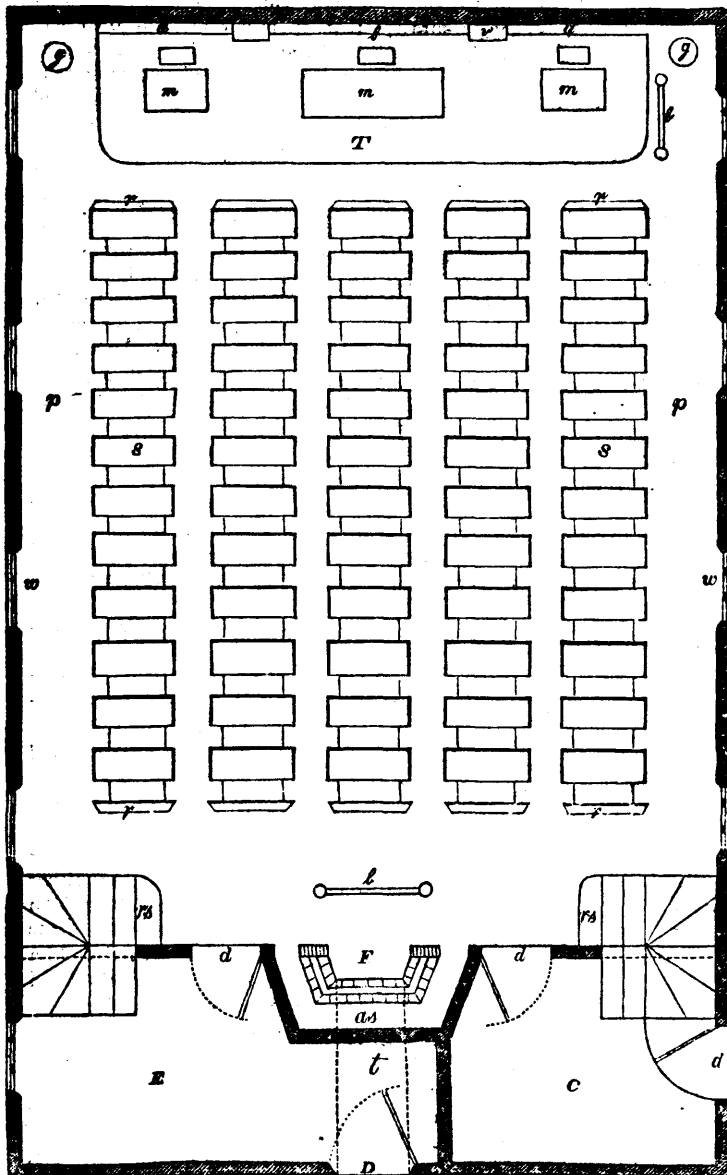
6. **LIGHT.**—The windows should be on the east and west sides of the room, and on the right and left of the pupils. Windows on the north admit too much cold in winter, and on the south too intense a light at the hour when it is greatest. The eye is often materially and permanently injured by being directly exposed to strong light; and if the light come from behind, the head and body of the pupil interposed, throw the book into their shadow. The windows should be set high enough to give an uninterrupted light, and prevent pupils sitting at their desks from seeing persons or objects on the ground without. The windows should be furnished with blinds or curtains, and should be made to open from the top as well as from the bottom; so that in the summer season when the ventilator will not act, they may supply its place.

7. **WARMING.**—There are two common modes of warming school-houses in this country, —by means of open fire-places and stove. The former is preferable with reference to health, and by a little pains in the construction, may almost equal the stove in economy of fuel—furnishing the room at the same time with an ample supply of fresh, warm air from abroad. In a suitable position, near the door,

(pointed out in the following Figure 3) let a common brick fireplace be built. Let this be enclosed, on the back and on each side, by a casing of brick, leaving, between the fireplace and the casing, a space of four or five inches, (see Fig. 4, Section A.) which will be heated through the back and jambs. Into this space let air be admitted from beneath by a box 24 inches wide by 6 or 8 deep, leading from the external atmosphere by an opening beneath the front door, or at some other convenient place. (See *t* in Fig. 3.) The brick casing should be continued as high as six or eight inches above the top of the fireplace, where it may open into the room by lateral orifices, to be commanded by iron doors, through which the heated air will enter the room. (See *e e*, Section A Fig. 4.) If these orifices are lower, part of the warm air will find its way into the fireplace. The brick chimney should rise at least two or three feet above the hollow back, and may be surmounted by a flat iron, soap-stone, or brick top, with an opening for a smoke-pipe, which may thence be conducted to any part of the room the same as a common stove-pipe. The smoke-pipe should rise a foot, then pass to one side, and then, over a passage, to the opposite extremity of the room, (when its heat having been exhausted) it should ascend perpendicularly and issue above the roof. (See *i* in Fig. 4, C C in Fig. 5.)

(Fig. 3.)

SCHOOL FOR ONE HUNDRED AND TWENTY PUPILS.



51 feet by 31 feet outside.]

[Scale 8 feet to the inch.

D. Entrance door. E. Entry. F. Fireplace. C. Wood closet. T. Teacher's platform. a. Apparatus shelves. t. Air tube beneath the floor. d. Doors. g. Globes. l. Library shelves. m. Master's table and seat. p. Passages. r. Recitation seats. s. Scholars' desks and seats. r s. Stairs to recitation rooms in the attic. v. Vestibule. w. Wind wa. b. Movable blackboard. a s. Air space behind the fireplace.

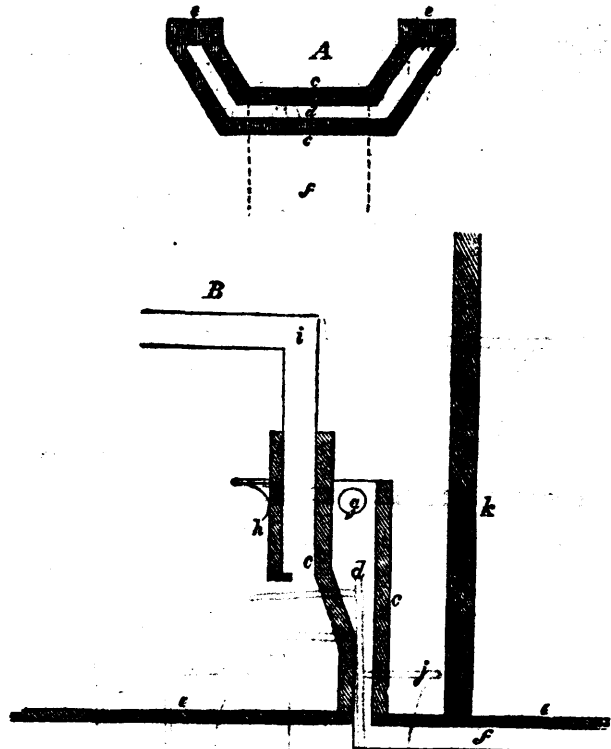
The following are some of the advantages of this double fireplace: — (1.) The fire, being made against brick, imparts to the air of the apartment no deleterious qualities which are produced by the common iron stove, but gives the pleasant heat of an open fire place. (2.) None of the heat of the fuel will be lost, as the smoke-pipe may be extended far enough to communicate nearly all the heat contained in the smoke. (3.) The current of air heated within the hollow-back, and constantly pouring into the room, will diffuse an agreeable heat throughout every part. (4.) The pressure of the air of the room will be constantly outward, little cold will enter by cracks and windows, and the fireplace will have no tendency to smoke.

If instead of this fire-place, the common stove be adopted, it should be placed above the air-passage, which may be commanded by a valve or register in the floor, so as to admit or exclude air. The stove should be placed a little in front of the position assigned to the fireplace in Fig. 3.

8. VENTILATION.—As the best possible ventilator is an open fireplace, a room warmed by such a fireplace as that just described, may be easily ventilated. If a current of air is constantly pouring in, a current of the same size will rush out wherever it can find an outlet, and with it will carry the impurities with which the air of an occupied room is always charged. For this an open fireplace may suffice. But when the room is warmed by a common stove, other provisions must be made for its ventilation. In addition to the various modes of ventilation described in previous numbers of this Journal, we may remark, that a most effective ventilator for throwing out foul air is one opening into a tube which encloses the smoke-flue at the point where it passes through the roof, as represented by B in Fig. 5. Warm air naturally rises. If a portion of the smoke-flue be enclosed by a tin tube, it will warm the air within this tube, and give it a tendency to rise. If then a wooden tube, opening near the floor, (see Fig. 5.) be made to communicate, by its upper extremity, with the tin tube, an upward current will take place in it, which will always act whenever the smoke-flue is warm.

(Fig. 4.)

FIREPLACE.

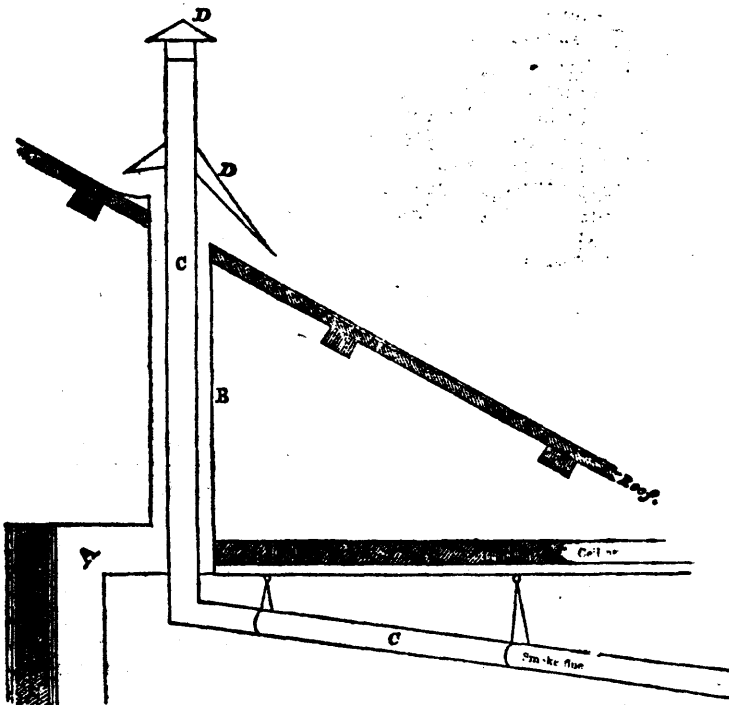


A. Horizontal section. B. Perpendicular section. c. Brick walls, 4 inches thick. d. Air space between the walls. e. Solid fronts of masonry. f. Air box for supply of fresh air, extending beneath the floor to the front door. g. Openings on the sides of the fireplace for the heated air to pass into the room. h. Front of the fireplace and mantelpiece. i. Iron smoke flue, 8 inches diameter. j. Space between the fireplace and wall. k. Partition wall. l. Floor.

For further details of construction and arrangements we refer to the explanations connected with the plates.

(Fig. 5.)

VENTILATING APPARATUS.



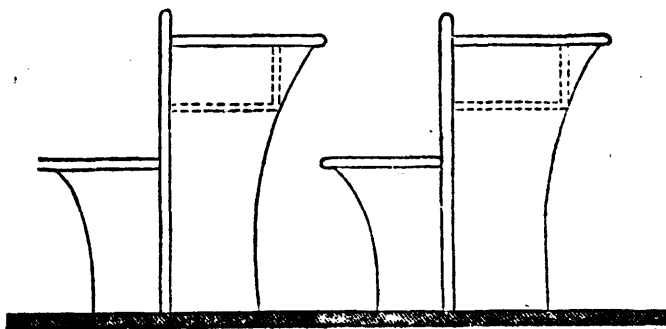
[Scale 4 feet to the inch.]

- A. Air box, 1 foot square, or 24 inches by 6, covered by the pilaster, and opening at the floor, in the base of the pilaster.
- B. Round iron tube, 15 1/2 inches in diameter, being a continuation of the air box, through the centre of which passes,
- C. The smoke flue, 8 inches diameter
- D. Caps to keep out the rain.

We next present two engravings of seats and desks. It will be seen that the upper surface of the desk in Fig. 6 is level; and that shown in Fig. 7 is sloped, except about three inches of the most distant portion, in the ratio of one inch in a foot. The edges of the seats are in the same perpendicular line with the fronts of the seats.

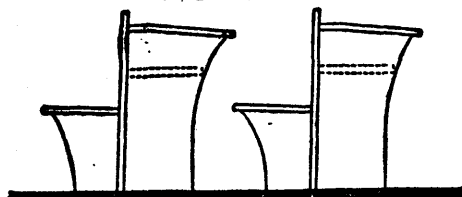
(Fig. 6.)

SECTION OF SCHOLARS' DESKS AND SEATS.



[Scale 16 inches to the inch]

(Fig. 7.)



Section of Seat and Desk.

We will conclude our present remarks on School Architecture in the following graphic language of the Hon. HORACE MANN:—

“The voice of Nature forbids the infliction of annoyance, discomfort, or pain, upon a child, while engaged in study. If he actually

suffers from position, or heat, or cold, or fear, not only is a portion of the energy of his mind withdrawn from his lesson,—all of which should be concentrated upon it;—but, at that indiscriminating age, the pain blends itself with the study, makes part of the remembrance of it, and thus curiosity and the love of learning are deadened, and turned away towards vicious objects. This is the philosophy of children's hating study. We insulate them by fear; we touch them with non-conductors; and then, because they emit no spark, we gravely aver that they are non-electric bodies. If possible, pleasure ought to be made to flow like a sweet atmosphere around the early learner, and pain be kept beyond the association of ideas. You cannot open blossoms with a northeast storm. The buds of the hardest plants will wait for the genial influence of the sun, though they perish, while waiting.

“The first practical application of these truths, in relation to our Common Schools, is to School-house Architecture,—a subject so little regarded, yet so vitally important. The construction of school-houses involves, not the love of study and proficiency only, but health and length of life. I have the testimony of many eminent physicians to this fact. They assure me that it is within their own personal knowledge, that there is, annually, loss of life, destruction of health, and such anatomical distortion as render life hardly worth possessing, growing out of the bad construction of our school-houses. Nor is this evil confined to a few of them, only. It is a very general calamity. I have seen many school-houses, in central districts of rich and populous towns, where each seat connected with a desk, consisted only of an upright post or pedestal, jutting up out of the floor, the upper end of which was only about eight or ten inches square, without side-arms or back-board; and some of them so high that the feet of the children in vain sought after the floor. They were beyond soundings. Yet, on the hard top of these stumps, the masters and misses of the school must balance themselves, as well as they can, for six hours in a day. All attempts to preserve silence in such a house are not only vain, but cruel. Nothing but absolute empalement could keep a live child still, on such a seat: and you would hardly think him worth living, if it could. The pupils will resort to every possible bodily evolution for relief; and, after all, though they may change the place, they keep the pain. I have good reasons for remembering one of another class of school-houses, which the scientific would probably call the sixth order of architecture,—the wicker-work order, summer-houses for winter residence,—where there never was a severely cold day, without the ink's freezing in the pens of the scholars while they were writing; and the teacher was literally obliged to compromise between the sufferings of those who were exposed to the cold of the windows and those exposed to the heat of the fire, by not raising the thermometer of the latter above ninety degrees, until that of the former fell below thirty. A part of the children suffered the Arctic cold of Captains Ross and Perry, and a part, the Torrid heat of the Landers, without, in either case, winning the honours of a discoverer. It was an excellent place for the teacher to illustrate one of the facts in Geography; for five steps would have carried him through the five zones. Just before my present circuit, I passed a school house, the roof of which on one side, was trough-like; and down towards the eaves there was a large hole; so that the hole operated like a tunnel to catch all the rain and pour it into the school-room. At first, I did not know but it might be some apparatus designed to explain the Deluge. I called and inquired of the mistress, if she and her little ones were not sometimes drowned out. She said she should be, only that the floor leaked as badly as the roof, and drained off the water. And yet a healthful, comfortable school-house can be erected as cheaply as one which, judging from its construction you would say, had been dedicated to the evil genius of deformity and suffering.”

Educational Intelligence.

UPPER CANADA.

Common School Examination and Celebration—500 present.—

We abridge from a communication in the *Niagara Mail*, the following account of a School Examination and Celebration, which took place in Smithville on the 18th of October, in the Wesleyan Chapel, in consequence of the smallness of the School-house for the occasion:—

"The house was decorated with evergreens of various kinds; the windows were encircled with arches. Above the pulpit was placed a neatly wrought crown, and large wreaths surrounding the entire pulpit and altar and extending across the chapel in different directions, were interspersed with flowers of varied hue. The Tea Commandments in rhyme, together with many significant mottos, occupied the most conspicuous portions of the walls. These highly tasteful decorations were soon ascertained to be the handywork of the ladies, who are ever in advance, for that which is admirable and praiseworthy. The examination commenced at half-past 9 o'clock A. M., and here it would be different to describe the passing scenes before me. The profound interest exhibited by the assembly, in number not less than five hundred, during the examination was gratifying. I regret much that the Provincial Superintendent of Education, and the District Superintendent of Common Schools were not present, to enjoy the truly intellectual feast. The Teacher, Miss Welch, displayed much tact and ability, not less in the thorough investigation of the various educational branches brought before the pupils, than in the vigorous and energetic process of the examination itself. And much credit is due to the pupils, for the prompt and deliberate manner with which they resolved the various problems propounded; and I congratulate the Trustees of the Smithville School Sections, in being so fortunate in securing the services of so competent a Teacher, to take the charge of the intellectual, and moral culture of the children of that Section. At half-past 12 the examination closed. The Rev. Mr. Biggar being appointed Chairman, after making some appropriate introductory remarks, read an able and well written letter, from the District Superintendent of Common Schools in which he expressed regret at not being able to attend the celebration as requested, while at the same time he spoke in high terms of the truly deserved reputation acquired by Miss Welch as a Teacher, while pursuing her profession in the Eastern part of the District. * * * The proper time having arrived for serving the refreshments, I will pass by the luxuries that loaded several large tables, without comment, only turning my attention to the table placed in front of the Speakers, at each end of which was placed a beautiful vase of flowers, and between which were placed the juvenile cakes, with their appropriate and significant mottos, about forty in number. The mottos having been read, the cakes in common with other refreshments, were distributed through the congregation generally. While partaking of these rich refreshments, I was so much amused with the varied emblems and mottos, that the thought occurred to me that it would be no ordinary task to surpass these highly tasteful and original inventions of the Smithville juveniles. The ladies and gentlemen who dispensed to the assembly the many luxuries prepared for the occasion, acquitted themselves with much honour, and all having enjoyed the agreeable repast, the Chairman called the attention of the audience, and in his usual happy manner made a speech that received the hearty approval of all present. Several other gentlemen addressed the meeting, among whom was the Rev. Mr. Price, of St. Catharines, who, in a learned and eloquent manner spoke with special reference to the intellectual and moral culture of the youthful mind. Mr. Editor, I cannot close without especially noticing the Juvenile Choir, in number about twenty-five, assisted by several distinguished adult singers. In conjunction with many appropriate and well-selected pieces, which were sung during the day, I am happy to say, in conclusion, that the delightful exercises were closed, by singing the National Anthem, which was performed with such spirit and such emphasis, that I feel quite certain Her Majesty would have been much pleased in hearing these youths singing a song of loyalty and attachment to the Sovereign of the greatest nation on earth.

W. M. R.

Clinton, October 24th, 1849.

Progress of the Common School System in the Brock District.

—We observe in the *British American* an elaborate and admirable Report of the state of Common Schools in the District of Brock, which the Rev. W. H. LANDON, (the District Superintendent,) laid before the Municipal Council of the District at its Session last month. We are also happy to learn that this excellent document is to be printed in pamphlet form and circulated throughout the District. The inhabitants of that District are to be congratulated in having so able and indefatigable a Superintendent. We extract the following introductory paragraphs from Mr. LANDON'S Report:

"Since the 1st of May, I have devoted a very large proportion of my time to the visitation of Schools. During that period I have visited every

township in the District; personally inspected nearly one hundred Schools; delivered above fifty public Lectures on subjects connected with Common School instruction, and held many private interviews with Teachers, Trustees, Magistrates, Clergymen, and other friends of the young.

"These labors and investigations, though they have been attended with some circumstances and revelations, in particular instances, of the most painful description, have, nevertheless, convinced me, that in a large and general view of the subject, we have good and abundant grounds for mutual encouragement and congratulation; not indeed in any very considerable improvement visible in most of the schools, but in an improved state of public feeling on the subject. Up to a recent period (say the two last years) the people generally, seem to have entered into no enquiries, and to have formed no just conclusion on the subject of Education, or the proper means of imparting it. They seem to think, if they thought at all, that all Schools were equal, and that all Teachers, who could read, write, &c., in a better manner than their pupils, were equally good. The matter of educating children, in their apprehension, consisted simply in sending them to school, where the teacher was expected to preside while the read, recited, &c., a certain number of lessons every day. The qualifications of the teacher were past questioning, if he were only able to read, recite, &c., the same lessons. As to books, it was supposed that any one, or any ten, of the fifty different varieties of Spelling Books in use, with the English Reader, was all that was requisite for the reading classes; while a few treatises on Arithmetic, taken at random from the almost endless variety with which the country was flooded, would supply the means of imparting a knowledge of the science of numbers; and two or three Grammars by as many different authors, would supply material for the grammar class, and complete the stock of text books for the school. Add to these a few slates and pencils, some paper in loose sheets, some steel pens, and some tall narrow phials with ink, and the school was regarded as furnished with all necessary materials for training immortal minds, to all intents and purposes.

"Where such sentiments exist, and while they remain, it will be impossible that any very beneficial results can arise from the schools. In vain may the Legislature provide a School Fund, however munificent, and in vain may our Municipal authorities vote their supplies, however liberal: Our money will be wasted and the time of our youth lost past redemption, until we can impart to the public mind a clearer knowledge of the subject, and a better state of feeling.

"Being deeply impressed with the truth and importance of these sentiments, I have laboured, since I have had the honour to hold my present office, to produce an effect in this direction; and while I have aimed faithfully to discharge those duties of the office more especially required and defined by the statute, I have, nevertheless, considered them all as subordinate, and of inferior importance to that of rightly influencing the public mind. Accordingly, I have availed myself of every opportunity which offered for inculcating right views; by private interviews and conversations with Teachers, Trustees and others, by public Lectures, by an extensive correspondence, and promoting the circulation of such suitable publications on the subject as could be procured; and it gives me great pleasure to observe that these efforts have not been in vain. In a few school sections the people—and in a large number—the Trustees, with some of the leading individuals, are awake; and in many others a state of progress in the right direction is plainly visible, nor have we the least reason to fear but that by kindly and persevering efforts on the part of those entrusted with the management of these important interests, a state of things will shortly arise which will be, in the highest degree, gratifying to every lover of his country and his kind."

Progress of Common Schools in the Bathurst District.—Extract of the Report presented by the Rev. JAMES PADFIELD, District Superintendent of Common Schools, to the Municipal Council, at its Session October, 1849.

"The attention of the Teachers to their duties, their success in discharging them, and the progress of the pupils in the Common Schools generally throughout the District, this year, have been very satisfactory. In visiting the Schools I have frequently been gratified with the readiness and accuracy of the scholars in answering the questions put to them in the various studies in which they were engaged. In English Grammar, in Geography, and in Arithmetic, the progress is general, and highly creditable both to teachers and pupils. There is also great improvement in the other branches usually taught; and the friends of the young derive themselves of much pleasure by the infrequency of their visits to Common Schools, which cannot but be regarded as most valuable institutions, well worthy of the deep attention of the patriot and the philanthropist.

"The importance, indeed, of such an elementary course of instruction as is generally pursued in our Common Schools has of late been more duly appreciated than it was some years ago, though by no means sufficiently so yet. There are still too many who lose sight of the great advantages to be derived both by individuals, and by the community at large, from the instructions of the Common School, from securing a judicious selection of Teachers, and providing the necessary supply of books and other school requisites.

"But it is a great point gained to have awakened even so much attention as is now in exercise, to a subject so intimately connected with the well-being of society, as the right education of the rising generation, though much yet remains to be done on all sides for the furtherance of so important an end. Though a more generous outlay is needed on the part of parents and guardians of children; though a better class of Teachers than some of those now employed is desirable; and though a greater degree of attention to the proper construction of School Houses, and to the best modes of fitting them up and furnishing them with the apparatus necessary for the effective communication of instruction is absolutely necessary; yet much has been accomplished during the last three years, and there is promise of still further improvement in many parts of the District."

School Examination.—On Tuesday last, an examination of the Dundas Common School, under the tutorship of Mr. Calder, took place, in presence of P. Thornton, Esq., District Superintendent, and a few others. The number of scholars usually in attendance, we are told, ranges from 125 to 140; of these about 65 are well advanced in the principal branches of an English education, and the remaining portion in the juvenile departments. 30 are free. The class was submitted to a close examination by their teacher, and also by Mr. Thornton, at the close of which the latter expressed himself greatly pleased with the proceedings of the day.—[Dundas Warder.

School Examination.—On the 11th ult., the annual examination of the pupils attending the Orillia Common School, taught by Mr. E. Slee took place. The children were examined by the Trustees and Visitors of the School, and the result gave the highest satisfaction to the parties present.—[Barrie Magnet.

The Quarterly Examination of the School in Section No. 2 of McNab, was held at Burnstown, on Thursday last, the 1st inst., in presence of the parents and a number of visitors unconnected with the School. The appearance of the scholars was highly creditable to their Teacher, Mr. Joseph Warren, and to themselves. They were examined in Geography, Grammar, Reading, Composition, Arithmetic, and in the Greek and Latin Roots, and acquitted themselves to the satisfaction of every person present. It is really gratifying to see education making such progress in the back Townships, and to know that the efforts of a good and efficient Teacher are understood and appreciated.—[Bathurst Courier.

Opening of Knox's College.—Another Session of this valuable Institution was opened with an introductory Lecture from Dr. Willis, on Wednesday the 17th ult. The Lecture was characterized by the usual ability of the Rev. Professor—presenting a review of the subjects of study pursued in the College—defining their limits, and distinguishing their claims upon the regard of the Students. Useful hints were given for the proper prosecution of the varied studies, and the object of all study was pointed out—to fit the students for the service of God, in the Church of the world. Many of the Students were present, though a considerable number are still expected. Professors and students had met by the kindness of Providence, their ranks unbroken by disease or death. Several of the members of the Church, and other friends of the College were present at the interesting occasion.—[Globe.

A Teachers' Association has been formed in the Township of Dumfries, with the view of elevating the character of Common Schools. Quarterly meetings are to be held, open to the public, for the discussion of Educational questions.

UNITED STATES.

NATIONAL COMMON SCHOOL CONVENTION.

FIRST DAY.

Wednesday Oct. 17, 1849.

The National Convention of the friends of Universal Education commenced its Sessions at the Athenæum in Philadelphia, on Wednesday morning. Hon. Joseph R. Chandler presided over the preliminary organization, and afterwards the following gentlemen were chosen officers of the Convention:

President—Hon. Horace Mann, of Mass.

Vice-Presidents—Joseph Henry, of Washington; John Griscom of New Jersey; Samuel Lewis, of Ohio; Rt. Rev. Alonzo Potter, D.D. of Penna.; J. B. Duncan, of La.

Secretaries—Charles Northend, of Mass.; Pemberton Morriss, of Penna.; S. D. Hastings, of Wis.; S. Janner, of N. Y.

Hon. Horace Mann, on taking his seat as President, made the following remarks:—

He said that he owed his election to the State and people from which he came, rather than to himself; he therefore mingled their thanks with his own, for the honour which the Convention had conferred upon him. He saw before him many engaged in the conduct of public schools. They knew how grateful to them and how valuable was the interchange of sentiments with his co-labourers from other parts of the country. He enlarged upon the good that would accrue from such an exchange of experience. State Superintendents of Common Schools, Committees and Boards of Control, as well as Teachers, would derive from such Conventions great assistance from the knowledge they would thus acquire from each other with regard to the distribution of offices, management, &c., of scholars, character of studies, age of children for attendance at school, standards, &c. Others engaged in the advancement of objects of public benevolence had long been in the habit of thus acquiring aid from each other by association

with a view to the introduction of uniformity of system. Yet although Education was equally, if not more important than any of them, it had hitherto had no such aid. Such advantages would be invaluable to education; and to illustrate this the speaker gave examples. Such communion and such association would give to education body, shape and importance beyond what it now possesses, and at the same time would infuse a new life and a new enthusiasm to the great cause. He adjured the Convention, by every consideration which can operate on a philanthropist or a patriot, to save the thousands now sunk in ignorance from that ruin to which they are certainly devoted without educational care.

Letters from John Sergeant and Martin Van Buren, regretting their inability to be present, were also read by Mr. Chandler.

Bishop Potter stated that letters similar to these latter had been received from Hon. John C. Spencer, Hon. Edward Everett, Hon. George Bancroft, and Professor A. D. Bache.

EDUCATIONAL MATTERS.—The delegations present then made their reports on the state of Public Education in their respective States. The following is a summary of them:—

Delaware.—The School system had originated but a few years back, in the face of much opposition, but it had since overcome this, and was now prospering, increasing and advancing. Still there was much need of increasing interest, for there were some thousands of children in the State who had never crossed the threshold of a school house.

Louisiana.—For years education has suffered great depression in this State. Year after year it was found that the State had appropriated more money in proportion than any other State, and derived less benefit. At the last session of the Legislature, however, an efficient law had been passed, and an appropriation of half a million of dollars made to carry it into execution. A system of taxation for the support of the same was also provided. A State University was established, and \$85,000 appropriated for the erection of edifices for the same. Two of these had been finished, and the departments of Law and Medicine set in complete operation in them.

Maryland.—In Baltimore the school system is admirably organized, crowded and prosperous. A High School heads the system there. It contains 300 scholars. The thorough education of each pupil in these Public Schools costs \$25. To get the same education at private schools and academies, would cost \$1,000 for each pupil. In the rural districts of the State, schools are in a bad condition. The annual State appropriation is \$75,000. The Baltimore School Commissioners have exhausted their funds, and are unable to meet the demand for more schools. This prosperous system will be extended throughout the State. It is also intended to establish a Teachers' College.

Massachusetts.—From this State there were lengthy reports, embracing the history, organization, details, evils and improvements of the system there. We cannot pretend to give a tithe of the information communicated. Hon. H. Mann, on retiring from the office of Secretary of the Board of Control, had recommended that the Public Schools be made a branch of Government. This has been carried into effect. The schools have suffered much from unequal distribution of Scholars, but more from the character of the Teachers. To reform this evil, County and State Associations of Teachers, Manual labour and Idiot schools have been established.

New Jersey.—The Public School system was established in this State twenty years ago, but under it the same number of scholars attended the schools then as did six years ago. This act was owing to the imposition of the duties of the State Superintendent of the Public Schools upon the Secretary of the Commonwealth. The friends of education finding this an incubus upon the system, and upon all progress, made several successive efforts to get a bill through the Legislature, creating a separate office for the sole care of the Public Schools. After many failures, it finally passed, in such a way as to give the proposition a trial, by establishing a School Superintendent for two counties, the latter to pay the expense. The result was so highly satisfactory, that at the next session of the Legislature the State office was created. Since then the appropriations of the State have advanced from \$40,000 to \$100,000, and in proportion, the scholars have, in five years, increased from 42,000 to 96,000.

SECOND DAY.

Thursday, Oct. 18.

It was resolved to hold a Convention in Philadelphia in 1850, on the fourth Wednesday in August, to appoint a Committee of five to make arrangements for that Convention, and to appoint a Committee of five to draft a plan for the organization of a National Association.

The next topic, "School Architecture, including the location, size, modes of ventilation, warming and seating, &c of buildings intended for educational purposes," was referred to a Committee of three for deliberation and future report.

The subject of School Attendance—including the schooling of children

and the best modes of securing the regular and punctual attendance of children at school, was debated until 12 o'clock, when the special order of the day, which was the Resolution reported by the Business Committee, directing a Memorial to be addressed to Congress, asking the establishment of a bureau in the Home Department for the collection of educational information from the States of the Union, was taken up and adopted. The former topic was then resumed. During this discussion an interesting statement was made respecting the Evening Public Schools in Providence, R. I. They are in a very prosperous condition, and the pupils, among whom are some men from 21 years of age to 40, learn with the greatest avidity. An interesting report was made respecting the condition of Night Schools in New York, which now contain about 1,000 girls and 2,500 boys, and have been very successful. An incubus upon the system has been the imposition of the duty of teaching the Night Schools upon the Teachers of the Day Schools, without additional pay. The whole subject of School Attendance was finally referred to a Committee of three.

Prof. Henry of the Smithsonian Institute, gave an interesting statement of the condition and progress of that noble institution. He was followed by Mr. T. J. Robertson, Principal of the Normal School of U. Canada, who gave a brief detail of the state of Common Schools in Canada. The system there, commenced about six years ago, and numbers now between 3,000 and 4,000 schools. The organization is similar to that prevailing in the Northern States of the Union. Upper Canada from which Mr. R. came, is divided into school sections and districts. It embraces some important defects: but they are analogous to those from which many of our State school systems suffer. The Normal School has in some measure remedied those which arise from the want of capacity in the teachers.

Michigan.—Several delegates from Michigan, who were present for the first time at the Convention, narrated the condition and progress of Common Schools in that State. They said that a constant increase of schools, scholars, districts, &c. had taken place there year after year. At present there are 90,000 pupils attending the schools, which are taught by 1,430 male and 2,436 female teachers. There are 345 Township libraries, containing 38,308 volumes which shows a great increase. The delegates however complained of the apathy manifested by parents. The Legislature has authorized the establishment of a Normal School and a State Board of Education. The system is supported by taxation.

Mr. Duncan, of La., offered a resolution recognizing the Smithsonian Institute as a great and efficient aid in the increase and diffusion of useful knowledge. Adopted.

The subject of the various grades of schools was then taken up and discussed. One of the points of inquiry was as to the 'Intermediate Schools' which are a grade between the Primary and Grammar Schools. The grades in Philadelphia and their classification were also detailed by Prof. Hart.

Many of the speakers complimented in the highest terms, the efficiency of female teachers to public schools, and denounced in severe terms, the inadequate salaries they received. Finally, the subject of grades of schools was referred to a committee of three, to report on at the next Annual Convention.

The subject of the course of instruction was then considered for a short time, and then that portion relative to books and apparatus was postponed indefinitely.

In the course of the session the following committees were appointed:—
To Organize a National Association.—J. R. Chandler, Pa.; J. S. Sutherland, Pa.; Samuel Lewis, Cincinnati; Alexander Dimitry, N. O.; Thos. H. Benson, Iowa; Rev. J. N. McJilton.

On School Architecture.—Hon. H. Barnard, Conn.; G. B. Duncan, La.; E. R. Porter, R. I.

On School Attendance.—N. R. Bishop, R. I.; W. D. Swan, Mass.; H. H. Barney, Ohio; Dr. Monmonier, Baltimore.

THIRD AND LAST DAY.

Friday Oct. 19.

The Chairman announced the appointment of the following Committees:
On the Territorial or Civil Subdivisions of the State and Supervision.—Hon. H. Barnard of Conn.; Mr. Sherman of Mich.; Thos. H. Benton, Jr. of Iowa; Samuel Stephens of Pittsburg; Mr. Holbrook of Rochester.

On Night Schools.—Prof. John S. Hart; Charles Northend Mass.; Mr. McKeen of N. Y.; T. F. King, N. J.; J. J. Barclay, Philadelphia.

Committee to Correspond with the Committee of Arrangements.—Norman Pinney, Ala.; W. B. Butts, Ark.; H. Barnard Conn.; Judge Hall, Del.; Rt. Rev. Bishop Elliott, Georgia; J. J. Wright Ill.; Thomas H. Benton, Jr., Iowa; Hon. A. Kennedy, Ind.; R. J. Breckenridge, Ky.; Joshua Baldwin, La.; J. H. Latrobe, Md.; W. G. Crosby, Me.; W. B. Fowler, Mass.; Mr. Minor, Mo.; Samuel Newberry, Mich.; Judge Tatcher, Miss.; Governor Morehead; Professor Paddock, N. H.; Theo. F. King, N. J.; Chris. Morgan, N. Y.; Samuel Galloway, Ohio; Thomas H. Burrows, Penn.; E. R. Potter, R. I.; Judge Huger, S. Carolina; Prof. Lindsey, Ten; Gen. Henderson, Texas; Governor James McDowell, Va.; Gov. H. Eaton; Vt.; Rev. A. C. Barry, Wis.; Governor A. Ramsey, Minnesota.

On Instruction and Training.—Messrs. Hammill, N. J.; A. T. W. Wright, Phil.; Liberty Hall, Me.; J. N. McElligot, N. Y.; T. J. Robertson, Canada.

The following resolution offered by Bishop Potter was adopted:—

Resolved.—That the great and invidious inequality in the compensation paid to male and female teachers for like services, is a subject which claims the immediate and earnest attention of the friends and patrons of education.

The following offered by Hon. Mr. Duncan was also passed:—

Resolved.—That in the opinion of this Convention a just economy in the employment of teachers or either sex, in any branch of instruction, is not promoted by giving the rate of compensation at a sum below a just and adequate recompense, and such as will command the best talents of the country in the cause of public instruction.

The following resolution offered by Mr. Pierce was adopted:—

Resolved.—That a Committee of three be appointed by the chair, to report to the next meeting of the Convention, on the relations of ignorance to crime, and the comparative cost of crime and education.

The chair appointed the following committee on the above resolution:—O. B. Pierce, Gov. H. Eaton and John S. Ketchum.

The subject of teachers and their qualifications, &c. was referred to the appropriate Committee.

The following resolution was also adopted:—

Resolved.—That a Committee of five be appointed to report upon the method of raising the necessary funds for the support of Common Schools, whether by a direct tax upon property, by an assessment upon parents, by a State school fund, or by a combination of two or more of these methods, and also to report how far Common Schools should be supported by legal provisions. And that the said Committee include in their reports a statement of the cost of Public Literary Instruction in the various States of the Union, and suggest also the best mode in their opinion of rendering the expenditure of money for educational purposes the most effective.

The Chair appointed the above Committee as follows: Mr. Cook of N. J.; Hon. Joel B. Sutherland, Philadelphia; T. F. Chase, Philadelphia.

The subjects of parental and public interest, and supplementary means of instruction were referred to the following Committee: Prof. James B. Miners of Va.; Rev. D. Kimball of Mass.; Lyman Cobb, N. Y.; John A. Warder, Ohio; and J. N. McElligot, N. Y.

Hon. Joseph R. Chandler, with some well conceived preparatory remarks, offered a resolution acknowledging the excellent and highly important services rendered by Hon. Horace Mann, both at his post in Massachusetts, and President of the Convention. It was carried by acclamation by three rounds of applause. A resolution was also passed complimenting the Vice-Presidents and Secretaries for their services.

The President, in a speech which was listened to with deep interest, returned his acknowledgements for the honour done him, and the Convention then adjourned *sine die*.—[Phil. North American.

BRITISH AND FOREIGN.

The School of Design in Dublin.—The Government School of Design, in connection with the Royal Dublin Society, commenced operations on Monday last, the 1st inst. The Figure and Ornamental School is open every morning from 9 to 12 o'clock, and the Modelling and Architectural Schools, every evening from 7 to 10 o'clock, Saturdays excepted. An Elementary Class of Practical Geometry and Perspective, meets every Friday morning and evening; and there are morning classes for the day from 9 to 12 o'clock, in which instruction is given in Elementary, Ornament, Flowers and Plants, Landscape, Etching, and Painting in Water Colour. The admission fee is only 2s. 6d. per quarter; and annual subscribers of one pound per annum have the privilege of sending a free pupil to the Schools.—[Dublin Advocate.

School of Design in Cork.—The contractors, Messrs. Ormond and Murphy, have a number of tradesmen employed making the necessary alterations and improvements in the Royal Cork Constitution, to adapt a portion of it to the purposes of the School of Design.—[Nova Scotian.

Universities.—Among the rumours of the day are some which relate to the probable extension of the University system, in connexion with the Established Church. Instead of throwing open Cambridge and Oxford to students of all religious denominations, St. Bees, in Cumberland, is, it is said, to be invested with the power to grant degrees; and Birkenhead, according to the *Liverpool Standard*, is the chosen site of a new University, towards the erection of which the Archbishop of Canterbury, the Marquis of Westminster, and Lord Robert Grosvenor, have each contributed £1,000.—[Leeds Mercury.

Oxford University Museum.—A site has been chosen at Oxford for the erection of a new University Museum, which is expected to cost more than £50,000, of which part will be raised by subscription, and the remainder will be supplied from the University chest.

JOURNAL OF EDUCATION.

TORONTO, NOVEMBER, 1849.

RELATIONS OF GRAMMAR SCHOOLS TO COMMON SCHOOLS AND COLLEGES.

To the appropriate functions of our District Grammar Schools attention was drawn by the writer of these remarks early in 1846, in his *Report on a system of Public Elementary Instruction for Upper Canada*, pp. 9, 149—156. We know not that we can better introduce some practical observations on the relations of District Grammar Schools, than in the words which we employed upwards of three years since:—

“The basis of an educational structure adapted to this end should be as broad as the population of the country; and its loftiest elevation should equal the highest demands of the learned professions, adapting its gradation of schools to the wants of the several classes of the community, and to their respective employments or professions, the one rising above the other—yet each complete in itself for the degree of education it imparts; a character of uniformity as to fundamental principles pervading the whole: the whole based upon the principles of Christianity, and uniting the combined influence and support of the Government and the people.”

Then, in the *Second Part* of the Report, after having explained and illustrated by references to European countries the kind and character of the gradations of schools required for carrying into operation the system of instruction indicated in the words just quoted, the following observations occur:

“Under this view the same principles and spirit would pervade the entire system, from the Primary Schools up to the University; the basis of education in the Elementary Schools would be the same for the whole community—at least so far as public or governmental provisions and regulations are concerned—not interfering with private Schools or taking them into the account; but as soon as the pupils would advance to the limits of the instruction provided for all, then those whose parents or guardians could no longer dispense with their services, would enter life with a sound elementary education; those whose parents might be able and disposed would proceed, some to the Real School to prepare for the business of a farmer, an architect, an engineer, a manufacturer, or mechanic, others to the Grammar School to prepare for the University, and the Professions.

In the carrying out and completion of such a system, the courses of instruction in each class of Schools would be prescribed, as also the qualifications for admission into each of them, above the Primary Schools: each School would occupy its appropriate place, and each Teacher would have his appropriate work; and no one man in the same School, and on one and the same day, would be found making the absurd and abortive attempts of teaching the a, b, c's, reading, spelling, writing, arithmetic, grammar, geography, (in all their gradations,) together with Latin, Greek, and Mathematics.

I think it is true in the business of teaching, as well as in every other department of human industry, that where there is a suitable division of labour, each labourer is more likely to become more thoroughly master of his work, and imbued with the spirit of it, than where his time and attention and energies are divided among a nameless variety of objects; and as the example of England may be appealed to in proof of the almost miracles which may be performed in regard both to the amount and qualities of manufactures, by a skilful division and application of labour, so may the examples of other countries of Europe be adduced in illustration of what may be achieved as to both the cheapness, the thoroughness, the various practical character, and this general diffusion of education, by a proper classification of Schools and Teachers, their appropriate training and selection by competition, together with an efficient system of inspection over every class of Schools,—the latter being the chief instrument of the wonderful improvement in the Holland system of Public Instruction.

The full development of such a system of Schools, is not the work of a day; but I hope the day is not distant when its essential features will be seen in our own system of public instruction, and when its unnumbered advantages will begin to be enjoyed by the Canadian people.”

It is to the topics referred to in the passages which we have italicised, that we desire at the present time to call attention.

The District Grammar Schools were clearly intended to occupy an intermediate position between the Common Schools and Colleges. Their object is distinct and peculiar; and so should be their organization. They are the first of the three stages in a system of

liberal studies. As the College prepares for professional studies, so does the Grammar School prepare for the Colleges. Ought not the organization and system of instruction in the Grammar Schools to have reference to the Colleges to which they are intended to be introductory? Or should they be suffered to remain a compound of every thing? Do not the interests of classical learning require the existence and endowment of separate schools for that purpose? Is not such the object of the District Grammar Schools? As they are partially endowed for that object, ought they not to be made efficient for its accomplishment to as great an extent as possible? Can that be the case as long as Grammar Schools are allowed to teach everything that is taught in the Common Schools? Are not the subjects peculiar to a Grammar School ample to occupy the time and employ the energies of any one man? The eyes of an Argus and the arms of a Briareus would hardly suffice for the double duties of a Common School Teacher and a Grammar School Teacher. The Rev. Dr. G. W. BETHUNE, of Philadelphia, in a recent address before a literary society of HARVARD COLLEGE, Mass., speaks of an “omnigenous competition which is equally ready at inventing a cooking-stove on an ethical system, and will take to the pulpit, the bar, a professor's chair, a seat in the Senate, or the Presidency of the United States, if only sure that the emoluments of the new speculation will only exceed those of a quack-medicine, a peddling-wagon, or a singing school.” Some such “omnigenous” powers seem to be ascribed to the master of a Grammar School, when, in addition to teaching Latin, Greek and Mathematics, he undertakes to teach all the branches of an English Education. The result of such an attempt must be, that no branch will be effectually taught. Those who send their children to the school either to acquire an English education or the elements of Classical learning, will be alike disappointed; both classes of children will sustain irreparable injury; and the design of the Legislature in endowing the Grammar School will, in a great measure, be defeated. The Common School in the neighbourhood of such Grammar School will also suffer corresponding injury—a considerable portion of its legitimate support being diverted from it by the rival competition of the Grammar School! Surely it never could have been intended that Grammar Schools should occupy the same ground as Common Schools—should compete with them; thus lowering the character and impairing the efficiency of both the Grammar and the neighbouring Common Schools. It is the bearing of this question on the interests of Common Schools that has induced us to depart in this instance from our usual course, to discuss matters relating to any class of seminaries in the Province not managed under the provisions of the Common School law. We venture then to suggest,

1. Whether a formal and thorough inquiry (by Commission or otherwise) into the state and character of the District Grammar Schools in Upper Canada ought not to be instituted. The facts that notwithstanding the existence of from 30 to 40 of these Grammar Schools in Upper Canada—of there being no less than 60 Grammar School scholarships established in the Provincial University—of the University being munificently endowed and provided with able Professors, and yet only eight students matriculating at the last Annual Convocation—a smaller number than annually enters the youngest of the Colleges in the newest States of the neighbouring Republic;—these facts, it appears to us, are quite sufficient to justify, if not demand, the most careful inquiry into the working of that class of schools on whose contributions the University depends for its numerical efficiency, as well as great numbers of youth for a sound elementary Classical education.

2. Whether a course of studies and general rules of discipline should not be prepared and prescribed for the Grammar Schools,—

fixing a standard below which pupils should not be admitted; thus stamping upon the Grammar Schools uniformity and definiteness of character, making them efficient in promoting the objects of their establishment, and preventing them in any instance, from the useless, if not worse than useless attempt of teaching a multitude of things imperfectly instead of teaching a few things efficiently.

3. Whether a thorough system of governmental inspection ought not to be established and exercised over the Grammar Schools, as well as over Common Schools.

We are far from intimating an opinion that there are no efficient Grammar Schools in the Province, even under the present system, or rather absence of all system. We believe there are several instances in which separate apartments for different classes of pupils are provided and assistants employed to teach the English branches. But we apprehend such examples are rather exceptions to the general rule, than the rule itself. We think the general rule is, whether there be an assistant or not, to admit pupils of both sexes, and of all ages and attainments, from a, b, c, upwards, into schools which ought to occupy a position distinct from, and superior to that of the Common Schools. Equally far be it from us to intimate, that there is any deficiency of qualifications on the part of masters of Grammar Schools. But we doubt not that they will be the first to feel how much the efficiency and pleasures of their duties will be advanced by the introduction of a proper and uniform system, as they will be the first to confess, *non omnia possumus omnes*.

SCHOOLS FREE FOR ALL IN THE STATE OF NEW-YORK.

We experience the most intense pleasure in stating, that by a ballot vote of the people of the State of New-York, given throughout the whole State on the *sixth of this month*, COMMON SCHOOLS ARE DECLARED FREE TO EVERY CHILD IN THE STATE! A short Bill passed the State Legislature at its last session for the establishment of *Free Schools* in every part of the State, leaving the carrying of it into effect to be determined by a ballot vote of the people to be given at the time of their November Elections of State officers. That vote has been cast in favour of Free Schools. The gross misrepresentation and unmeasured abuse with which the avowal of our sentiments on this subject was received by a portion of the Canadian press, is infinitely more than compensated by the noble and patriotic triumph of the Free School principle among the citizens of the great State adjoining us—though we deeply lament the injury which has been inflicted upon hundreds and thousands of poor Canadian children in our Cities and Towns by the opposition to which we refer: for had the example of the liberal press in the State of New-York been imitated by all that press in Canada, we doubt not the Free School system would now be in operation in every one of our Cities and Towns, as it is in two or three instances. But while Canada has been doomed to these drawbacks upon the educational interests of the youth of her principal cities, we rejoice to know that a spirit of candour, progress and patriotism has been evinced in many portions of the Province; and we think all friends of universal education among us may derive fresh encouragement from what has just transpired in the State of New-York, to labour and hope for speedy corresponding results in our own beloved country. Able American Educationists have expressed their belief, that as much progress has been in the Common School system in Upper Canada during the last two years as had taken place in ten years in the State of New-York itself; we believe the elements of our intellectual and social advancement are only begun to be developed, if not arrested by retrograde movements; and we cannot endure that a humiliating contrast should begin again to appear between the educational progress of New-York and Canada. We believe no American citizen experiences more real, heart-felt and unspeakable delight than we do at the sublime moral demonstration which the sixth of this month presented in the State of New-York, when an over-

whelming majority of the fathers and grown-up sons of the people were seen wending their way to the places of election, to deposit their golden declaration that there *shall henceforth be no monopoly of knowledge*—that mental culture is the birth-right of every child in the land—and the light of education shall be as free as the light of heaven. Every such ballot was a legacy of priceless blessings to posterity. We rejoice in being permitted to bear some little part in this great contest—some twenty thousand copies of the *Address to the People of Upper Canada on Free Schools* (published in the first number of the present volume of this Journal), having been printed and distributed in the State of New York during the month previous to the election; and we hail the result not only as a higher than the highest military honour to the citizen voters themselves, but as the perennial source of prosperity to their country, and the electrical messenger of salutary influences to other countries.

We subjoin the following paragraphs from a New York paper, in order to connect, in appropriate terms, with the record of this great achievement, the mention of a name which bore a distinguished part in hastening its consummation:—

"In recording the sanction, by a vast majority of the people of the Commonwealth, to the opening of the doors of every Common School in the State, we chronicle the triumph of a struggle which has been carried on for half a century. In this simple labour, now accomplished, how much patriotism and earnest talent has been enlisted! How many of the earnest wishers for the full recognition of the truths—that education, like the natural light, should be free to all and that the stability of the country depends upon the knowledge of its people—have gone down to their graves well nigh disheartened at the prolonged resistance of slow belief. It has not, then, been the work of one man to place upon its true basis the Educational System of the State, and the great glory which would attach to any benefactor who single handed, originated and carried it to completion, must be divided among many honorable names in the van, and be shared by every one enrolled among the humble co-operators.

"But there is no reason why, because we are unable to distinctly assign to each his share of the honour of the first efforts to enfranchise popular education, that we should overlook one who may rightly be regarded as having brought the cause of free instruction to its eventual triumph. The Hon. CHRISTOPHER MORGAN has been the agent of this final work. Since his introduction into office, he has exercised all the duties of his ample field of labour well, but pre-eminent ability has distinguished, above all previous Superintendents, his supervision of the Common School system of the State. His vigilance has quickened the whole machine, and it has been remarked that at no time since the organization of the half-way free schools of the old regime, have they been so efficient as for the last two years. The errors and abuses which had gradually crept into management in some portions of the State, have been detected and reformed. It is the mark of a nobly great mind, that while its vigilance can take in every part of a great system and watch over the most minute of its operations, at the same time it is never overwhelmed by their administrative duties, but, comprehending the true aim of the whole, can see its great errors, and plan and carry out all useful changes. While Mr. MORGAN was labouring assiduously in his supervisory capacity over 10,000 School Districts, hearing personally all appeals and settling all the nice questions which are ever arising from ignorance or avarice, he never for an instant, seems to have lost sight of the great truth, that the Public Schools were only half free schools, and that the best way to prevent the errors of mismanagement from their anomalous character, as well as to attain the higher good, was to make them free at all points. He has laboured earnestly and well to make a reality, what some of his predecessors were content to regard only as a pleasant vision to be attainable in the next century.

"To Mr. MORGAN we are indebted for the framing of the school bill, and for its earnest pressure upon the attention of the Legislature, without which, unfortunately, the best of measures may be overlooked. But he was determined that the people at least, should have an opportunity of expressing their views directly on the Free School question, and he has been nobly sustained in his belief that they were prepared for the great measure, by the overwhelming vote just cast in the affirmative.

"The organic reform in our school system, contemplates and involves great minor changes, and will demand signal wisdom in devising and maturing its details. Next to the popular approval of the reform, the friends of popular education will regard, as a great gain in the cause, the re-election of Mr. MORGAN. We are now sure that our hopes will no longer be deferred. We are sure that in throwing open the School house doors to all, "without money and without price," it will be a privilege which will be worthy of a State to give and a people to accept. That the Free Schools of the next decade of this century will have a rank for the scope of its means of instruction, the character of its ministers, and the possession of all the requisites of advanced civilization, we are now assured by the election of Mr. MORGAN."

RELIGIOUS INSTRUCTION IN THE CHIEF STATE UNIVERSITY COLLEGE OF MASSACHUSETTS.—In the Address which the Governor (Briggs) of Massachusetts, on the 29th of last June, made to Dr. JARED SPARKS, in presenting to him, according to law, the seal and keys of HARVARD UNIVERSITY, as President of that Institution, we have the following remarks on the subject of religious instruction in the University:

"An opinion exists to some extent in the community, that, in the various departments of education in this country, the moral training of the pupil is too much neglected. If such an error prevails, it ought to be corrected. The importance of moral instruction cannot be over-stated. The heart is the fountain of motive, and the wise man enjoins that it should be "kept with all diligence, for out of it are the issues of life." Christianity is the only rock upon which the character of man can be built with safety. I am sure, Sir, that its hopes and its principles, that its beautiful and sublime precepts, as illustrated in the wise teachings and in the spotless life of its Divine Author, will be leading topics of the instructions which the youth committed to your charge will daily receive from your lips.

For more than two hundred years the people of Massachusetts have respected and cherished this first-born literary institution of the New World. In the constitution of the Commonwealth, they say it was founded by 'wise and pious men,' and ratify its legal existence.

The truth of your character is to them a pledge, that all the powers of your mind and heart will be devoted to a faithful and impartial administration of its affairs, and to the advancement of good learning and science; that you, as the executive officer of the College, will maintain a discipline that will win the affections of these young gentlemen and their successors, and that will secure obedience to its laws; that all party politics will be avoided, and the only governmental doctrines inculcated will be the great principles of constitutional liberty; and that, discarding all sectarianism in religion, the theology taught will be the simple truths of revelation, as written in letters of living light on the pages of the Bible."

PRESIDENT SPARKS, in reply to this part of GOVERNOR BRIGGS' inaugurating address, observes as follows:

"When your Excellency speaks of the importance of a moral and religious education, your words meet with a cordial response from every friend of youth, nay, from every friend of mankind. The principles, the vital truths, the practical rules of life, taught in the Divine Word, the doctrines and precepts of the Saviour revealed from heaven to illumine, cheer, and save a dark and erring world, should be made in every institution of learning the cardinal elements from which all other instruction should spring. The religion set forth in the Gospel of Christ inculcates love to God and man; it exhorts us to reverence our Maker and obey his laws, to search for the truth with honest hearts, and to build our faith upon honest conviction; it enjoins charity, forbearance, goodwill; it teaches men to live together as brethren, to think for themselves, but to act for the good of others, to avoid names, divisions, discords, and to strive for peace, amity, union; and it opens to us the certainty of an immortal world, where the acts and motives of men will be weighed in an equal balance, and where the awards will be meted out by a just and merciful Judge. May this religion be taught here in its purifying efficacy, felt alike by those who teach and those who learn; may it be taught and felt everywhere, in the temples of God, in the busy throngs of men, and in the quiet repose of the fireside, till the whole human family, children of one common Father, shall learn the lesson of universal love, and join as with one voice in hymns of praise and adoration!"

ESTIMATE OF COMMON SCHOOLS AS WELL AS COLLEGES, BY THE GOVERNORS AND SCHOLARS OF NEW ENGLAND.—The GOVERNOR OF MASSACHUSETTS, in inducting Dr. JARED SPARKS into the office of President of Harvard University, a few months since, made the following reference to Common Schools:

"Not doubting that the colleges of the Commonwealth always feel an interest in the success of her common schools, I may be

allowed to suggest that more practical demonstrations of that interest, and the manifestation of a desire for their advancement, in all suitable ways, would greatly tend to promote the prosperity of both these essential departments of education.

The mass of our children and youth must begin and finish their education in the district school house. There the children of the poor, mingling with the children of the rich, must gather the treasures of knowledge. Our system of free schools is one of the richest fruits of the Gospel, which upon its introduction into the world, was preached to the poor. They are the natural nurseries of the colleges.

Let the free schools in all our towns be competent to fit their pupils for college, and our colleges will be always full. The interests of the two institutions are identical. Both should be ardently loved and cherished by all who love their country, liberty, and their race."

PRESIDENT SPARKS replies to the Governor in the following golden words:

"Your Excellency has mentioned the common schools, and the intimate relation between them and the colleges. Here, permit me to say, you have touched a chord, whose vibrations I would neither resist nor disguise. Many of my earliest and dearest associations are centred within the narrow walls of the school-room. Nurtured during my childhood and youth in the common schools of New England, and for six winters a teacher of a common school, I have reason to be grateful for the benefits derived from them, in forming both my mind and character. Nor is it too much to say, that, for such of the qualifications as I may possess for understanding and discharging some of the most important duties of the station in which I am now placed, I have been more indebted to the seeds planted in the common schools, and to the experience which strengthened their growth, than to the latter instruction and discipline of a college. But they are both necessary to a well-ordered, prosperous community,—columns of the same temple, administering mutual and needful support. They both claim the fostering care and substantial aid of an enlightened public, and the earnest good wishes of every citizen, every patriot, who would see the glory and happiness of his country resting on the durable foundation of virtue upheld by knowledge, high intellectual culture, and a wide-spread intelligence."

Miscellaneous.

SPHERE OF HUMAN INFLUENCE.

BY THE REV. THOMAS HILL.

Charles Babbage, in his "Ninth Bridgewater Treatise," has a chapter concerning the permanent impression of our words upon the air,—a chapter which none have ever read without a thrill of mingled admiration and fear: and which closes with an eloquence that is worthy the lips of an orator, though coming from a mathematician's pen.

Would that Babbage had touched, in his fragmentary treatise, upon some of the inferences which may be drawn from the Newtonian law of gravity,—inferences which would probably have been as new to most of his readers, as those which he, with so much acuteness, draws from the law of the equality of action and reaction.

The motion of which Babbage speaks, in the chapter to which we refer, is undulatory, communicated by impulse, and requiring time for its transmission; and the startling result of his reasoning comes from the never-dying character of the motion, keeping forever a record of our words in the atmosphere itself; always audible to a finer sense than ours; reserved against the day of account, when perchance our own ears may be quickened to hear our own words wringing in the air.

But motion is not only enduring through all time, it is simultaneous throughout all space. The apple that falls from the tree is met by the earth; not half way, but at a distance fitly proportioned to their respective masses. The moon follows the movement of the earth with instant obedience, and the sun with prompt humility bends his course to theirs. The sister planets with their moons are moved by sympathy with the earth, and the stars and most distant clusters of the universe obey the leading of the sun.

Thus, throughout all the fields of space, wherever stars or suns are scattered, they move for the falling apple's sake. Nor is the motion slowly taken up. The moon waits for no tardy moving impulse from the earth, but constantly obeys. The speed of light reaching the sun in a few seconds, would be too slow to compare with this. Electricity itself, coursing round the earth a thousand times an hour, can give us no conception of the perfectly simultaneous motions of gravity. There are stars visible to the telescopic eye, whose light has been ages on its swift-winged course before it reached this distant part of space, but they move in instant accordance with the falling fruit.

True it is, that our senses refuse to bear witness to any motion other than the apple's fall, and our fingers tire if we attempt to untie the long list of figures, which our Arabic notation requires to express the movement thereby given to the sun. Yet that motion can be proved to exist, and the algebraist's formula can represent its quantity. The position of every particle of matter at every instant of time, past, present, or to come, has been written in one short sentence which any man can read. And as each man can understand more or less of this formula of motion, according to his ability and his acquaintance with mathematical learning, so we may conceive of intelligent beings, whose faculties are very far short of infinite perfection, who can read, in that sentence, the motions not only of the sun, but of all bodies which our senses reveal to us. Nay, if the mind of Newton has advanced in power since he entered heaven with a speed at all proportioned to his intellectual growth on earth, perhaps even he could now with great ease assign to every star in the wide universe of God, the motion which it received from the fall of that apple which led him to his immortal discoveries.

Every moving thing on the earth, from the least to the greatest, is accompanied in its motion by all the heavenly spheres. The rolling planets influence each other on their path, and each is influenced by the changes on its surface. The starry systems, wheeling round their unknown centre, move in harmony with each other's courses and each is moved by the planets which accompany it in its mighty dance. Thus does this law of motion bind all material bodies in one well-balanced system wherein not one particle can move, but all the uncounted series of worlds and suns must simultaneously move with it.

Thus may every deed on earth be instantly known in the farthest star, whose light, travelling with almost unbounded speed since creation's dawn, has not yet reached our eyes. It only needs, in that star, a sense quick enough to perceive the motion, infinitely too small for human sense, and an analysis far reaching enough to trace that motion to its cause. The cloud of witnesses that ever encompass this area of our mortal life, may need no near approach to earthly scenes, that they may scan our conduct. As they journey from star to star and roam through the unlimited glories of creation, they may read in the motions of the heavens about them the ever faithful report of the deeds of men.

This sympathetic movement of the planets, like the mechanical impulse given by our words to the air, is ever during.

The astronomer, from the present motion of the comet, learns all its former path, traces it back on its long round of many years, shows you when and where it was disturbed in its course by planets, and points out to you the altered movement which it assumed from the interference of bodies unknown by any other means to human science. He needs only a more subtle analysis and a wider grasp of mind to do for the planets and the stars what he has done for the comet. Nay, it were a task easily done by a spirit less than infinite, to read in the present motion of any one star the past motions of every star in the universe, and thus of every planet that wheels round those stars, and of every moving thing upon those planets.

Thus considered, how strange a record does the star-gemmed vesture of the night present! There, in the seemingly fixed order of those blazing sapphires, is a living dance, in whose track is written the record of all the motions that ever man or nature made. Had we the skill to read it, we should there find written every deed of kindness, every deed of guilt, together with the fall of the landslide, the play of the fountain, the sporting of the lamb, and the waving of the grass. Nay, when we behold the superhuman powers of calculation exhibited sometimes by sickly children long before they reach man's age, may we not believe that

man, when hereafter freed from the load of this mortal clay, may be able, in the movement of the planets or the sun, to read the errors of his own past life?

Thou who hast raised thy hand to do a deed of wickedness, stay thine arm! The universe will be witness of thine act, and bear an everlasting testimony against thee; for every star in the remotest heavens will move when thy hand moves, and all the fearful prayers thy soul can utter will never restore those moving orbs to the path from which thy deed has drawn them.

THE SUBLIME SOLITUDE OF NATURE.

To go into solitude, a man needs to retire as much from his chamber as from society. I am not solitary whilst I read and write, though nobody is with me. But if a man would be alone, let him look at the stars. The rays that come from those heavenly worlds will separate between him and vulgar things. One might think that the atmosphere was made transparent with this design, to give man in the heavenly bodies the perpetual presence of the sublime. Seen in the streets of cities, how great they are! If the stars should appear one night in a thousand years, how would men believe and adore; and preserve for many generations the remembrance of the city of God which had been shown! But every night come out those preachers of beauty, and light the universe with their admonishing smile. The stars awaken a certain reverence, because though always present, they are always inaccessible; but all natural objects make a kindred impression, when the mind is open to their influence. Nature never wears a mean appearance. Neither does the wisest man extort all her secret, and lose his curiosity by finding out all her perfection.—Nature never became a toy to a wise spirit. The flowers, the animals, the mountains, reflected all the wisdom of his best hour, as much as they had delighted the simplicity of his childhood.—When we speak of nature in this manner, we have a distinct but most poetical sense in the mind. We mean the integrity of impression made by manifold natural objects. It is this which distinguishes the stick of timber of the woodcutter from the tree of the poet. The charming landscape which I saw this morning, is indubitably made up of some twenty or thirty farms. Miller owns this field, Locke that, and Manning the woodland beyond. But none of them owns the landscape. There is a property in the horizon which is no man's but he who can interrogate all the parts, that is, the poet. This is the best of these men's farms, yet to this their land-deeds give them no title.—*R. W. Emerson.*

HOW TO MAKE HOME HAPPY.

1. Each one in the family circle must cultivate a benevolent spirit, a disposition to make the rest happy.
2. Everything tending in the least to irritate or mar each others happiness must be strictly avoided.
3. Each must have a forbearing spirit,—“Bear ye one another's burdens, and so fulfill the law of Christ.”
4. Great patience and meekness are requisite.
5. A forgiving spirit. Each one should be not only ready to forgive, when required, but to ask forgiveness.
6. Cultivate an open, frank, cheerful, communicative spirit.
7. Each member, in the home circle, should be familiar with every relative duty, and perform it faithfully, cheerfully, and with alacrity.
8. Finally, let the love of God pervade the soul, without which it is impossible to enjoy that exalted happiness, which the family relation is calculated to bestow.

A MOTHER'S LOVE.—There is so divine a holiness in the love of a mother, that, no matter how the tie that binds her to the child was formed, she becomes, as it were, concentrated and sacred; and the past is forgotten, and the world and its harsh verdicts, swept away when that love alone is visible; and the God who watches over the little one, sheds his smile over the human deputy in whose tenderness there breathes his own!—*Anon.*

ALL IS NOT GOLD THAT GLITTERS.—The rose of Florida, the most beautiful of flowers, emits no fragrance; the bird of paradise, the most beautiful of birds, elicits no song; the cypress of Greece, the finest of trees, yields no fruit.

INDUSTRY AND GENIUS.—There are many teachers who profess to show the nearest way to excellence; and many expedients have been invented by which the toil of study might be saved.—But let no man be seduced to idleness by specious promises. Excellence is never granted to man but as the reward of labour. It argues, indeed, no small strength of mind to persevere in habits of industry without the pleasure of perceiving those advances which, like the hand of a clock, whilst they make hourly approaches to their point, yet proceed so slowly as to escape observation. There is one precept, however, in which I shall only be opposed by the vain, the ignorant, and the idle. I am not afraid that I shall repeat it too often. You must have no dependence on your own genius. If you have great talents, industry will improve them; if you have but moderate abilities, industry will supply their deficiency.—Nothing is denied to well-directed labour; nothing is to be obtained without it.—*Sir Joshua Reynolds.*

FEMALE TEMPER.—No trait of character is more valuable in a female than the possession of a sweet temper. Home can never be made happy without it. It is like the flowers that spring up in our pathway, reviving and cheering us. Let a man go home at night wearied and worn out with the toils of the day, and how soothing is a word dictated by a good disposition! It is sunshine falling on his heart. He is happy, and the cares of life are forgotten.—*Mrs. Ellis.*

THE LOVE OF FLOWERS is beautiful in the young, beautiful in the aged. It speaks simplicity, purity, delicate taste, and an innate love of nature. And long may flowers bloom in the homes of our people—in their parlour-windows, in their one-roomed cottages, in their attics, in their cellar dwellings even. We have hope for the hearts that love flowers, and the country of which they were born.

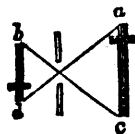
COMPLETE EDUCATION: FACT VERSUS THEORY.—Theorists may talk or dream of a complete education; there is no such thing in reality. Life itself is a school in which every man learns till his waning glass runs out. Experience teaches more than the College; the daily wonders of nature and the stirring world more than books.

PRACTICAL SCIENCE—OPTICS.

[For many of the following remarks, as well as for the illustrations, we shall be indebted again to *Parker's Natural and Experimental Philosophy*—the valuable school book to which we have frequently referred. We shall also, as heretofore, avail ourselves of other sources of information.]

In our remarks under this head last month, we introduced many preliminary definitions, and several illustrations, respecting the properties of light, its laws of motion, reflection and refraction. The uninitiated reader should refresh his mind with what we have already said, in order to appreciate some of the references which follow.

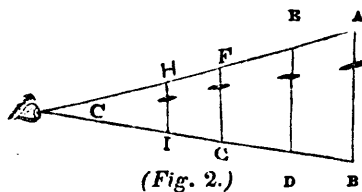
1. As light always moves in straight lines, when its rays proceeding from any object, enter a small aperture, they cross one another and form an inverted image of that object. Thus in Fig. 1, the rays from the object, *a c*, entering an aperture, the ray *a* passes in a straight line through the aperture to *d*, and the ray from *c* passes to *b*; and thus these rays, crossing at the aperture, form an inverted image on the wall. The room in which this experiment is made must be darkened; and no light must be permitted to enter it except through the aperture. It then becomes a *camera obscura*—



(Fig. 1.)

words which signify a *darkened chamber*. Should we have room, we may show that the *camera obscura* is constructed on the principle, and is but a poor imitation of that wonderful organ of vision—the *human eye*. If a convex lens be placed in the aperture (as is the case in the human eye) an inverted picture, not only of a single object, but of the entire landscape will be found on the wall.

2. We have explained and illustrated what is meant by the term *angle*; and we here remark that the *angle of vision* is the angle formed at the eye by lines drawn from the opposite sides of an object.



(Fig. 2.)

Thus the angle *C*, in Fig. 2, represents the angle of vision formed by the meeting of the lines *A C* and *B C*, from the extremities of the object, *A B*. It will be seen that the several crosses *A B*, *D E*, *F G*, *H I*, though

different in size, subtend the same angle *A C B*, on account of the different distances from the angle of vision. Then, on the other hand, the same object, at different distances, will make different angles. Thus in Figure 3, the three crosses, *F G*, *D E*, *A B*, are all of the same size; but the angles at *C* which they respectively subtend, vary in size according to their distance from the eye—the angle *A C B* being the smallest, and the angle *F C G*, the largest. The nearer, therefore, an object is to the eye, the wider must the opening of the lines be to admit the extremities of the object, and the larger will the object appear. The apparent size of an object, therefore, depends upon the size of the angle of vision; and the fallacy of the appearances of objects, at different distances, is corrected only by experience.

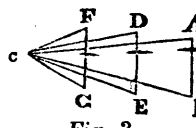
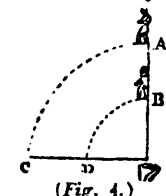


Fig. 3.

3. A word or two as to the limitation of vision in regard to the distance and motion of objects. When an object at a distance does not subtend an angle of more than *two seconds of a degree*, it is invisible. Thus an ordinary sized man when at the distance of four miles, does not subtend an angle of more than two seconds of a degree, and is therefore invisible. The size of the apparent diameter of the heavenly bodies, is generally stated by the angle which they subtend.—Though these bodies are constantly moving with immense velocity, their motions are not visible to a eye. The reason is that the motion of a body is not perceptible to the eye, unless its velocity exceed twenty degrees an hour—one fourth more than that of the apparent diurnal motion of the sun round the earth. It is also to be observed that the *real* and *apparent* velocity of the heavenly bodies may be very different, according to the greatness of the circle they describe around a common centre in a given time.



(Fig. 4.)

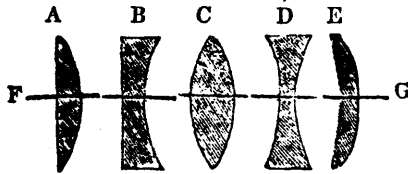
Thus in Fig. 4, *A* and *B* starting together, *A* must move much more rapidly than *B*, to arrive at *C* as soon as *B* reaches *D*—the arc being the arc of a larger circle than the arc *B D*—while the velocity of both appears the same at the eye *E*, because both are seen under the same angle of vision.

4. **MIRRORS.**—A few words about mirrors. A mirror is a smooth and polished surface, that forms images by the reflection or throwing back of rays of light into the same medium—such as a still lake, a looking-glass, a polished plate of metal. There are two kinds of artificial mirrors—the one made of glass, the other of metals. The former called *looking-glasses*, are made of glass, with the back covered with an amalgam, or mixture of mercury and tin foil. It is the smooth and bright surface of the quicksilver with which the glass is coated that reflects the rays—the glass acting only as a transparent case, or covering to preserve the metallic surface smooth and clear. Some of the rays are absorbed in their passage through the glass, because the purest glass is not free from imperfections. For this reason, the best reflectors are metallic—such as those made of silver, steel, tin, or a peculiar alloy called speculum metal. This class of mirrors are called *speculums*, or *specula*. The best mirrors are made of fine and highly polished steel. A reflector of polished metal is usually employed in optical experiments, and is understood when the term mirror is used, without distinction.

5. Now mirrors are of three kinds, according to the shape of their reflecting surfaces—*plane*, *convex* and *concave*. A *plane* mirror is flat, or has its surface a perfect plane—as in a common looking-glass; and it neither magnifies nor diminishes the images of objects reflected from it.—A *convex* mirror is spherical or globular, and reflects images from the *rounded* surface, and diminishes the images of objects reflected. The *human eye* is the most perfect of all convex mirrors; and so great is its power of diminishing objects and yet preserving their exact likenesses, that on a surface of *less than half an inch in diameter*, may be represented a landscape, where men, animals, buildings, streets, fields, and hills, with mon-

tains and clouds, are distinctly delineated. (Can chance be the author of such an instrument?) —A *concave* mirror is curved inward, and reflects from the *hollow* surface, and its powers, as its shape, are the reverse of those of the *convex* mirror.—Though we have figures to illustrate what is here stated in respect to *mirrors*, we have not room for them and the requisite explanations at present. In the spherical parts of brass andirons, or silver spoons, we have *convex mirrors*, with which children frequently amuse themselves in viewing their own miniature likenesses: while in the *concave* or hollow parts of silver cups or spoons we have *concave mirrors*, which correspondingly magnify the images of objects reflected by them. It will therefore be recollected that *concave mirrors* collect the rays of light, and magnify objects—that *convex mirrors* disperse the rays of light and diminish objects—that *plane mirrors* reflect rays of light without either enlarging or diminishing the visual angle, and consequently represent objects of their natural size.

6. LENSES.—Lenses, on account of their extensive use in the construction of optical instruments, from the microscope up to the telescope, require more particular notice. Glass, in various forms, is the substance most used for these purposes, which owing to the peculiar form of the lens, causes the rays of light to converge to a focus, or disperses them according to the laws of refraction. There are several varieties of lenses, named according to their focus. Five



(Fig. 5.)

of these varieties are represented in Figure 5. It will be seen that they all represent portions of the internal or external surface of a sphere. A represents a *single or plano convex lens*, which is bounded by a plane surface on one side and a *convex* one on the other, or in other words, is flat on one side and *convex* or oval on the other. B represents a *single or plano concave lens*, which is flat on one side and *concave* or hollow on the other. A *double concave lens* is *concave* or hollow on both sides, as represented by D. C represents a *double convex lens*, which is bounded by two *convex* or spherical surfaces. Their centres are, of course, on opposite sides of the lens. E represents a *meniscus*—a word derived from the Greek, literally signifying *a little moon*. The term is applied to this kind of *convexo-convex* lens, from its similarity to the young moon. As all the lenses are portions of the internal or external surface of a sphere, their *axis* is a straight line, F G, passing through their centre.

7. The peculiar form of the various kinds of lenses, causes the light which passes through them to be *reflected* or *bent* from its straight course, according to laws which we briefly explained last month. According to these laws, it will be recollected, light passing from a rarer to a denser medium is *refracted* or bent towards the perpendicular; and, on the contrary, passing from a denser to a rarer, it is refracted or bent further from the perpendicular. Now, it will be seen, from the straight line F G, Fig. 5, that a perpendicular to any *convex* or *convave* surface, must, when prolonged, pass through the centre of sphericity—or, in other words, the centre of the sphere of which the lens is a portion. It therefore follows, according to the laws just stated, and the situation of the perpendicular on each side of the lens, that a *convex lens* (contrary to *convex mirrors*) collects the rays into a focus, and magnifies objects at a certain distance; while *concave lenses* (contrary to *concave mirrors*) disperse the rays and diminish the objects seen through them.

8. The *focal distance* of a *convex lens* is the distance from the centre of the glass to the point at which the rays of light passing through the lens converge. This depends upon the convexity of the lens. The more *convex* the glass is, or in other words, the more the thickness of the middle exceeds that of the extremities, the shorter will be its focal distance; or the nearer to the glass will the rays passing through it be converged to a point. This point is easily ascertained by experiment, and may be accurately stated in any given case. It has been remarked, that a *convex lens* is a portion of a sphere. The sphere of a lens, then, is an imaginary circle of the surface of which the lens is a portion. The *radius* of a lens is, therefore, the radius or half the diameter of this sphere. Now, the focal distance (or the point beyond the lens where the refracted rays meet) of a *plano-convex lens*, is equal to the diameter of its

sphere, and the focus of a *double-concave lens* is equal to the radius, or half the diameter of its sphere. The less *convex* or *bulging*, therefore, the lens is, the more nearly it approaches a *plane glass*, and the more distant or longer is its focus; and the more *convex* or *bulging* a lens is, the more obliquely will the rays fall upon its surface, and the more will they be refracted or bent towards its axis.

9. It is on this principle, arising from this property of a *convex lens*, that burning glasses and optical instruments, such as spectacles, microscopes, telescopes, &c., are constructed. The parallel rays of the sun, which pass through the glass, are refracted to a point, or collected together in the focus, and the heat of that point must be equal to the heat of all the rays which fall on the glass; or the heat at the focus is to the common heat of the sun, as the area of the glass is to the area of the focus. Thus if a lens four inches in diameter,



Fig. 6.

times less than the surface of the lens, and, consequently, the heat will be 1600 times greater at the focus than at the lens. Combustible substances placed in the focus of such glasses are instantly consumed; metals are melted, and even vitrified; and other effects are produced beyond the reach of the most active and intense fire. By a large lens, or burning glass, two feet in diameter, made at Leipsic in 1691, pieces of lead and tin were instantly melted; a plate of iron was soon rendered red-hot, and afterwards fused and melted; and burnt brick was converted into yellow glass. Much more wonderful effects were produced by a *double convex lens*, three feet in diameter, made by Mr. Parker, in England, and which was afterwards presented by the King to the Emperor of China. *Concave mirrors*, placed in a peculiar position to each other and the sun, or to any heated body, produce the same effects as *convex lenses*. A peculiar combination of a number of *plane mirrors* can be made to produce the same effects. ARCHEMEDES is supposed to have employed some such mirror, in setting fire to the Roman fleet under MARCELLUS, when bombarding Syracuse.

10. The refraction of rays of light following the same laws as that of the rays of heat, *eye-glasses* are constructed upon the same principle as *burning-glasses*. As the convexity of the cornea of the human eye varies in different individuals and at different periods of life, it varies in its power (in connexion with the other lenses of the eye) of refracting or converging the rays that pass through it upon the *retina*, where the image of any object seen is formed. To remedy these, or other defects in vision, different kinds of glasses are employed. An artificial *chrystalline lens* is made to supply the place of the natural *chrystalline lens* of the eye—sometimes removed by surgical operations. In aged persons, the cornea losing something of its convexity, suffers a diminution of its power to converge the rays passing through it upon the retina—so that the point to which the converging rays tend is beyond the retina. The deficient power is supplied by *convex lens*, in a pair of spectacles, which are so selected and adapted to the eye as exactly to compensate for the want of refracting power in the eye itself; and thus the rays are brought to a focus on the retina, where alone a distinct image can be formed. *Near-sighted* persons have their eyes too *convex* or *round*—forming the image too soon, or before it reaches the retina. *Concave glasses*, dispersing instead of converging the rays of light, counteract this effect, and are therefore used by near sighted persons. *Convex glasses* are, then, used when the eye is too flat; and *concave glasses* when it is too round. These glasses are usually numbered, by opticians, according to their degree of convexity or concavity; so that knowing the number that fits the eye, a purchaser can generally be accommodated without the trouble of trying many glasses.

The application of the same property of lenses, and the same laws of refraction in the construction, of microscopes and telescopes, with illustrations, must be deferred until another number.

Literary and Scientific Intelligence.

Enormous Application of the Electrotype Process.—We take the following interesting account from the *Bailler*—

"An enormous application of the electrotype, a galvanic plastic process, has been made in the sculpture of the cathedral of St. Isaac, at St. Petersburg, by the Architect. After having made very important experiments, he was authorized to adopt this mode in the execution of the metallic sculptures and carvings for the following reasons:—1. The identical reproduction of the sculpture without chiseling. 2. The lightness of the pieces, which enabled the Architect to introduce sculptures of higher relief than any hitherto known, and to fix the pieces suspended from the vaultings, without fear of accident, or of their being detached. 3. The great saving of expense between these and castings in bronze. The gilding also was effected by the same process, and presented equal advantages. The seven doors of the cathedral will be of bronze and electrotype, the frame work being of the former, and the sculptural parts of the latter. Three of these doors are 30 feet high and 14 feet wide, the four others 17 feet 8 inches wide. They contain 51 bas-reliefs, 63 statues, and 34 alto-relievo busts, of religious subjects and characters. The quantity of metal employed in the dome is as follows:—Ducat gold, 247lbs.; copper, 52½ tons; brass, 321½ tons; wrought iron, 524½ tons; cast iron, 1068 tons. Total, 1966½ tons.

The Medusa.—The reproduction of these creatures has recently afforded an interesting subject for discussion among naturalists. In some instances they are produced like buds on a tree, which eventually drop off:—

"What strange and wondrous changes! Fancy an elephant with a number of little elephants sprouting from his shoulders and thighs, bunches of tusked monsters hanging epaulette-fashion from his flanks in every stage of advancement! Here a young pachyderm almost amorphous, there one more advanced, but all ears and eyes; on the right shoulder a youthful chuny, with head, trunk, toes, no legs, and a shapeless body; on the left an infant, better grown, and struggling to get away, but his tail not sufficiently organized as yet to permit of liberty and free action! The comparison seems grotesque and absurd, but it really expresses what we have been describing as actually occurring among our naked-eyed medusæ. It is true that the latter are minute, but wonders are not the less wonderful for being packed into a small compass. The multitude, being muddleheaded, love magnitude, but the philosopher does not estimate a whale above a minnow for his mere bigness: 'Nosci digna hæc animalcula, non quia Deus maximus in minimis est, æque enim magnus in omnibus, at ob extimam membrorum exhibitatem, miram organorum diversitatem, varia Creatoris eundem finem obtinenda media et pulchritudinem et proportionem quam nihil excellit.' So wrote Otho Frederic Muller—filled, by his studies of minute life, with a deep spirit of reverence and admiration of his monocoli, so might we write of our medusæ. But when to all the wonders of their structure are added such surprising physiological facts as those which we have thus been narrating concerning their reproduction, the spirit of reverent astonishment fills us fuller and fuller. 'La force qui developpe, l'intelligence qui specific et co-ordonne, l'amour qui unit vivifie'—the triune powers manifested in each and every being, in each single and all-combined, are revealed as clearly in our little sarsia, as in the mightiest monster of the ocean, beneath whose shadow it may swim invisible to the unarmed eye. Aiid when we behold how its perpetuity in that ocean is secured, we are tempted to exclaim with Spenser—

Wonder it is to see
How diversity Love doth his pageants play,
And shows his powre in variable kinds.—[Professor Forbes.

Silkworms.—The silkworm, previous to its change from the caterpillar to the chrysalis, forms for itself a casement of silky filaments, termed by naturalists a *cocoon*. Ten thousand of these cocoons produce on an average about five pounds of silk; and a thread unwound from one of them, which weighed three grains, has measured four hundred yards. When we consider the immense quantity of silk used at present, the number of caterpillars, which produce it, will exceed calculation. Think but of the cocoon of a silkworm! How many hands, how many machines, does not this little ball put in motion! Of what riches should we not have been deprived if the moth of the silkworm had been born a moth without having been previously a caterpillar!—

Wherefore did nature pour her bounties forth,
And set to work millions of spinning worms,
That in their green shops weave the smooth-haired silk
To deck her sons!—*Comus*.

Doomsday Book.—This invaluable record, so often quoted, and referred to for facts of ancient times, is still a perfect preservation, every word being as legible at this time as when written, seven hundred and forty years ago. It is comprised in two volumes, one a large folio, the other a quarto. The first begins with the county of Kent, and concludes with Lincolnshire, and is written in one and the same hand, in a small but clear character, on

three hundred and eighty double pages of vellum, each page having a double column, and contains thirty-one counties. The quarto volume is on four hundred and fifty double pages of vellum, but in single columns in a large distinct hand-writing, and contains the counties of Essex, Norfolk and Suffolk.

Alexander Von Humboldt.—It cannot fail, says a letter from Berlin, to be interesting to the literary world to know that the Nestor of Philosophers, the venerable Alexander Von Humboldt, will accomplish his 80th year next Friday, he being born upon the 11th of September, 1769. It will be further gratifying to his admirers and friends in England and in many other parts of the globe, even to the mighty Andes and far-distant Himalayas, to hear that the illustrious author continues in the full enjoyment, not only of sturdy health, but of all those mental faculties which have crowned his name with immortal glory, shed lustre upon his native land, and conquered for him a permanent place among the princes of the intellectual world.

Antiquities for the British Museum.—A vessel which has arrived at Chatham from Bombay has brought twenty tons weight of antiquities from Nineveh, which are intended to be forwarded to the British Museum for deposit in that national establishment. The authorities of the Treasury have given the necessary directions for the unshipment and free delivery of the antiquities to the museum, and arrangements have been made for the packages containing these valuable relics to be forwarded direct to the museum without being previously disturbed, and there opened and examined by the proper authorities, in order that every one may be taken that no damage should be sustained by them.

Ivory.—At the last quarterly meeting of the Geological and Polytechnic Society of the West Riding of Yorkshire, Earl Fitzwilliam in the chair, Mr. Dalton, of Sheffield, read a paper on "ivory as an article of manufacture," in which he disclosed the following interesting facts:—The value of the annual consumption in Sheffield was about £30,000, and about 500 persons were employed in working it up for the trade. The number of tusks to make up the weight consumed in Sheffield, about 180 tons, was 45,000. According to this the number of elephants killed every year was 22,500; but supposing some tusks were cast and some animals died, it might be fairly estimated that 18,000 were killed for the purpose.

The Magnetic Clock.—Our readers will feel interested in knowing that Professor Locke's Magnetic Clock is now finished. The different parts have been put together, and it completely fulfils all the expectations of the inventor. It is a beautiful piece of mechanism, which reflects much credit on the ingenuity and skill of the manufacturers, Messrs. Howard and Davis, and in its operations reminds us of the wonders we read of in tales of necromancy, or which were brought about by the astrologers of the olden times, after making a compact with the evil one. This clock will be packed immediately, with all due care, and conveyed to Washington, to be placed in the National Observatory.—[Boston Journal.

Commerce in the Days of Abraham.—The various particulars of the transaction between Abraham and the children of Heth evince very considerable progress at that early period in economics, in commerce, in law. There is money, and of a given denomination or coin—balances for weighing it—a standard thereof, such as was current with the merchant—a superiority thereof in the methods of trade above the day of barter—forms in the conveyance and change of property before witnesses, as here in the audience of the people of Heth—the terms and specifications of a bargain, by which its several particulars were made sure to Abraham in the presence of and before many witnesses—all serving to confirm the doctrine that the progress in these days was from an original civilization down to barbarism—the civilization being coeval with the first and earliest revelations, or with Adam himself. A thorough attention to these early chapters of Genesis confirms our belief in this tenet—supported as it is by this strong negative argument, that a nation was never known to emerge simultaneously and unaided from the savage state—the civilization thereof having always, as far as it is known, originated in, or been aided by, a movement or influence from without.—[Dr. Chalmers.

Boundaries of the British Empire in the East.—Among the greatest phenomena in the history of the world may, undoubtedly, be reckoned the British Empire in the East Indies.

This empire has, within a single century, risen from the humble rank of a trading factory to an *imperium* of more than 100,000,000 of inhabitants, with an equal number (100,000,000) who though under their own prince still obey the British power, extends over 1,250,000 English square miles of the most fertile part of the surface of the earth (from 8 deg. latitude to 35 deg., and from 68 deg. longitude to 92 deg.,) and consequently contains a polar altitude the same as from Messina to Tarnea, and a breadth as from Lisbon to Smolensk, which shows that it cannot be compared by anything in Europe, either as to size or population.—[Edinburgh Review.

Statistics of Poetry.—A writer in the *National Intelligencer* entertains the readers of that Journal with treating poetry as other branches of productive industry are treated, statistically. Milton, he says, produced five hundred lines a year. He began to write at about seventeen, and lived to 67, thus composing during 50 years. His *Paradise Lost* is about ten thousand lines: the *Paradise Regained* about two thousand; *Samson Agonistes* one thousand seven hundred. *Comus* one thousand three hundred, making in all, about twenty-one thousand lines. Dryden's regular poems, including his translations, make about sixty thousand lines. He began almost in his childhood, and lived to be seventy-one, writing incessantly by contract. Averaged about two thousand lines a year. Pope began at twelve and died at fifty seven, producing in forty-five years about forty thousand lines, some eight thousand of which at most are original. His original poetry was at less than at the rate of two hundred lines a year. Gray, the next of our great bards, lived fifty-five years. He began to write about twenty, and left one thousand verses. Byron, beginning at twelve and ending at thirty-seven, produced about ten thousand more verses than in a long one, that mightiest and most inventive of all geniuses, Homer, in comparison with whom all other poets are almost nothing. He tripled the productions of Virgil and Tasso; he greatly exceeded the volume of Dante and Ariosto; and he doubled Milton, writing about twenty-five years less.

Libraries and Effects of Poets.—The books which Addison had gathered, were sold within the last 44 years after the death of the essayist's only child, at a very advanced age in 1797. The poet Thompson's books and engravings, indeed the whole of his effects were sold in the year in which he died: his cellar was better stored than his book-shelves, but his prints were of some importance and value. Shenstone's books were bought by Thomas Davies, with the pretty wife, commended by Churchill, in a well-known couplet. Pope left his library by will to Ralph Allen and Dr. Warburton. All the publications which gave rise to the *Dunciad* were in this collection, and Ruffhead advertised that they were freely at the service of any public library or museum. Strange to say, so liberal an offer was not accepted, though the British Museum was then in existence. To each publication he had written the name of the author, and scattered occasional remarks throughout. The household furniture and books of Goldsmith were sold by Good, at his great room in Fleet-street, on the 12th of July, 1774. Lot 29 was a common collection—"A pair of bellows, a brush, a footman, a copper tea-kettle, and a coal-skuttle." The most expensive piece of household furniture would appear to have been "Lot 15—A very large dressing glass, mahogany frame," wherein Goldy must have often admired himself, dressed in his Tyrian bloom satin grain and garter blue breeches. But enough of poor Goldy. Dr. Johnson's books were sold by Christie. The Doctor had a ragged regiment for general use, for he tossed well-bound books about with savage carelessness, and complained when he borrowed a book from Stevens that it was too well bound. The library of Gibbon, who wrote Roman history in an acadia grove at Lausanne, must have formed, from all accounts a very different appearance from Johnson's rough calf collection. Gibbon was a dandy in his dress, and a dandy in his bindings. Edmund Burke's books have passed under the hammer of the auctioneer; and it is but the other day since the library of Horace Walpole was catalogued and sold by public auction. No English author ever left an estate behind him descending unincumbered with debt but the greatest of all authors, William Shakespeare. The after history of Abbotsford is a melancholy story.

Writing Poetry without knowing it.—Moliere has persuaded the world that they talk prose all their lives long, but Aristotle knew better, and declares (Poet. 10 Tyrarwh.) that we very frequently utter iambs: and even measures more remote from the rythm of speech sometimes drop oddly from the pen. Thus the 47th sect. of ch. 2, B. 2, of Smith's Optics begins,

"When parallel rays
Come contrary ways
And fall upon opposite sides."

And we remember to have seen quoted from Whewell's Dynamics this pleasing verse:

"Hence no force, however great
Can stretch a cord, however fine,
Into a horizontal line
That is completely strait."

The verses to which Niebuhr refers in Livy (1, 26) occurs in a legal formula, and here it might be thought that involuntary versification was out of the question. Yet it is not so; Law frequently disports in harmonious numbers. The officer of the court begins to swear the jury in a lively Trochaic Tetram. acat.—

"You shall well and | truly try and | you shall judge be | tween the parties;" and finishes his inquiry as to their decision in a still livelier Anapaestic. "That is your | verdict, and | so you say | all."—[Prospective Review.

Machine for Sharpening and Setting Saws.—Mr. R. O. Gurley, of Redding, Conn., has invented a beautiful and very unique machine for sharpening and setting saws of every description. No file nor hammer is used in the operation, but by the simple working of a toggle joint lever, the saw is sharpened and set at the same time. This machine is simple, cheap, and can sharpen five saws faster than any one can be sharpened by any way at present in use for that purpose: and what is better, any person can, with a minute's instruction, sharpen the saw with the utmost correctness.—[Scientific American.

The Moral Uses of Gas.—The moralist may see much here to engage his thoughts, for these silent burning lights are aiding his labours by preventing the crimes to which darkness offers a temptation. Let any one who doubts this read the accounts of the state of things in London in old times, when the link-boy was necessary to enable the passenger to track his path through the dark streets, at the corners of which desperate footpads lurked for the approach of some passenger whom business or pleasure had forced out. Such times were the golden ages of burglars, who did nearly as they pleased during the period of sunset and sunrise. Who now fears least he should be knocked down and deliberately robbed and beaten at Cheapside, Fleetstreet or the Strand, even should he be out hours after sunset? Now this change in the social state has not arisen simply from alterations in police arrangements, but from the additional security given to persons and property by a well lighted city. The men who first observed the burning of the gas-jets in a coal mine, little suspected the moral importance which that very species of flame would exercise in subsequent ages. Perhaps even Mr. Murdoch, who first drew public attention to the use of gas in lighting towns, did not anticipate the importance to which his improvement would so rapidly rise. In the year 1792 he erected a small gasometer for use on his own premises; ten years after the population of Birmingham poured out in thousands to witness his brilliant illumination at Soho, when peace was proclaimed; but in the year 1848 the brilliant lights are familiar to all inhabitants in our second and third class towns. Such is one aspect in which fire or flame may be viewed, as the producer of light, and the creator of numberless aids to civilization.—[Sharp's London Magazine.

The Zodiac.—When, and how, and by whom the zodiac, as it is now exhibited in all our celestial maps, and all our annual almanacs, was invented, no effort of learning has yet been able to discover. Its origin is undoubtedly fabulous, connected with the whole system of the mythology of Greece, with the twelve labours of Hercules, the expedition of the Argonauts to Colchis, for the golden fleece: the genealogy of Jupiter, Neptune and Pluto, their common parent Saturn, and the final solution of the whole system, in the allegorical impersonation of heaven and earth. Here astronomy and astrology, idolatry and superstition, agriculture and navigation, all march hand in hand, turning history into romance, religion into falsehood; the cultivation of the earth, and the navigation of the seas into fraudulent imposture. By what magical incantation the belief of this system could be imposed upon whole nations of men, imagination can scarcely conceive. An imaginary belt is cast round the portions of the heavens, within which the solar system revolves.—This belt is divided into twelve partitions, each embracing thirty degrees of the spherical circumference. Within each of these partitions, clusters of stars, as they are visible in the sky, are gathered as into one community: and over each of them the figure of an earthly animal is stamped, covering the whole constellation, but bearing no sort of resemblance to it. The very positions of the animals are painted on the celestial atlas: names are given to all the brightest of the stars; and now at least three thousand years after this uncouth fiction was first palmed upon the credulity of mankind, we find it imposed upon us still, and we cannot learn to recognize the bright stars of heaven in the path of the sun, without painting them to the mind's eye, on the horns of a reposing ram, in the eye of a raging bull, on the foreheads of a pair of twin children, and in the fantastic and incoherent imagery of animals, wild and tame, of earth, air, fire and water, jumbled together, as if to resolve the created universe into its primitive elemental chaos. Nor is this wild and scarcely conceivable confusion yet exhausted. When the worship of idols had thus insinuated itself into communion with the study of astronomy, the population of the zodiac was extended over the whole firmament. The chief of the gods Jupiter, and even the inferior idols Olympus, were invested with the prerogative of placing favorite mortals to seats of honour in the heavens; and thus, not only Hercules and Perseus, but Adonis and Narcissus and Daphne, and Niobe and her daughters, and multitudes of others, not more meritorious, rose to be dignitaries in the skies, till not only the hair of Berenice became a constellation, but the infamous Antinous a star of resplendent magnitude. The printing press, the electrical apparatus, and the air pump, may be better entitled to this symbol of immortality; but their intrusion upon this already overcharged canvass, only adds to its unnatural complication, and encumbers the study with supernumerary difficulties and obstructions.—[Adams.

Editorial Notices, &c.

NORMAL SCHOOL.—One hundred and twenty four names have been admitted on the books as Students of the Normal School during the Winter Session, besides many applications rejected for want of qualifications in the candidates. This is the largest number yet admitted to the Normal School, at the commencement of any one Session.

SCHOOL HOUSE ARCHITECTURE.—In the present number we conclude the articles and illustrations intended for this volume on School house Architecture. In the prospectus of the volume we expressed our intention to furnish at the rate of one illustration each month. We have given more than three times that number. The illustrations in the present number are from an excellent work, entitled *The School and School Master*, by BISHOP POTTER, of Philadelphia, and the Rev. G. B. EMERSON, of Boston.

IMPORTANCE OF THE SOUND EDUCATION OF EACH VOTER.—In the Rev. Mr. MAY's Lecture on the Importance of our Common Schools, delivered at Boston, before the *American Institute of Instruction*, the following singular incidents are mentioned:—

"Some of the most momentous measures of our State and National Governments have been decided by the votes of one or two individuals. In the decision of the Missouri question, two votes only enlarged the borders and rivited the curse of slavery upon our country. And it is, I believe, susceptible of proof, that the war with England in 1812 would not have been waged, but for one vote given in a passion by an obscure individual in Rhode Island. That vote affected the election of that one member of the United States Senate, to whose vote at an important crisis may be ascribed the subsequent decision of the Senate, to plunge our country into the horrors and vast expenditure of that useless conflict."

INTELLECTUAL LABOURERS.—"Zeno and Chrysispus," says Seneca, "did greater things in their studies, than if they had led armies, borne offices, or given laws, which indeed they did, not to one city alone, but to all mankind."

PROGRESS OF THE COMMON SCHOOL SYSTEM IN THE LONDON DISTRICT.—*Extract of the Report of W. ELLIOT, Esq., District Superintendent, presented to the Municipal Council last month.*—"It is nearly four and a half years since I had the honour to be intrusted with the confidence of the District Council as Superintendent of the Common Schools of the District. I will not say that the improvements in those Schools which I then hoped to witness, have been realized. But I can say that I believe the progress which the cause of popular instruction has made in this District during that time, has yet been onward. It is true there are many localities which at this moment seem to furnish a contradiction to this assertion. But take the District at large, and it will be found that many new schools have been established in the recently settled parts of the Townships where before there was none—many school houses of a better description have been erected—a better supply of books procured—and upon the whole, the character of the Teachers has been raised and remuneration increased. The cause of education then, I would say, has prospered thus far in the District, that the means of instruction in elementary branches is furnished to every parent who is disposed to avail himself of the opportunity; a system of public instruction has been firmly established, and a conviction of the high necessity of instructing the youth seems to have become more general among our population. But beyond this, there remains much to be done before we shall see our Schools upon that thoroughly efficient footing which is desirable."

Statistics of French Literature.—It is calculated that from the 1st January, 1840, to the 1st August, 1849, there were issued from the press in France, 87,000 new works, volumes and pamphlets; 3,700 reprints of ancient literature, and French classic authors; and 4,000

translations from modern languages—one third of the latter from the English, the German and the Spanish coming next in numbers, and the Portuguese and Swedish languages having furnished the smallest contributions. Nine hundred dramatic authors are named of pieces produced on the stage, and afterwards published: 60 only of comedies and dramas not acted. Among the published works are 200 on Occult Sciences, Canibalism, Chiromancy, Necromancy, &c. and 75 volumes on heraldry and Genealogy. Social Science, Fourierism, Communism, and Socialism of all sects, count 20,000 works of all sizes; 6,000 Romances and Novels; and more than 800 works of Travel. According to a calculation, for which the authority of M. Didot's (the publisher) name is given, the paper employed in the printing of all these works would more than twice cover the surface of the 86 departments of France.—[Galilvani.]

Families of Literary Men.—The *Quarterly Review*, in discussing an objection to the Copyright bill of Mr. Sergeant Talfourd, which was taken by Sir Edward Sugden, gives some very curious particulars about the progeny of literary men. "We are not," says the writer, "going to speculate about the causes of the fact, but a fact it is, that men distinguished for extraordinary intellectual power of any sort, rarely leave more than a very brief line of progeny behind them. Men of genius have scarcely ever done so; men of imaginative genius, we might say, almost never. With the one exception of the noble Surrey, we cannot at this moment point out a representative in the male line, even so far down as in the third generation, of any English poet; and we believe the case is the same in France. The blood of beings of that order can seldom be traced far down even in the female line. With the exception of Surrey and Spencer, we are not aware of any great English author of at all remote date, from whose body any living person claims to be descended. There is no other real English poet prior to the middle of the eighteenth century, and we believe no greater author of any sort, except Clarendon and Shaftsbury, of whose blood we have any inheritance amongst us. Chaucer's only son died childless: Shakspeare's line expired in his daughter's only daughter.

None of the other dramatists of that age left any progeny; nor Raleigh, nor Bacon, nor Cowley, nor Butler. The grand-daughter of Milton was the last of his blood. Newton, Locke, Pope, Swift, Arbuthnot, Hume, Gibbon, Cowper, Gray, Walpole, Cavendish (and we might greatly extend the list,) never married. Neither Bolingbroke, nor Addison, nor Warburton, nor Johnson, nor Burke transmitted their blood. M. Renouard's last argument against a perpetuity in literary property is that it would be founding another noblesse. Neither jealous aristocracy nor envious jacobinism need be under much alarm. When a human race has produced its 'bright consummate flower' in this kind, it seems commonly to be near its end."

Poor Goldsmith might have been mentioned in the above list. The theory is illustrated in our own day. The two greatest names in science and in literature, of our time, were Davy and Walter Scott. The first died childless. Sir Walter left four children, of whom three are dead; only one of whom (Mrs. Lockhart) leaving issue; and the fourth though living, and long married has no issue. These are curious facts.

Popular Literature.—The whole subject of popular literature requires the deepest consideration. The press is pouring out every day a tide of books, which distract the attention, weaken the judgment, corrupt the taste, and defy the criticism of the public by their very multitude. Every one, young or old, man or woman, fool or wise, thinks himself able to say something which may catch the public eye, to raise himself either money or notoriety. The whole world is become a great school, where all the pupils have turned themselves into teachers; and the ravenous appetite of an idle people, always craving for some new excitement, or amusement, and ready to swallow the most unwholesome food, is daily stimulating the market. What should we say if a man had the power of volatilizing a grain of arsenic that its effluvia should spread over a whole country, entering into every house, and penetrating to the most vital parts of the body? And yet until it is shown that the human mind is good itself, and the source of good,—that it is not, what we know it to be, save only when purified by religion, corrupt itself and a corrupter of others; this power, which every man possesses and which so many exercise, of diffusing their thoughts over the world, and insinuating them into the heart of a nation, is, in reality, the power of spreading a pestilential miasma.—[Edinburgh Review.]

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