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CONTENTS OF THIS NUMBER.

	PAGE
I. Great English Educational Conference.....	97
II. SCHOOL ARCHITECTURE—(Continued.) With thirty-four illustrations..	101
III. Educational Tools and Instruments	106
IV. The Box of Bricks	107
V. MISCELLANEOUS.—1. Little by Little. 2. The Wandering Sheep. 3. Lessons in Natural History (Continued)—(1) The Mason Bee; (2) The Humble Bee. 4. Bread Cast upon the Waters. 5. The Midnight Prayer. (Poetry.)	107
VI. EDUCATIONAL INTELLIGENCE.—1. Canada—(1) University of Trinity College; (2) The Rev. Dr. Jennings; (3) School Apparatus Free of Duty; (4) Woodstock Literary Institute. 2. Colonial—(1) R. C. College, Prince Edward Island; (2) Education in the Mauritius. 3. British and Foreign—(1) New Professor at Oxford; (2) Dublin University Professorship; (3) Education in Wales. 4. United States—(1) New Professors Columbia College; (2) Expenditures of Schools, City of New York; (3) Reports of the Proposed New York Free Academy for Girls; (4) Massachusetts	110
VII. Literary and Scientific Intelligence.—(1) The New Reading Room of the British Museum; (2) A Noble Donation to the New York State Library; (3) The Indian Materia Medica	112
VIII. Departmental Notices	112
IX. Advertisements	112

GREAT ENGLISH EDUCATIONAL CONFERENCE.

On 22nd June, the first of the three general Conferences for fully discussing the English Educational question in all its bearings, especially in relation to the early age at which the children of the working classes are removed from school, was held at Willis' rooms, under the presidency of his Royal Highness Prince Albert, and a number of distinguished noblemen and gentlemen. Long before the hour fixed for the Prince to take the chair, the room was completely crowded, and the reception accorded to his Royal Highness on his arrival was most warm and flattering. He was supported by the Bishops of Oxford, London, St. Asaph, Manchester, Sir J. Shuttleworth, Sir J. Packington, Lord Ward, Earl Granville, the Bishop of Durham, Lord Brougham, the Bishop of Winchester, Archdeacon Sinclair, Lord Calthorpe, Lord Ingestre, and other noblemen and gentlemen.

His Royal Highness, who, on his rising, was received with prolonged cheering, immediately proceeded to address the meeting as follows: "Gentlemen, we have met to-day in the sacred cause of Education—of National Education. This word, which means no less than the moral and intellectual development of the rising generation, and, therefore, the national welfare, is well calculated to engross our minds, and opens a question worthy of a nation's deepest interest and most anxious consideration. Gentlemen, the nation is alive to its importance, and our presence here to-day gives further evidence [if such evidence were needed] of its anxiety to give it that consideration. [Hear, hear.] Looking to former times, we find that our forefathers, with their wonted piety and paternal care, had established a system of national education, based

upon the parish organization and forming part of parish life, which met the wants of their day, and had in it a certain unity and completeness which we may well envy at the present moment. But in the progress of time our wants have outstripped that system, and the condition of the country has so completely changed even within these last fifty years, that the old parochial division is no longer adequate for the present population. This has increased during that period in England and Wales from, in round numbers, 9,000,000 to 18,000,000, and, where there formerly existed comparatively small towns and villages, we now see mighty cities like Liverpool, Manchester, Hull, Leeds, Birmingham, and others, with their hundreds of thousands, springing up almost, as it were, by enchantment, London having increased to nearly two and a half millions of souls, and the factory district of Lancashire alone having aggregated a population of nearly 3,000,000 within a radius of thirty miles! This change could not escape the watchful eye of a patriotic public; but how to provide the means of satisfying the new wants could not be a matter of easy solution. While zeal for the public good, a fervent religious spirit, and true philanthropy are qualities eminently distinguishing our countrymen, the love of liberty and an aversion from being controlled by the power of the State in matters nearest to their hearts, are feelings which will always most powerfully influence them in action. Thus the common object has been contemplated from the most different points of view, and pursued often upon antagonistic principles. Some have sought the aid of Government, others of the Church to which they belong; some have declared it to be the duty of the State to provide elementary instruction for the people at large, others have seen in State interference a check to the spontaneous exertions of the people themselves, and an interference with self-government; some, again, have advocated a plan of compulsory education based upon local self-government, and others the voluntary system in its widest development. While these have been some of the political subjects of difference, those in the religious field have not been less marked and potent. We find, on the one hand, the wish to see secular and religious instruction separated, and the former recognised as an innate and inherent right, to which each member of society has a claim, and which ought not to be denied to him if he refuses to take along with it the inculcation of a particular dogma to which he objects as unsound; while we see, on the other hand, the doctrine asserted

that no education can be sound which does not rest on religious instruction, and that religious truth is too sacred to be modified and tampered with, even in its minutest deductions, for the sake of procuring a general agreement. [Much cheering.] Gentlemen, if these differences were to have been discussed here to-day, I should not have been able to respond to your invitation to take the chair, as I should have thought it inconsistent with the position which I occupy and with the duty which I owe to the Queen and the country at large. I see those here before me who have taken a leading part in these important discussions, and I am happy to meet them upon a neutral ground; happy to find that there is a neutral ground upon which their varied talents and abilities can be brought to bear in communion upon the common object; and proud and grateful to them that they should have allowed me to preside over them for the purpose of working together in the common vineyard. I feel certain that the greatest benefit must arise to the cause we have all so much at heart by the mere free exchange of your thoughts and various experience. You may well be proud, gentlemen, of the results hitherto achieved by your rival efforts, and may point to the fact that, since the beginning of the century, while the population has doubled itself, the number of schools both public and private has been multiplied 14 times. In 1801, there were in England and Wales, of public schools, 2,876; of private schools, 487—total, 3,363. In 1851 [the year of the census] there were in England and Wales, of public schools, 15,518; of private schools, 30,524—total, 46,042; giving instruction in all to 2,144,378 scholars; of whom 1,422,982 belong to public schools, and 721,396 to the private schools. The rate of progress is further illustrated by statistics which show that in 1818 the proportion of day scholars to the population was 1 in 17; in 1833, 1 in 11; and in 1851, 1 in 8. These are great results, although I hope they may only be received as instalments of what has yet to be done. But what must be your feelings when you reflect upon the fact, the inquiry into which has brought us together, that this great boon thus obtained for the mass of the people, and which is freely offered to them, should have been only partially accepted, and, upon the whole, so insufficiently applied as to render its use almost valueless? [Hear.] We are told that the total population of England and Wales of children between the ages of three and fifteen being estimated at 4,908,686, only 2,046,848 attend school at all, while 2,861,848 receive no instruction whatever. At the same time an analysis of the scholars with reference to the length of time allowed for their school tuition shows that 42 per cent. of them have been at school less than one year, 22 per cent. during one year, 15 per cent. during two years, 9 per cent. during three years, 5 per cent. during four years, and 4 per cent. during five years. Therefore, out of the two millions of scholars alluded to, more than one million and a-half remain only two years at school. I leave it to you to judge what the results of such an education can be. I find further, that of these two millions of children attending school, only about 600,000 are above the age of nine. Gentlemen, these are startling facts, which render it evident that no extension of the means of education will be of any avail unless this evil, which lies at the root of the whole question, be removed, and that it is high time that the country should become thoroughly awake to its existence and prepared to meet it energetically. To impress this upon the public mind is the object of our conference. Public opinion is the powerful lever which in these days moves a people for good and for evil, and to public opinion we must therefore appeal if we would achieve any lasting and beneficial result. You, gentlemen, will richly add to the services which you have already rendered to the noble cause if you will prepare public opinion by your inquiry into this state of things, and by discussing in your sections the causes of it as well as the remedies which may lie within our reach. [Cheers.] This will be no easy matter; but even if your labors should not result in the adoption of any immediate practical steps, you will have done great good in preparing for them. It will probably happen that, in this instance as in most others, the cause which produces the evil will be more easily detected than its remedy, and yet a just appreciation of the former must ever be the first and essential condition for the discovery of the latter. You will probably trace the cause of our social condition to a state of ignorance and lethargic indifference on the subject among the parents generally; but the root of the evil will, I

suspect, also be found to extend into that field on which the political economist exercises his activity—I mean the labor market—demand and supply. [Hear.] To dissipate that ignorance and rouse from that lethargy may be difficult, but with the united and earnest efforts of all who are the friends of the working classes, it ought, after all, to be only a question of time. What measures can be brought to bear upon the other root of the evil is a more delicate question, and will require the nicest care in handling, for there you cut into the very quick of the working man's condition. His children are not only his offspring, to be reared for a future independent position, but they constitute part of his productive power and work with him for the staff of life; the daughters especially are the handmaids of the house, the assistants of the mother, the nurses of the younger children, the aged, and the sick. To deprive the laboring family of their help would be almost to paralyse its domestic existence. [Cheers.] On the other hand, carefully collected statistics reveal to us the fact that while about 600,000 children between the ages of three and fifteen are absent from school, but known to be employed, no less than 2,200,000 are not at school, whose absence cannot be traced to any ascertained employment or other legitimate cause. You will have to work, then, upon the minds and hearts of the parents, to place before them the irreparable mischief which they inflict upon those who are entrusted to their care by keeping them from the light of knowledge, to bring home to their conviction that it is their duty to exert themselves for their children's education, bearing in mind at the same time that it is not only their most sacred duty, but also their highest privilege. Unless they work with you, your work, our work, will be vain; but you will not fail, I feel sure, in obtaining their co-operation if you remind them of their duty to their God and Creator. [Cheers.] Our Heavenly Father, in his boundless goodness, has made his creatures that they should be happy, and in his wisdom has fitted his means to his ends, giving to all of them different qualities and faculties in using and developing which they fulfil their destiny, and, running their uniform course according to his prescription, they find that happiness which he has intended for them. Man alone is born into this world with faculties far nobler than the other creatures, reflecting the image of Him who has willed that there should be beings on earth to know and worship Him, but endowed with the power of self-determination, having reason given him for his guide. He can develop his faculties, place himself in harmony with his divine prototype, and attain that happiness which is offered to him on earth, to be completed hereafter in entire union with Him through the mercy of Christ. But he can also leave these faculties unimproved, and miss his mission on earth. He will then sink to the level of the lower animals, forfeit happiness, and separate from his God, whom he did not know how to find. [Much cheering.] Gentlemen, I say man has no right to do this, he has no right to throw off the task which is laid upon him for his happiness; it is his duty to fulfil his mission to the utmost of his power; but it is our duty, the duty of those whom Providence has removed from this awful struggle and placed beyond this fearful danger, manfully, unceasingly, and untiringly to aid by advice, assistance, and example, the great bulk of the people, who, without such aid, must almost inevitably succumb to the difficulty of their task. They will not cast from them the aiding hand, and the Almighty will bless the labors of those who work in his cause. [His Royal Highness concluded amid continued and enthusiastic cheering.]

The Rev. J. G. Lonsdale, the Secretary, then read the report, which was to a large extent an echo of His Royal Highness's speech. It also pointed out in detail the course which the business of the Conference was to take. It stated that there had been expended, since 1839, through local voluntary agency, aided by the State, a sum of more than £2,000,000 in the erection of new school buildings, &c., which had afforded the means of education to half a million more children than were previous to that time educated; that the sum of £1,250,000 was annually expended upon the working classes; and that, in addition to those amounts, large sums had been expended for building and maintaining schools, of which no precise return had been procured. The Secretary concluded by calling upon Lord Brougham, who, he said, had been for forty-six years taking an active part in educational movements, to address the meeting.

Lord Brougham was very enthusiastically received by the audience. He gave a species of historical *resumé* of the educational efforts of the last half century, in most of which, as is well known, he has taken an energetic and conspicuous part. His lordship said his Royal Highness had shown how much had already been done to promote the great cause of education; but his Royal Highness had also pointed out how much yet remained to be accomplished. Their maxim ought to be *Nil actum*—he begged pardon of the ladies for wandering into a Latin quotation in their presence—[laughter]—“Counting nought done, while aught remains to do.” That, he could assure the ladies, was a very literal rendering of the maxim he was about to have quoted. [Cheers and laughter.] The question was, what was it that “remained to do?” He was glad that the Conference had been wisely confined to one specific object, instead of going at large into all the matters connected with public and national education,—[hear,]—because of the unhappy differences and controversies of various kinds which existed. [Hear, hear.] He quite agreed with his Royal Highness in thinking that, even if they did not arrive at any very satisfactory solution of the problem, the mere inquiry, and the information which must be gained by the evidence placed before them, would be no light addition to their triumphs in this great cause. [Hear, and cheers.] His reverend friend the Secretary had reminded him that he took part in the very small beginnings of the movement in favour of popular education forty-six years ago. The Bell and Lancaster schools had then been established to a considerable extent; but it was necessary that a greater impulse should be given by a better plan of association. Accordingly, towards the latter end of 810, he recollected presiding over a meeting somewhere in that neighbourhood, composed of men whose merits deserve to be held in lasting remembrance, amongst whom were William Allan and Joseph Forster, and their friends, who by their pious and persevering labours, and their boundless generosity, had done a great deal to promote popular education. [Hear.] Then came his late lamented friend, Dr. Birkbeck—[hear, hear]—to whose generosity and labours it was impossible that any language of his could do justice. His lordship next referred to a private meeting, presided over by his Royal Highness the Duke of Kent, and to the great exertions of his late lamented friend the Duke of Bedford, and this naturally brought him to the formation of the British and Foreign School Society, and in the labours of the “much calumniated” Education Committee. Out of their labours arose the present system which had been so happily applied under his noble friend, the president [the Earl of Granville,] and his right hon. friend behind him, the vice-president. The committee of Privy Council grants began with £30,000, and now happily amounted to half a million. [Hear.] The number of schools had increased from 5,000 or 6,000, in 1801, to 40,000 or 50,000. In olden times when he proclaimed that “the schoolmaster was abroad—[laughter]—he had no expectation that he should ever meet with the second master—the employer of the labour of poor people’s children—against whom their present struggle was directed. They wanted to get employers to adopt some system of certificates to be required from children previous to giving them employment. They did not want the continental compulsory system, but they wanted some system of “gentle violence”—[laughter]—towards parents, to induce them to give their children the necessary education. [Cheers.]

The Bishop of Oxford said that, as one of the first to whom this movement had been suggested by his friend Canon Moseley, and one of the first who had acquiesced in the proposition, he begged to thank his Royal Highness for the part he had taken in furthering the objects of the conference. He believed that under the blessing of God, this great cause of education would be promoted by the conference which it was now proposed to hold. The great difficulty that now met them, was not to provide schools for the children, but children for the schools. [Cries of “Hear hear.”] This being the case, it became them, as practical men, to address themselves mainly to the remedy of that evil; and in order to do this, they should first ascertain what was the cause of it—[hear]—and how a remedy could best be applied. It was in vain to administer a medicine for a fever if there was some miserable gutter beneath the window of the patient’s sleeping apartment, sending forth the seeds of some new disorders. [Hear, hear.] One of the difficulties with which they had to deal, was the

necessity which so many of the parents had for the early labour of the children. He believed there was another, and, if possible, even a wider cause, striking its roots deep into the evil, and that was, the want of a certain authority on the part of the parents, and the want of a proper yielding obedience on the part of the children. [Hear, hear.] This was one of the great causes of evil which they all deplored. The parents were so much engaged in their daily toils that they had not time to look after their children, and to induce those who were indisposed to incur the labour and self-denial indispensable in all true education. [Hear.] There ought also to be, on the part of the parents, a settled belief that the education which was offered to them was worthy of their acceptance; and the great hindrance to this was the differences which existed amongst the various parties who furnished the means of education. [Hear.] He believed that such conferences as that which they were then about to hold would do a great deal towards lessening those unhappy divisions which at present existed amongst the various parties who were desirous of promoting the education of the working classes of this country. He believed that but for those differences, there would be one strong assertion of the moral sense of the people in this direction, which would remove the difficulties which stood in their way. [Hear, hear.] Their friendly discussions would tend to remove many of the difficulties with which this question was now surrounded. [Hear, hear.] It was intended that the various sections should have papers read to them, and that resolutions embodying the result of those discussions should be presented to the general meeting on Wednesday. On such an occasion as that, when there might be differences of opinion arising, it would be obviously inconvenient that his Royal Highness should preside—[hear, hear]—but as his Royal Highness desired to render what they were doing as practical as possible, he had given them his aid that day in his general statement of their case—[hear, hear]—and he would leave them, on the Wednesday, to come to the best conclusions they could after they had had the opportunity of discussion. [Hear.] In conclusion, the right rev. prelate expressed his gratification at the hopeful aspect of the educational movement at the present moment, and appealed to Lord Brougham as to whether matters had ever before appeared so cheering. “And,” said the right reverend prelate, “may the blessing of our God, the giver of every good and perfect gift, be vouchsafed to this endeavour, and, with his blessing, it shall not be fruitless.” [Cheers.]

The Rev. Canon Moseley, having long been connected with the educational movement, could bear testimony that a large portion of what was required towards a good system of national education had already been accomplished, and what had been done was that which properly should have been first done. It was necessary that schools should be erected—it was necessary that competent and well-instructed masters should be secured—it was necessary that their talents and acquirements should be tested—it was necessary that they should be provided with adequate stipends—and it was necessary that their efficiency should be insured by inspection. All this had been done; and what they had now to do was to impress upon the poor the value of the instruction offered them. His Royal Highness had alluded to the statistics of education as taken from the census of 1851, and which, until they were proved wrong, he [Canon Moseley] would assume to be correct. It appeared, from these statistics, that out of 5,000,000 children who ought to be at school only 2,000,000 were there; and of the remaining 3,000,000 only one-third were at work, leaving 2,000,000 who were either at home or in the streets. But the great misfortune was the youthfulness of those who were at school. It was found that between seven and eight the parents began to take them away, and that very few children of the labouring classes remained at school after twelve, the average age at which they left being 10½. Now he would ask them how it was possible that at such an age children could have attained a knowledge of even the elements of education; and yet, if there was an outbreak of the people the enemies of education would cry out and say, “See what your education has done;” whereas they should rather say, “See what the want of education has produced.” He asked those present, more especially those who had children at the age of 10½, to consider, however good the principles inculcated in a child—however much he might have been taught—however docile he might be—what would be

the effect if he were taken from school; and how soon those principles might be trampled out of him if he were left to fight his battle of life—and that too, perhaps, under some unfeeling master who sneered at all the good principles inculcated into the child. In any neighbourhood they might easily find five or six such children; and if they took them—though perhaps the most promising whilst in the school—at 16 or 17 years of age, they would see how lamentable was the result. Reference had often been made to the slight difference there was in the number educated on the Continent, in those countries where education was compulsory, and the number educated in this country, where it was voluntary. It was true that in Prussia there were only eight being educated for every six at school in England; but then in Prussia their ages averaged between seven and fourteen, whilst in this country the average was between $1\frac{1}{2}$ and 8. They would have at the conference to consider whether it should become a permanent body; whether they should meet in future years; and whether a committee should be appointed to watch over and report upon the results of that conference. He had been requested to place these suggestions before the meeting, and he trusted their conference might be productive of the best results.

H.R.H. Prince Albert then formally declared the conference open, and the meeting broke up.

MEETING OF THE SECTIONS.

The business of the conference was afterwards renewed yesterday at the Thatched House Tavern. In order to systematise the work the Conference was split up into four sections, presided over respectively by the Bishop of Oxford, Lord Lyttelton, Sir J. Kay Shuttleworth, and the Dean of Salisbury.

SECTION A.—Chairman, the Bishop of Oxford.

A paper was read by the Rev. Mr. Mitchell, one of the Inspectors of Schools, on the early age at which children are taken away from school. It appeared that only 6 per cent. completed their 14th year under instruction.

Mr. J. D. Goodman, chairman of the statistical department of the Birmingham Education Association, read a paper on "The School and the Workshop in Birmingham." The following are the principal portions of his contribution:—

At the close of last year an association was formed in Birmingham, having for its object the removal of the existing obstacles to education. It was determined to institute a special inquiry to ascertain what proportion of the children between 7 and 13, were receiving education, what was the description of education, and what number were employed in workshops. Returns have been obtained from fourteen districts out of twenty-one. They include 1,043 families in which were found 1,373 children between 7 and 13, viz, 753 males and 620 females. Of these 1,373 children 1,050, or $76\frac{1}{2}$ per cent., are receiving some kind of education; 42 per cent., are at day school, and of these latter $30\frac{1}{2}$ per cent. attend Sunday School; also, $22\frac{1}{2}$ per cent. of the 1,373 children are employed and at Sunday School, of whom $2\frac{1}{2}$ per cent. attend evening school also. Having thus found $76\frac{1}{2}$ per cent. at some kind of school, we have $23\frac{1}{2}$ per cent. at none; of these $10\frac{1}{2}$ per cent. are employed, and 13 per cent. neither employed nor at school. Brought under the three great heads we have 42 per cent. at day-school, 33 per cent. employed, 25 per cent. unemployed. Comparing girls with boys, we have $41\frac{1}{2}$ per cent. boys' and $42\frac{1}{2}$ per cent. girls' at school. Boys employed are 38 per cent. to girls 26 per cent.

From these figures we gather that the day school life of one-fourth of those children who attend school ceases at nine years of age, two-fourths remain at school till eleven, the remaining fourth remain till between twelve and thirteen. A large proportion of the employed children attend Sunday-School.

On inquiring into the nature of the employments which draw these children from school, it is found that 77 different callings take the boys, and 32 the girls—of these brass-foundry engaged 16 per cent. of the boys who are employed; errands, 12 per cent.; button making, $8\frac{1}{2}$ per cent.; gun-making, 4 per cent.; of the girls, button making employs 31 per cent.; service, 23 per cent.; warehouse employment, 7 per cent., &c. The average age at which boys go to work is $9\frac{1}{2}$, and girls 10.

A prize scheme has been instituted by the Birmingham Association, which it is hoped will tend to reduce the numbers in the "employed" and "unemployed" classes, and that it will retain the children at school beyond the present average of nine and a half and ten. A movement is also afoot for an extension of evening school education.

SECTION B.—Chairman—The Right Hon. W. Cowper.

Mr. Joseph Kay read a paper on the age at which children leave the elementary schools in various countries of the continent of Europe.

The Rev. Mr. Glennie read a paper from Strasbourg, relative to France, and Captain Boscawen read one on the state of education in Germany.

SECTION C.—Chairman—Sir James K. Shuttleworth, Bart.

Papers were read by the Rev. J. P. Norris and the Rev. W. J. Kennedy,—the former "on the working of the Staffordshire certificate and registration scheme," and the latter, "on the principles to be observed in promoting school attendance."

The Rev. T. Nash Stephenson, M.A., incumbent of Shirley, near Birmingham, read a paper entitled, "A consideration of the expedients which have been proposed for keeping the children of the working class longer at school, and an examination into the nature and administrative machinery of prize schemes." He proposed that 100 prizes, of the value of £85, should be offered; namely, sixty books of the value of 10s., for the third or lowest class; twenty-five of the value of £1, for the second or middle class; fifteen prizes of cash, of £2, and ornamented cards, for the first class. The number of prizes should, of course, vary in proportion to the expected number of candidates. Ornamented certificate cards might be added, but not so as to make the gross average of successful and commended candidates more than a moiety.

SECTION D.—Chairman—The Very Rev. the Dean of Salisbury.

The Rev. P. Marshall, of Hulme, read a paper upon "Factory education, with suggestions for its improvement."

The Rev. C. H. Bromby, M.A., F.S.S., read a paper on "Voluntary Half-time Schemes." The difficulties in the way of this and similar plans arose, in manufacturing districts, from the demand for juvenile labor; in agricultural districts from the indifference of parents. The question to be discussed resolved itself into this—how far could they persuade the employers of labor that the scheme will not diminish their *material* profits? Something must be done in all departments of labor. The votes of State money formed no true index of progress. Schools expensively appointed were becoming mere nurseries of infants. School work possessed no lasting hold, produced no real effect. The great want was not schools but scholars, not hives but bees. The object of the conference should be to take such practical measures as should furnish data to the Government for determining how far Government aid could be extended, and where Government interference must begin. If Lord Ashley's tentative Act had succeeded, extend it; if it had failed, repeal it. As a political question, England needed skilled and educated workmen. Whether in factories, mines, or farms, the first step should be to require an educational test before employment, namely, a certificate of two years' attendance at school before ten years of age.

Mr. Akroyd, M.P., of Halifax, gave an interesting account of his own schools,—comprising, in infants, boys, girls, and the Working Men's College, a total of 1,805.

SECTION E.—Chairman—The Very Rev. the Dean of Westminster.

Miss Carpenter read a paper on the subject of juvenile delinquency. She pointed out the slow degrees by which young persons fell into crime from evil associations, and especially from ridicule on the part of other children previously corrupted. In the majority of cases she thought juvenile delinquency did not arise from poverty, but from the evil associations to which she had adverted. A large array of statistics was adduced in support of this view of the case. Miss Carpenter believed that high intellectual training would never arrest the progress of crime, a strictly moral education being the only safeguard.

Various other papers were read in the several sections, and every contributor appeared to urge that the great evil to be guarded against was the too early removal of children from school. At the close of the business, reports were to be drawn up by the Secre-

aries, embodying the contents of the papers, and the chief suggestions made upon them in the course of the discussion which followed.—*Watchman.*

SOUTH KENSINGTON EDUCATIONAL MUSEUM.

The South Kensington Museum is a result of the School of Design, founded in 1838, and the Great Exhibition of 1851. The School of Design, under the influence of the feeling generated by the Hyde Park Palace, expanded into the present Department of Science and Art, under the Committee of Privy Council on Education, and the nucleus of a permanent museum of arts was formed at Marlborough-house. The Department of Science and Art has achieved a building in which its schemes for training may be systematically carried out, and its curiosities constantly exhibited. Thither are transferred all the ornamental specimens from Marlborough-house, the entire collection of the Architectural Museum, together with many articles belonging to the Commissioners for the Exhibition of 1851. Thus decorative art and practical science have a permanent home, which, moreover, is nobly adorned by the fine collection of pictures and drawings munificently given to the nation by Mr. Sheepshanks. The offices of the department and the training schools are under the same roof as the museum, which, while it will be a source of rational recreation to the general public, will also, it is hoped, be an important agent in the instruction of the students. The collection of works belonging to the department of ornamental art first attracts the notice of the spectator, occupying, as it does, the corridor in which he will find himself immediately after his entrance. Only a portion of the entire collection—which numbers upwards of 4,000 objects—is at present exhibited, inasmuch as about a fourth part, including the whole of the acquisitions from the Bernal collection, have been sent to Manchester.

The Educational part of the museum occupies the centre of a large iron building, which forms a wing of the entire edifice. It comprises specimens of scientific instruments, objects of natural history, models of school-rooms, casts of classical statues, and a library of 5,000 volumes, all admirably

arranged. "Education" is a wide word, as will be obvious enough, when we state the official subdivision of the department into "school buildings and fittings, general education, drawing, and the fine arts, music, household economy, geography and astronomy, natural history, chemistry, physics, mechanics, apparatus for teaching the deaf and dumb, idiots, &c., and physical training." To this collection, which will probably be the most popular of the whole exhibition, the "Commissioners of Patents' Museum" form a sort of supplement. In this department the history of the steam engine is copiously illustrated.

The nucleus of a Collection of Sculpture has also been formed by the assemblage of about fifty works, contributed by twenty-five artists, among whom are Messrs. Baily, Bell, Foley, Munro, Calder Marshall, and the late Sir R. Westmacott. By the Collection of the Architectural Museum, which occupies a large portion of the gallery and descends into the lower corridor, a complete history of the mediæval architecture of France and England is represented by almost numberless casts of decorative details.

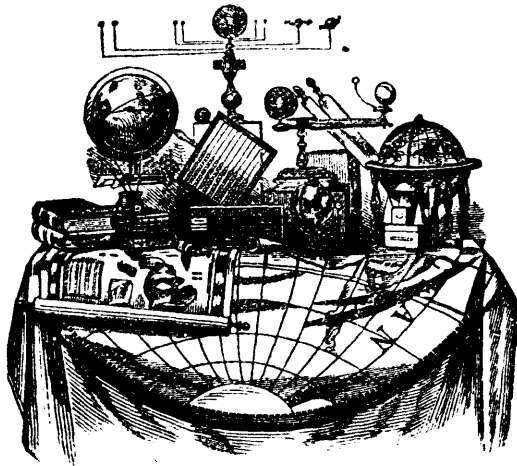
The "Trade Collection," which is likewise in the gallery, and is the property of the Commissioners of the exhibition of 1851, will not always remain in its present complete state. It is chiefly composed of the natural products used in the various arts, and of these the animal products are alone to be retained, the others being too fragmentary to justify their retention in a distinct museum. Specimens, therefore, of mineral and vegetable produce will be distributed among various national and provincial museums which admit of improvement.

Another department is the "economic museum," formed by Mr. Twining, and presented by him to the Government.

Everything has been done to render the new Museum a source of instruction and amusement to all classes alike, the exigencies of time being taken into consideration, as well as the exigencies of the pocket. On Wednesday, Thursday, and Friday, being students' days, the price of admission will be 6d.; on the other days of the week admission will be free.

The hours will extend from 10 to 4, but the Museum will likewise be open on the evenings of Monday and Thursday, from 7 to 10. The catalogues required cost 1d. each.

SCHOOL ARCHITECTURE.—(Continued.)



ON SCHOOL APPARATUS, WITH DIRECTIONS FOR ITS SELECTION, USE, AND PRESERVATION.*

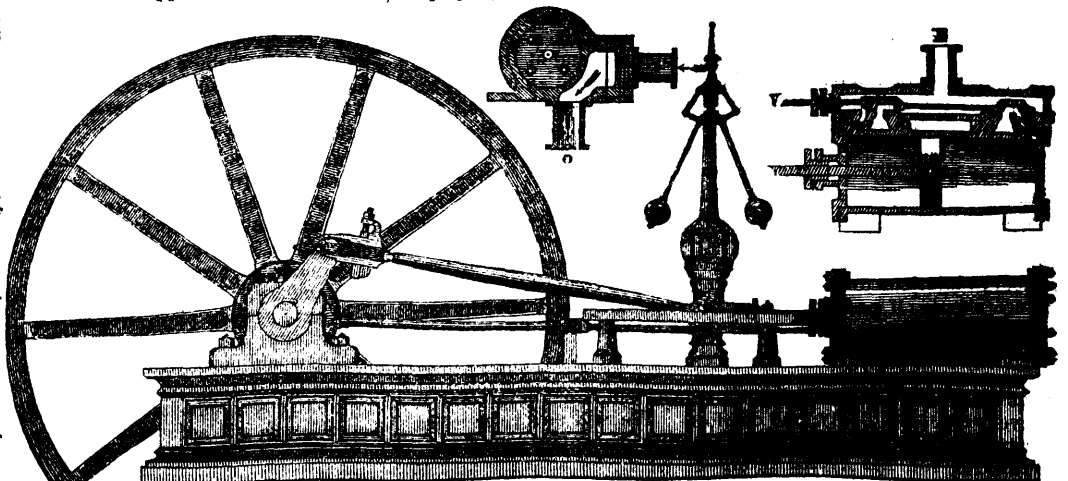
The utility and importance of the use of apparatus in the school-room, have not, until lately, been generally appreciated, as there are so many school sections in which nothing of the kind can be found.

It is now conceded by every one, that we can best understand those things which we can see and handle, as well as talk about. It is the habit of mankind to be better satisfied with a knowledge of those things the eye has witnessed, than with the knowledge of the same things of which they have only heard. "We have seen, and therefore we know," is the general sentiment. It is true that much of our knowledge of material things, of facts and of principles, is not the result of our own observa-

tion or experiment; much that we know is received and appropriated upon the faith we have in others, in connection with our own knowledge of facts and principles; but he is not well educated who relies implicitly upon the statements of others, without some corroboration of his own judgment and experience. Scholars should think well and reason correctly—should form conclusions from established facts; and to do this, as much of their education as possible should be demonstrated or illustrated by practical appeals to their reason, through the media of the eye and the touch, as well as the sense of hearing.

Nor are the senses always able to convey the truth to the mind, although generally so reliable. We may deceive ourselves by relying too much on the appearances things may assume. Optical illusions or deceptions are not unfrequent, and hence the necessity of understanding things not only as they appear, but as they are.

The most enlightened and gifted teacher will frequently find that words are not sufficient to give a clear and distinct idea of subjects which are material and objects of sense. He must bring his subject, not abstractly, but really and practically, to the mind of the pupil, in order that it may be fully understood; and if he be not prepared to make his illustrations or experiments from the best sources and models, his ingenuity should be excited to present the best his means and opportunities will allow. The more that all the senses can be employed, the more information can be gained of any subject. The



wisest philosopher, endeavoring to explain the construction and operation of a steam engine, to one not well versed in mechanical science, would fail to convey any correct idea of the machine, unless assisted by diagrams, pictures and models. Language alone would not be

* This chapter, with some modification, is taken from Mr. Gow's paper, published in the Pennsylvania School Architecture. Most of the articles mentioned may be obtained at the Educational Depository, Toronto. See descriptive catalogue sent to Trustees and Local Superintendents.

sufficient to present to the mind a clear conception of the complicated structure. Its various parts so nicely adjusted and well adapted to each other—its tremendous power and extreme velocity, could never be understood or appreciated unless it was thus seen and studied.

It is thus a question of great moment, how far material objects can be brought to assist in the improvement of the schools? Or, in other words, What tools can be put into the teacher's hands to enable him to do the most and best service, in the least time, and with the most economical expenditure of funds?

School apparatus may be enumerated under two classes. The first embraces those things which should be considered indispensable, and which no school should be without; the second contains such articles as may be considered exceedingly useful, though not absolutely essential, and also such as are most highly finished and expensive.

As the school law requires certain branches of science to be pursued in every section, we would distinguish that apparatus as belonging to the first class, which is necessary to demonstrate, illustrate, or teach those branches, viz.: Geography, grammar, arithmetic, reading, writing, and spelling, and also to assist in the management of the school. The large majority of the schools would require a complete set of apparatus adapted to this end; and some might even go further, and secure some of the instruments enumerated in the second class.

Those embraced in the second class, would consist of such *matériel* as would be used in the teaching of any particular branch of science, other than those named in the school law, as natural philosophy, chemistry, physiology, &c.

In the first place, the first-class apparatus will be treated of, because much that it includes would be applicable to schools of the highest grade.

"The bell strikes one. We take no note of time
But from its loss."

"Time is dealt out by particles;
To give it then a tongue is wise in man."

THE CLOCK AND TIME TABLE.—The habit of correct observation cannot be cultivated in a better way than by a constant reference to time. In school this is particularly the case. Every day has its appointed duties, and every hour its special exercise. To secure punctuality, regularity, harmony, and good order, a clock, which may now be obtained for a small sum, should be placed in some conspicuous position in the school-room. A time-table or programme of the class duties should also be neatly written, or printed in large letters, and hung up in an accessible place.

THE BELL.—A little hand-bell should accompany the clock, as a conservator of order, and will, if judiciously managed, save the teacher many an effort of the lungs. For opening the school, in changing classes, and at dismissal, it is a sovereign remedy for noise and confusion. Sometimes a single clip of the clapper, accompanied by a glance of the teacher's eye, will speak a language "louder than words." For ordinary purposes, a simple twenty-five cent bell will be amply sufficient, and much preferable to the spring-bell, which is sometimes used.

THE ROLL AND REGISTER.—The school law requires a record of the attendance of the scholars, to be kept by the teacher, to be carefully preserved for future reference. To carry out the law in its letter and spirit, a register should be obtained by the Trustees, from the Local Superintendent, ruled according to the prescribed form, and sufficiently large to extend through a number of years. They should require it to be kept neatly and accurately, by the teacher, and presented regularly for inspection. A book of record of this kind, kept as contemplated, would exert a beneficial influence upon all connected with the school. To the trustees it would afford, at a glance, the comparative merits of one school with another, and of the present with the schools of the past. To the parent it would exhibit the attendance of the child, and its character. The pupil, knowing the permanence of the record, would strive to appear to the best advantage upon its pages. And lastly, the teacher could refer to it as one evidence of his neatness, regularity, and faithfulness.

THE THERMOMETER.—To ascertain the degree of temperature in the school-room (always a consideration of importance), there should be at least one thermometer. By means of the ventilators, the teacher may regulate the temperature, and prevent those extremes of heat and cold so injurious to health and prejudicial to comfort. The temperature should, if possible, range between sixty and seventy degrees. Thermometers, in tin cases, range in price from fifty cents to one dollar and fifty cents.

Thus far we have treated of those things which are important to preserve order, punctuality, and comfort. We will now refer to the apparatus necessary for teaching the required elementary branches.

APPARATUS FOR THE LITTLE ONES.—It would be an easier task to select and use the apparatus of a college, than to make choice of those things suitable for the "little ones" of the school.

"The earth was made so various, that the mind
Of desultory man, studious of change
And pleased with novelty, might be indulged."

The school-house should also be "made so various." If children be well taught in school, efforts must be made to satisfy their desire after novelty and variety. They must be interested; and to interest them, they must have constant employment.

THE SLATE.—Every child old enough to attend school should be furnished with a small, neat, well bound slate. All children love to draw figures and make marks with the chalk or pencil. If the propensity which affords them so much amusement, be properly directed, it will save them many a weary hour at school. If parents were confined six hours a day, with but little intermission, listening to their teacher of sacred things, in the church; or if the father were obliged to sit for several days constantly as a juror,—a slate and pencil, a picture, would afford great relief. Letters, words, and figures may be written, and pictures may be copied during the time which, without these amusements and employments, would be spent in idleness, restlessness, or mischief. Several kinds of slates are now in use. The lighter, stronger, and more beautiful the article, the more it will be prized and used.

TABLET LESSONS AND PICTURES.—To the great comfort of teachers and saving of primers, the pages of the first national reading-book in use has been printed in sheets, so as to be stretched on pasteboard. A class may recite from these with pleasure and profit. When not in use, the children may copy the words and letters on their slates. Cards, called "chalk drawings," to be used by children as copies at the black-board, are very useful and beautiful. They represent the object—a horse or a flower, as the case may be—on a black ground with white lines, so that they appear as if drawn with chalk on the black-board. The primary and secondary colors should be painted on cards, to teach children to distinguish colors, and to cultivate their taste for the beautiful.

BUILDING BLOCKS.—For the purpose of illustrating the principle of gravitation, about one hundred blocks, each one inch thick, one inch wide, and two inches long, should be provided. Many practical arithmetical difficulties might be explained by reference to a construction by the blocks; but the chief excellence of such a set would consist in the amusement and employment it would afford the "little ones." While the teacher was busy teaching a class, they would be no less busy in quietly building those little houses.

OBJECT LESSONS.—To complete the list of those things deemed indispensable for the use of the teacher and the benefit of the "little ones," there should be provided a strong box, to contain a cabinet, or *omnium gatherum*, selected from everywhere—picked up in any place. Common-place things should there have a place. Whole volumes might be written on the simple texts there contained, which could be gathered in an hour; for, as Shakespeare says, there are "sermons in stones, and good in everything." For

"Truths,
Shine by the side of every path we tread
With such a lustre, he that runs may read."

This box should contain silk, muslin, flannel, linnen, oil-cloth, felt, druggot, brick, pottery, china, glass, iron, steel, copper, lead, tin, brass, pewter, a type, a ring, a needle, a pin, a button, steel pen, paper, parchment, leather, morocco, kid, buckskin, cocoon, hair, wool, hemp, flax, wax, gum, bean, pea, clove, coffee, cinnamon, wheat, oats, barley, buckwheat, sponge, shells, &c. Such a box would contain a mine of truth to be had for the taking.

Much philosophy can be gathered from boys' toys. A top, a kite, a bat and ball, a marble, a bow and arrow,—all illustrate some principle or principles of mechanical law. An ingenious, thinking teacher will, if many of these things are not provided to his hand by those who ought to furnish them, make them himself rather than be without them. And besides these, any teacher can afford a syphon, a magnet, a prism, a lens, etc.

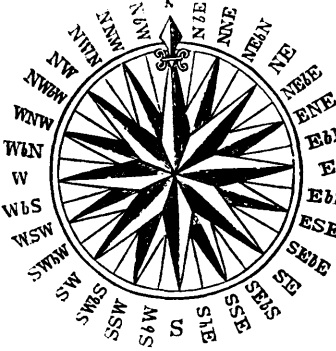
THE BLACK-BOARD is the greatest time and labor-saving invention that can be introduced into the school. It may be put to an almost infinite degree of service, from the simple teaching of the alphabet, to the most abstruse problems in mathematics. Writing, spelling, punctuation, geographic diagrams, algebra, geometry, arithmetic, philosophical figures and drawing, may all be taught with this invaluable auxiliary. If the blacked surface be sufficiently large, a dozen, or twenty, or forty pupils if necessary, may be exercised at once, and the rapidity and accuracy with which such exercises may be performed, would perfectly astonish those who are not familiar with this mode of illustration and practice. No school-house should be without black-board accommodation for at least a dozen pupils. Twenty-four feet in length will accommodate that number, but more room would be better. A board should also be prepared for the special use of the teacher. The permanent black-board on the wall, with descriptions for preparing the various kinds of surface used for this purpose, and for crayons or chalk, wipers, etc., comes under the head of School Furniture. These have been fully treated of in the preceding chapter. The movable or frame black-board, however, would seem to com-

within the list of apparatus. The size should be about three and a half by six feet, and to facilitate moving, it should be set on large castors. When not in use it will occupy but little space at the side of the room. Upon the top cross-rail, neat hooks should be inserted, to hang maps, cards, etc., necessary for little pupils.

POINTERS OR WANDS.—Several pointers should be furnished for use in the demonstration of problems on the board, and for pointing out places on the outline maps. They should be four or five feet long, neatly tapering to a point, and light.

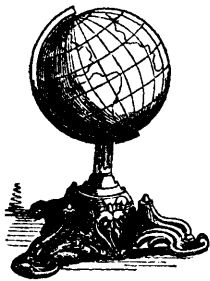
CARDINAL POINTS.—To familiarize scholars with the principal points of the compass, North, South, East, and West should be neatly painted or printed, and put up on the corresponding walls of the school-house.

GLOBES.—It is a difficult thing for a scholar to appreciate the fact that the earth on which we live is globular, and that though it has a motion which tends to throw us from its surface, yet



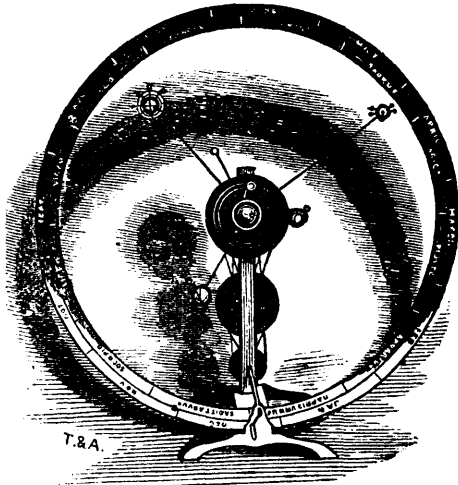
THE COMPASS.

we cannot fall from it. Maps may, to some extent, be used for this purpose; but to convey the complete idea, a model is indispensable. That model is the terrestrial globe. Not unfrequently, the pupil, attempting to learn geography without this aid, has, and will always continue to have, a confused idea of equator, meridians, parallels, and poles; of latitudes, longitudes, axis, and zones. The whole is to him without system, and with little sense. On the contrary, these terms are easily taught, if suitable subjects for illustration be provided.



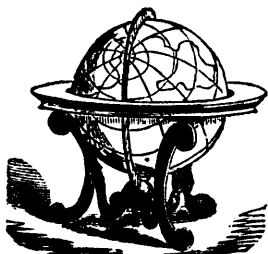
SEMI-FRAME GLOBE.

The celestial globe, or planetarium, will also much facilitate the conveyance of information as to the position and motion of the heavenly bodies, and will enable the teacher to impart some knowledge of astronomy. Globes are generally constructed in pairs, and though the terrestrial is more useful, and better calculated to impress the true idea of the thing represented, than the celestial, yet both will be found highly advantageous.



A PLANETARIUM.

A hemisphere globe supplies a want long felt, viz.: An illustration, which any child can understand, of the reason of the curved lines on a map, and shows how the flat surface is a proper representation of a globe. Two hemispheres are united by a hinge, and, when closed, a neat little globe is presented; when opened, two maps are seen, showing the continents, as if through transparent hemispheres.



BRONZE FRAME GLOBE.



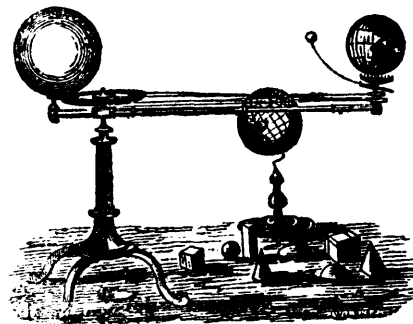
WOODEN FRAME GLOBE.

MAPS.—A map is a picture of a part, or of the whole of the earth's surface. From a study of such pictures the mind is enabled, by the principle of association, to transfer and secure a mental copy or impression from the canvas or plate.

Amongst the best maps for the school-room are Johnston's and the Irish National Series. Outline maps, or such as have no names on them, but merely an outline of the general characteristics of the country represented, are also very good. When properly instructed by means of these, children have no difficulty in carrying in the mind's eye the forms and features of the various countries, and the relative positions they occupy to each other and to their own.

There should not be less than ten maps in the set; comprising the eastern and western hemispheres, Canada, America, Europe, Asia, Africa, United States, the British Islands, &c.; and, if possible, a map of the county and township containing the school. These maps should also be well colored, and hung as objects of beauty and taste around the room. They can also be procured in cases. Whenever they are used in recitation, they should be removed to the north side of the house, or hung on the moveable black-board, so that the points of the compass on the map may correspond with their true position on the earth.

THE TELLURIAN, OR SEASON MACHINE.—As a useful accompaniment to the globe and maps, in the study of geography, we notice the tellurian, or season machine. Among the most difficult phenomena presented to the minds of children, are the changes of the seasons—



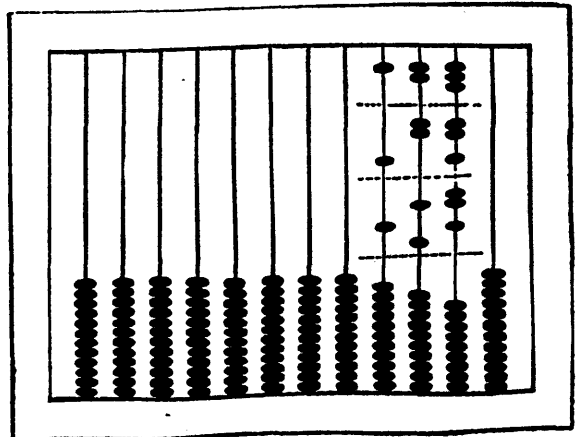
THE TELLURIAN.

the revolutions of the moon around the earth, and the earth around the sun—and the subject of tides. These, and several others, may be illustrated and explained by the aid of this machine. The science of geography, in its common acceptation, includes, with "a description of the earth," some account of its physical phenomena—of its people, manners, customs, religion, and laws;

and of its relation to the other parts of the solar system. In this view, the study of the earth's motions and changes, although belonging to the science of astronomy, might properly be classed among these subjects to be taught in the school.

MULTIPLICATION TABLE.—In order to acquire facility in using numbers, the multiplication table must be committed to memory. To facilitate the memorizing of abstract numbers, musical association may be used. Cards, large enough to be seen across the school-room, should be hung around. They will serve as ornaments to the room, and answer the double purpose of assisting the memory and training the vocal organs. It is an immense labor to learn these tables. If any one doubts this, let the attempt be made to commit the numbers from twelve times twelve to twenty-four times twenty-four, and the doubt will be dispelled. Everything should be done to assist children, and make pleasing such hard labor, in which the thinking powers take little part.

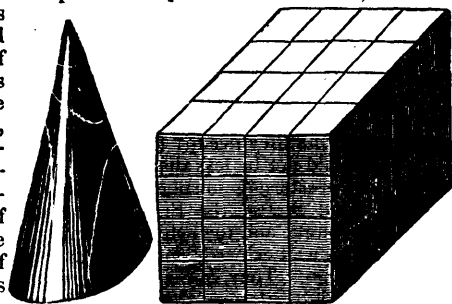
THE ABACUS, OR NUMERAL FRAME.—The cut shows a frame supporting twelve rows of little wooden balls, strung on wires, along which they move readily. The simple rules of arithmetic are difficult to acquire abstractly. Children count by means of their fingers, until they acquire proficiency. This instrument is better, as the



NUMERAL FRAME.

teacher can instruct a whole class or school at the same time. Involution and evolution may be illustrated, by means of the instrument, to those further advanced in mathematical study.

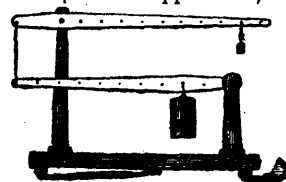
GEOMETRICAL SOLIDS.—A portion of practical arithmetic, in most or all the text-books now in use, is devoted to the mensuration of solids. Such solids should be put into the pupil's hands. Cubes, cones, prisms, pyramids, spheres, hemispheres, spheroids, cylinders, and sections of each, should comprise a portion, at least, of the set. If measures of length, as the foot, divided into inches and nails—yard and rod; and measures of capacity, as pint, quart, gallon, and half-bushel were added, the assortment would be more useful and complete. Solids, representing timber and boards of different measurements, should also be secured.



FORMS AND SOLIDS.

CUBE ROOT BLOCK.—To make apparent the reason of the rules for the extraction of cube and square roots, the sectional cube block should be used. This block, or rather number of blocks united, forms a cube. The parts may be separated from each other, being held together by wire pins. In connection with the abacus before mentioned, the whole subject may be rendered perfectly plain by its use. The cost of the above articles depends upon their size and the finish put on them.

MECHANICAL POWERS.—The principles of natural philosophy, in their practical application, should be seen and understood in school.



LEVERS.



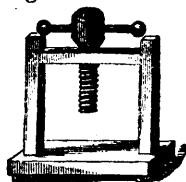
WEDGE.

Many arithmetical operations are based upon them. An apparatus, such as is seen in the cuts, would give a better practical knowledge, in a few weeks, of the principles of mechanics, than would be learned by experience in years. Such knowledge is invaluable

to its possessors, as every day some principle is used in practice. The set should embrace the lever, simple and compound; the wheel and axle, erect and inverted; the pulley, fixed and moveable; the inclined plane; the wedge and the screw.

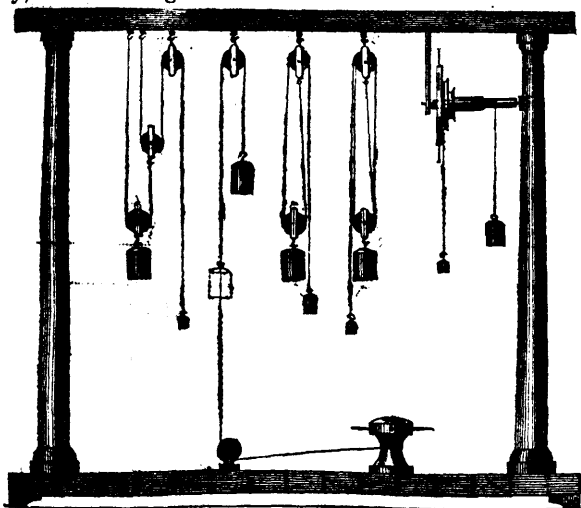


INCLINED PLANE.



SCREW.

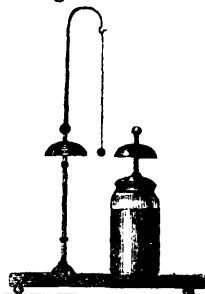
To these might be added a set of illustrations for the centre of gravity, both amusing and instructive.



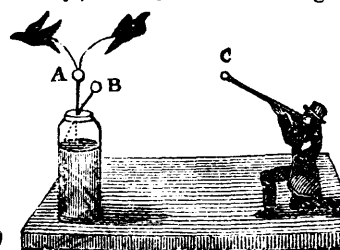
SET OF MECHANICAL POWERS.

ELECTRICITY.—The science of Electricity affords perhaps as great and as interesting a variety of experiments as any other. The principles of the science may be presented in so many applications, as to keep the student in constant wonder and delight. By aid of apparatus the operator seems invested with magical or supernatural power. He calls this invisible agent into active life, directs its energy, and controls its force. Now, it appears darting and flaming, sparkling and crackling like the lightning's flash; and now subdued and tame,

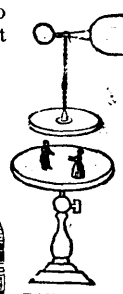
it rings a chime of bells. Now like an engine of death the birds fall before the mimic gun, charged to destroy; and again, it causes light



ELECTRIC BELLS.



ELECTRIC SPORTSMAN AND BIRDS.

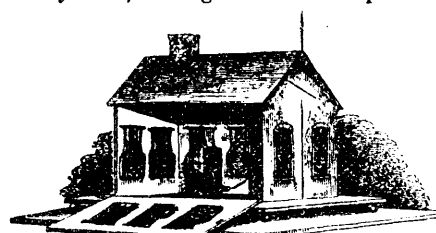


DANCING FIGURES.

footed figures to dance a merry reel. We fear its force, we wonder at its greatness, and we laugh at the curious freaks it plays. The shattered model of the miniature house, the head of hair in wild disorder, the miser's plate, the magic picture, all are full of interest and instruction. There are various kinds of electric machines. Instead of the plate, many machines are furnished with a glass cylinder, as a generator. The plate ma-



LEYDEN JAR.



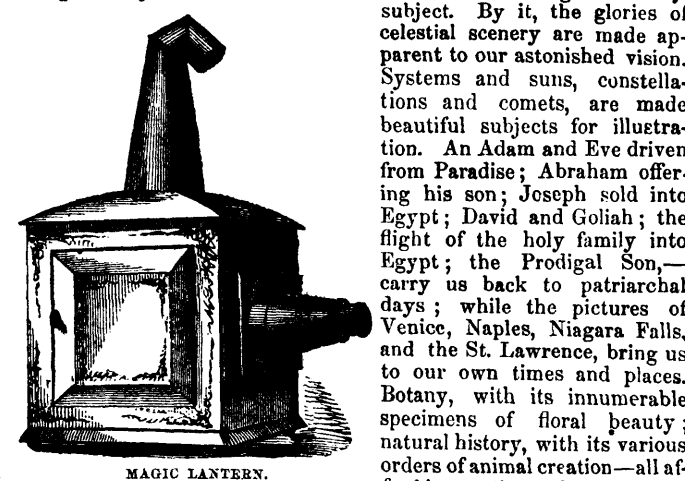
THUNDER HOUSE.



LEYDEN JAR.

chines are deemed the best. Machines may be purchased at from five to one hundred and fifty dollars, exclusive of jars, discharging rod, chains, &c.

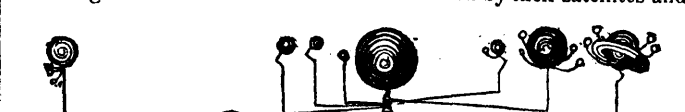
THE MAGIC LANTERN.—There is no instrument of which we know that embraces a wider range of application than the magic lantern. Ingenuity and invention seem to have been almost exhausted in providing its subjects for exhibition. It seems to throw light on every



MAGIC LANTERN.

subject. By it, the glories of celestial scenery are made apparent to our astonished vision. Systems and suns, constellations and comets, are made beautiful subjects for illustration. An Adam and Eve driven from Paradise; Abraham offering his son; Joseph sold into Egypt; David and Goliath; the flight of the holy family into Egypt; the Prodigal Son,—carry us back to patriarchal days; while the pictures of Venice, Naples, Niagara Falls, and the St. Lawrence, bring us to our own times and places. Botany, with its innumerable specimens of floral beauty; natural history, with its various orders of animal creation—all afford instruction and amusement.

The drunkard's progress; the progress of intemperance; and the bad boy's progress,—illustrated by some thirty different representations,—convey moral truths and virtuous lessons. While the lover of the ridiculous finds infinite fun in the comic characters and humorous scenes.

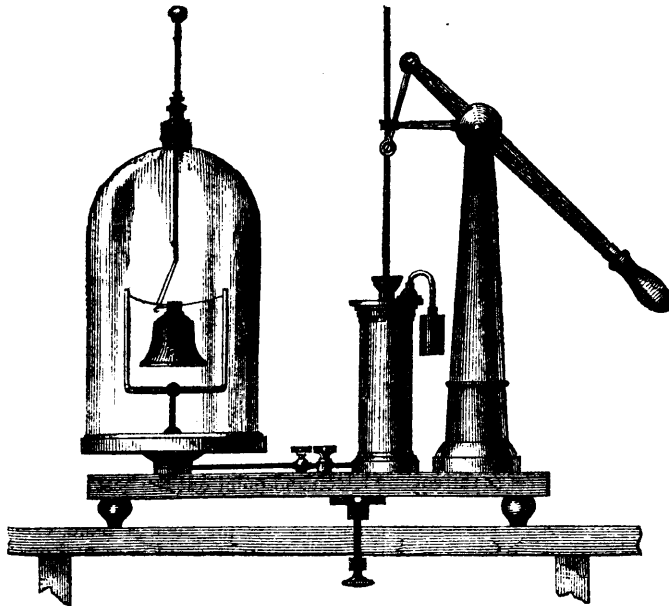


ORRERY.

ASTRONOMY.—The apparatus to which we refer, for the study of the science of astronomy, consists of the Orrery, or model of the planets, revolving in their various orbits and surrounded by their satellites and

put in motion by a crank or spring. The Telescope, without which we cannot see very far into this science. The Tellurian, of which mention was made on page 85; and the Celestial Globe.

PNEUMATICS.—Many beautiful and interesting experiments may be performed with the air-pump. The elasticity, expansiveness, and compressibility of air, may be illustrated by this machine. Four of



AIR-PUMP.—FIG. 1.

our cuts represent experiments which are made by the air-pump. These experiments demonstrate, clearly and practically, some facts,

which to the uneducated would seem paradoxical. Thus, to prove that air is the means by which sound is transmitted, it is only necessary to place a bell under the glass receiver of the machine, and to exhaust the air, or, in other words, to pump it out, and then by a contrivance, as seen in fig. 1, to ring the bell, and no sound will be heard. If the air is returned to the receiver, and the bell struck, its presence is discovered by the ringing. Again, to ascertain the weight of air, if a hollow sphere of copper, and air tight, is placed as seen in fig. 3, at one end of a delicate balance, under the exhausted receiver, after being weighed in air, the difference of weight will indicate the weight of the air. Fig. 4 shows that the air offers resistance to falling bodies, and that if the long glass tube have the air removed from within it, on being inverted suddenly, the piece of coin and the feather which it contains, will fall to the other end at the same instant.

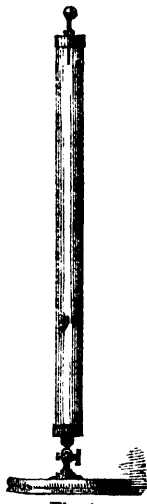


Fig. 4.

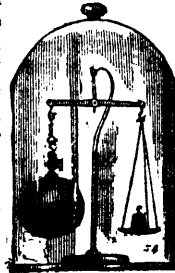
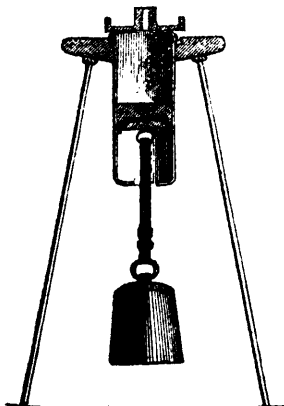
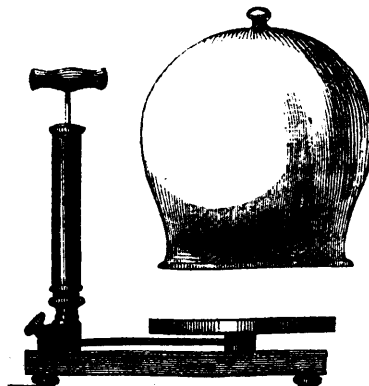


FIG. 3. WEIGHING AIR.

Figure 5 exhibits a glass receiver. The air exerts a pressure of fifteen pounds to the square inch in all directions, up as well as down; so that when the air is exhausted from the glass, it presses upward externally, to fill the vacuum, and carries with it the suspended weight. These and a great variety of others may be subject



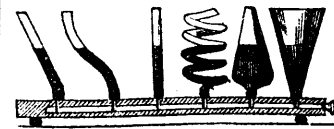
WEIGHT LIFTER.—FIG. 5.



AIR-PUMP.—FIG. 2.

of illustration in this interesting department. Apparatus illustrating the principles of Pneumatics, is exceedingly useful, as it teaches that which has a constant application to the business of every-day life.

HYDROSTATICS AND HYDRAULICS.—This department of science may be illustrated by many interesting and instructive experiments. The

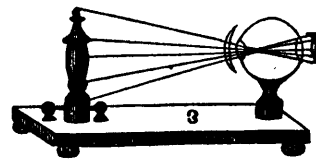
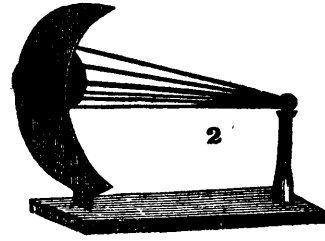
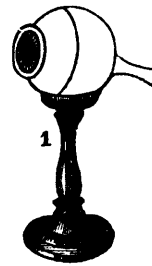


WATER LEVEL.

Water Level exhibits a variety of vessels of different forms and capacities, united at the bottom by an aperture common to all. If water or any other liquid be poured into the funnel-shaped vessel at the end, it will run into each of the others

and rise as high in them as in the one into which it was poured, thus demonstrating that a liquid will rise to a common level, without regard to size or shape of the united vessels which contain it.

PHYSIOLOGY.—In the sciences of Anatomy and Physiology which are taught in all good schools at the present time, anatomical charts and models illustrating the functions of the several parts of the body,

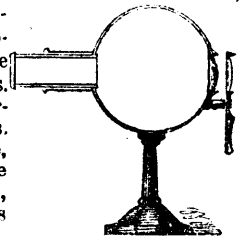


EYE MODELS.

or their philosophy in the system, are found necessary. The cuts, 1, 2 and 3, exhibit something of the anatomical structure of the eye, together with the illustration of optical philosophy as seen in that organ. No. 4 represents the "spectacle instrument." The object of this instrument is to show the reason why the concave glass is suitable for one eye, under certain conditions,

and the convex glass, in different circumstances, is better suited to the necessities of another; or in other words, to show why the boy cannot see with his grandfather's specs. Every school in which these studies are pursued, should be provided with such facilities.

A Maniken or model of the human figure, with the muscles and other parts removable at pleasure, and of the form and color of life, will be found of great use and value in this study. A set of physiological plates, at least, should be in every good school.



No. 4.

CASE OR CLOSET FOR APPARATUS.—It will be seen, by reference to the chapters on the construction of school-houses, that some provision has been made, in every instance, for the keeping and preserving of such apparatus as would receive injury by constant exposure in the school-room. Instead of wooden closet-doors, sash-doors with glass, where deemed advisable, might be substituted. The glass should be of good quality. The panes should be of large size, in order to give the most light, and to exclude all particles of dust. The door should be furnished with a good lock, that it might be closed against all intruders. Within, the shelves should be so arranged as to be easily raised or lowered, so as to suit the height of different instruments, and that all the apparatus may be exposed to view, thus adding much to the appearance of the room. Every article should be so placed that it might be easily taken out, and at the same time show to the best advantage. The light, small articles might be hung at the back of the closet, on small hooks; while the larger and heavier ones should occupy the shelves. There should be a place for everything, and special care should be taken to keep every thing in the place allotted to it. Neatness, order, and convenience will thus be secured.

In those schools where the ordinary closet would not be sufficiently large to accommodate the apparatus, a neat case should be prepared, of the required length and height, made of thoroughly seasoned stuff, and closely joined together. The doors should be made like large sash, and filled with large, strong panes of glass, well put in. Instead of being hung on hinges, the doors should be double, and made to slide like sash, only horizontally instead of vertically. Dust can thus be more effectually prevented from entering and injuring the apparatus. The shelves should be constructed to move up and down at pleasure, like those of a book-case, in order to accommodate large articles, and facilitate their removal at pleasure. One apartment of this case might accommodate the library of the school.

THE USE AND CARE OF APPARATUS.—Some general remarks in relation to the handling of apparatus, may not be inappropriate at the close of this chapter. The teacher should understand his subject thoroughly before he attempts to illustrate it. The object of such illustration is, to teach, to convince and to impress the subject on the mind; if the illustration is not as complete and satisfactory as the apparatus is capable of making it, failure and mortification is the result. Comprehending the subject as clearly as possible, the teacher should practice all the experiments in private, that he may be well prepared when he comes before his school or class. He should try them repeatedly, in order to be perfectly familiar with their operation, and in order to acquire accurate, delicate, and successful manipulation. When about to use the apparatus, it should be thoroughly examined and freed from dust or specks, which it may have contracted since it was last used. When in use, it should be carefully treated and not entrusted to the indiscreet working of thoughtless, careless children. Children should not be permitted to handle, or even to touch any article, except by the express permission of the teacher. Not even a black-board, to say nothing of anything else more liable to accident, injury, and abuse, should be used by the scholars, unless under the eye of the teacher.

Sometimes a teacher may find a portion of his apparatus not in complete working order. Something in the complicated machinery, very trifling, perhaps is wrong. A little care, a little management and study, and a little patience (always a cardinal virtue in a teacher,) will, in most cases, make all right; if not, no bungling careless hand should be permitted to attempt its repair, but it should be put carefully by, that a proper person may be employed to investigate the mischief and apply the remedy.

For the greater security of the property of the school, the article of agreement between the teacher and the board should be so written, as to make the teacher individually responsible for all damage to school furniture, windows, apparatus, &c., caused by his own misuse, carelessness, or neglect. Such a specification would insure interest and attention in those matters, which are so often neglected, because the teacher would have a pecuniary interest in their preservation. No teacher should be employed who would not willingly assume such an obligation.

After the apparatus has been used, it should be carefully examined and immediately put in the case. Every particle of dust, dirt, soot, oil or water which may disfigure, corrode or injure the instrument should be removed. Everything should be put by in complete order; and if thus treated, and occasionally examined when not in use, a case of apparatus will last a long time, and preserve all its excellence and much of its original lustre and beauty.

(To be continued.)

EDUCATIONAL TOOLS AND INSTRUMENTS;

OR, THE TRUE USE OF TEXT-BOOKS.

(An essay read before the Illinois State Teachers' Association, held in Chicago, December, 1856, by Chauncey Nye.)

No set of tools will supply the place of tact in the method of use; but tact will sometimes compensate for deficiencies in implements. One Bull will play a good tune on a poor violin, and he will play a better one on a good instrument. The music, then, is really in the man; and the superiority of better instrument is valuable only as aid. By whatever means and in whatever way he applies himself, it is music still.

In teaching, if the thing exists in the man, it will usually be found in the subject and in the occasion. Formality and rule, beyond what is required for harmonious operation, only render the routine of school duties still more monotonous. In the use of text-books there is a right and a wrong way; but in particular instances the teacher is to judge which is the right and which the wrong. Out of the one grows the development of many good habits; out of the other that of as many bad ones.

Every thing that we are in duty bound to teach is not found in books. These pertain mostly to the training of the intellectual faculties and the powers of mechanical execution. A large part of the matter for thought which the pupil tries his powers upon is contained in them. The philosophy is found here. They also supply in all cases most of the information that the scholar gets, and in too many the whole. To one class of teachers they are the nucleus about which every thing is gathered that can be which will interest and inform the pupils; to the other they are all that can be presented upon the subject. To the one the book is a way of doing a thing; to the other it is the way of doing it. To the one it is an aid, to the other a necessity.

Every object and principle in nature or science affects the mind with an intensity proportionate to the acuteness of perception. Principles, clearly seen in their origin, and understood in their relations, are the mind's charmers, the excitants of enthusiasm. We are not to suppose that the vibrations which entered the of Mozart or Beethoven nor that

the tints which Michael Angelo Raphael saw were more brilliant than any others. Those understood the relations of sounds; these are the relations of light and shade. And each glowed with a growing fervor and a growing zeal as the premises of his art became more familiar and distinctions more delicate. Hence, the necessity of a well-defined knowledge of first principles and definitions seems to spring out of the nature of mind. This is the threshold at which many a tyro has stumbled, and ever after been unable to gain a firm stand-point. The first use of the text-book, then, is to make it define its position.

In study, time can not fully compensate for vigorous application. A subject may be mastered in one hour, or by moderate effort it may be mastered with equal thoroughness in two hours. Now it may be that the benefit derived from the performance of a given task does not vary inversely as the time expended, but certain is it that he who takes hold of a subject with all the mental manliness that he has secures to himself an efficiency which less energetic exertion never reaches. The majority of mind with which we meet in public schools is scarce capable of close application. It is governed by impulse. The merest accident snatches off the attention in the midst of a demonstration, and the boy's course of reasoning falls, like his block-house, into ruins. Again! If the pupil has a will to resist every foreign influence, is it then sure that he will make the best of his time? Let the number of studies be sufficient to fill up the whole of the time with vigorous effect, and will there not be danger of frequent and hurried interchanging, and consequently of partial distraction? And if this be the case, is it not enough to put the book into the pupil's hand and hear him recite at the appointed time? The recitation-hour affords opportunity to awaken an interest in the coming lesson and point out the best method to be pursued in preparation. But in schools where the exercise is necessarily short, if the scholar constantly has his book at hand, can sufficient attention be given to the cultivation of speed in mental operations? How would the advantages and disadvantages of allowing the pupil to have his books but for a stated time compare with the course usually pursued? Previous preparation should be such as to render text-books unnecessary at the time of recitation, unless it be an exercise similar to that of reading or spelling. In most cases where the text-book is closely followed, it is probably the best that can be done under the circumstances. No teacher who clearly understands the subject in hand will be willing to be encumbered by it. If the pupil has mastered preceding lessons and studied faithfully the one before him—if the teacher has mastered the whole—if books of reference have been consulted and a plan of operation determined upon, it makes but little difference with the teacher who is a teacher whether the text is used or not.

A principle is a veritable thing, having a beginning and an end, various in its capability of application, but always the same. To make it plain, comprehension must encompass it. It must be kept before the mind till its parts are located and its most important relations are traced out. It must be studied as a subject, and not as a number of pages of the text. It must be varied, and looked at from more than one position. We define words by means of synonymous expressions. The word itself is no available definition of itself. And thus the text-book, which is, or ought to be, only a compend of the science, can not through its own explanations become really clear to the pupil.

The practical application of what is learned is a matter replete with importance in this utilitarian age and country. The pupil of a formal book-knowledge may be thorough in his way, and yet detect no connection between what he studies and what he hears, sees and does. Many a young geographer who can answer the questions promptly would find himself at his wit's end if asked whether he ever saw the earth or not. The boy who at length found one question in the lesson that he could answer, and whose eye brightened as he declared that Connecticut River was behind the barn, had a more practical knowledge of the subject than some of his class-mates, who laughed at him, and who could give a description of the river, word for word. The same can not be said, however, of the girl who was sure that Turkey was at home, in the yard, with the rest of the poultry. There was also an exhibition of philosophy, quite as satisfactory as is found in many other instances where more book-phrases are used, when the pupil said that he wrought this example thus and so to "fetch it."

To be able to hold the attention of the class is the right arm of the teacher's power. To pretend to instruct without this is mockery. The true teacher, with a subject so clear as not to deaden the natural intonations of voice and the magic eloquence of the eye, will easily secure and retain the attention; but, whatever be the ability brought to the task, unless the subject be clear, and independently handled, interest will flag. The questions, which in the mind of the pupil are frequently the only things that have any connection with the answers, become monotonous, and as potent in soporific influence as the "ninthly" and "tenthly" of a dog-day sermon.

Let, then, the premises be made clear; let the circumstances be such as to produce vigorous study; let there be no necessity for the text-book at the time of recitation; let illustration and language be varied by the use of synonyms; let it be required to go over the book

but once; let order and neatness be cultivated in the use of all the tools of the School-room, and the object will be sure. We will then have independent thinking and sensible talking. The first principles will, in reality, become the seed, which shoot up, bud and blossom, as the pupil progresses, and finally ripen into the fruit of mantel strength and utility.—*Illinois Teacher.*

THE BOX OF BRICKS.

Children ought to have toys; and every mother should feel that the subject of toys, trifling as it may appear, is worthy of her serious consideration. A child's playthings are exceedingly important objects in his eyes; and they must, therefore, be gradually exerting a powerful influence over him. Very slight observation will prove this. Is not a turbulent boy rendered ten times more turbulent and noisy by the inconsiderate present of a drum, a gun, or a whip? May not an idle little girl be won to the love of the needle by the timely gift of a doll, whose cloths she is herself to make and repair?

As soon as a child is able to amuse himself with a toy, the mother should consider what kind of playthings are most suitable for him. Perhaps a few hints on this subject may prove not unwelcome to the young mother, who is watching with delight the dawn of intelligence in her first-born.

Your little son has passed the first anniversary of his birth—his rattle and his coral are thrown aside—he is tired of them—you enter the toy-shop to select some plaything that may cause those bright merry eyes to sparkle with new joy on your return home. Yonder shelf of painted toys attracts your attention, with its birds and beasts in gay colours, and dolls with black heads and rosy cheeks; but do not select from these. Tempted by the gaudy colours, the little fellow will soon transfer such a toy as this from his hand to his mouth; and, as he sucks off the green, and red, and blue from his painted parrot, he is imbibing, perhaps, a deadly poison.

But, without enumerating the toys from which you should turn away, let me direct your attention to this box of bricks. "He is too young for this!" you exclaim. "Why these bricks have little pictures and the letters of the alphabet on them; you cannot mean that I should teach the letters to a child of twelve or fourteen months." No, I do not mean that you should; that would, indeed, be forcing the young intellect rather too much. But, buy that box of bricks, take it home to your little boy, and, trust me, you will not repent of your selection. You cannot lay out a small sum in a manner that will contribute more to his amusements and instruction. Do not laugh at the idea of instructing a baby only a year old; such little folks will learn, and do learn; every day and every hour they are receiving instruction, and they are delighted with each fresh acquisition they make to their very slender stock of knowledge.

Try the experiment, young mother. Spend an hour or two each day in playing with your baby and his bricks, and you will be surprised and delighted at the quickness with which he will learn to distinguish the little pictures that cover them; and you will feel in your own heart somewhat of the glee and pride with which the little fellow points to the cow, and horse, the dog, &c., and attempts to articulate their names.

A little fair-haired, blue-eyed boy is sitting at our feet, playing with bricks of this description; they are his favorite playthings, and have been so for the last seven or eight months; and very great progress he has made during that time in amusing himself with them. At first he always wanted mamma to sit down by his side and build houses, which it was his amusement to knock down. He is still very fond of demolishing his houses and castles; but for the last two months he has constructed them *himself*, and only applies for mamma's assistance when some obstinate brick will not stand in the elevated position in which he wishes to place it. Many a half-hour and hour does he thus entertain himself with building castles and watching their fall.

The little pictures, too, on the sides of each brick have become quite familiar to him. It is a great amusement to him to be told to bring the dog, the cat, the man, the bird; and he runs to select from the number the one which he is desired to bring. Is not this, in fact, a little lesson, exercising at once his memory and his powers of discrimination? And when his dawning intelligence becomes more developed, will not the transition from the pictures to the letters under which they stand be very easy? Instead of "Charlie, bring mamma the cow," it will then be, "bring mamma C;" and the little fellow will run with equal delight to fetch the brick thus designated. Thus learning the letters, which is too often a tedious task, will be converted into a pleasant pastime.

You will find it necessary to take a little pains at first to teach your baby the use and amusement to be derived from his bricks; but you will find yourself amply repaid for the trouble. Indeed, we pity that mother who would consider it a *trouble* to spend an hour a day in thus developing the intelligence of her child.

We are no advocates for the precocious forcing of the powers of the mind. We see and hear of infant prodigies with compassion rather

than with admiration; but we do not think that such simple instruction as contributes evidently to the amusement of a child, without causing the least weariness, ought not to be withheld. And when we see one of a year and a half or two years old gnawing the edges of every book he can lay hold of, or tearing out the leaves, we cannot help thinking that it is a pity he has not been taught to understand and love pictures. The little Charlie, whose love for his pictured bricks has been alluded to, may be safely trusted with a handsome volume of natural history. The pictures of the birds and beasts represent familiar ideas to his mind; he attempts to call out the name of each one as he looks at it, and the thought of tearing or defacing the book never seems to occur to him.

Teach your children early to love pictures; and, perhaps, the simplest and cheapest means is to begin with the pictured bricks.—*M. F. A. in the British Mothers' Journal.*

Miscellaneous.

LITTLE BY LITTLE.

BY ANNIE PARKER.

Little by little, the bird builds her nest;
Little by little, the sun sinks to rest:
Little by little, the waves in their glee
Smooth the rough rocks by the shore of the sea.

Drop after drop, falls the soft summer-shower;
Leaf close by leaf, grows the cool forest-bower;
Grain heaped on grain, forms mountains so high
Their cloud-capt summits are lost to the eye.

Little by little, the bee to her cell
Brings the sweet honey, and garners it well;
Little by little, the ant layeth by,
From summer's abundance, winter's supply.

Minute by minute, so passes the day;
Hour after hour, years are gliding away.
The moments improve until life be past,
And, little by little, grow wise to the last.

"THE WANDERING SHEEP."

It was evening, and the rich mellowed light of an autumn sunset was pouring through the half-closed casement as the physician entered.—

His first glance towards my child told me that my worst fears were being fulfilled. Death had entered that chamber, and set his seal on the fair brow, and sounded in the voice of the beautiful little one, whose spirit was passing away.

Oh! the anguish of that hour! For weeks I had not bowed the heart in prayer but I prayed then. I besought with the energy of dying hope that God would yet save my boy, and I impiously attempted to bargain with the Omnipotent vowing to give him my wicked, wandering heart, if he would give me the life of my child. God in his mercy heard not that prayer. My child died. And now my proud heart rose, in impotent rebellion against Him who had given me my boy and who had but taken back his own. I know now that while he was mine I had "fallen asleep." He had bound my heart so close to earth, and earth had become so dear to me, that I cared not to think of Heaven. Oh! had that child lived, I tremble to think that in my overweening fondness I might have led him in any path than the narrow, difficult one, that leads to heaven. But I did not think of all this then—God had taken from me my only joy, and I did not try to say, "Thy will be done." I know not how long my hard, impenitent heart might thus have treasured up wrath against the day of wrath, had not God, who in divers manners calls his wanderers to the fold, been pleased to speak to me in a way truly singular and impressive. "The Lord appeared in a dream."—Methought I was standing alone on the summit of a lofty, mountain, and Evening, with her "spectral fingers," was fast drawing her mantle of darkness round the earth. The mountain was wild and rugged, no trace of vegetation was there, but yawning caverns and frightful precipices, and the loose gravelly bed of many a dried mountain torrent, rendered its aspect terrible indeed. The roar of the evening wolves, and the grating laugh of the hungry hyena issuing from its den in search of prey, were the only sounds that broke the stillness of that mountain solitude.

I had not time to wonder at my unaccountable position, or to speculate on the strange chance which brought me there, before my attention was attracted by a small flock of mountain sheep, threading their way down a steep, narrow, and, seemingly, very dangerous path. They were led by their shepherd, who knew well the dangers of the mountain side and the safety of the right way by which he chose to lead them; and to his kind care they trusted, fearlessly following him whose voice they knew so well.

A sturdy wolf I saw, narrowly watching and closely following the track of the sheep, evidently longing to devour any unhappy wanderer or careless loiterer on the road. I saw too, with extreme interest, one poor sheep attended by a little lamb, who was first inclined to loiter on the way. She seemed deaf to the roar of the hungry wolf, and to have forgotten the precipice, the guernion, the avalanche, and the gaping abyss, all too ready for the destruction of careless travellers. The voice of the good shepherd, who still watched the erring one, was fast becoming unheeded. Again and again he called, but that voice, once so joyfully and intelligently obeyed, was now as the voice of a stranger, whose own the sheep are not. The little feeble lamb at her side so entirely absorbed her, that the voice of love and warning, and the almost certain destruction which awaited herself and her tender one were alike unheeded in her foolish, indiscriminating fondness. Every moment I expected to see the prowling wolf seize on the helpless, undefended lamb, but the good shepherd seemed to exercise a mysterious power which I could not understand. Again and again was the enemy about to make the fatal spring, but the glance of the guardian shepherd stayed him like a spell, and he fell back with a savage growl of hatred and disappointment.

The dangers increased as the darkness thickened. The sheep was surely lost, I thought. But no! the good shepherd leading the flock sought the wandering one, and, in tones I can never forget, he said, "It is not my will that this little one should perish." He stooped, and gently gathered the lamb in his arms, and carried it in his bosom.

Oh! how closely and lovingly the mother clung to the Shepherd! The little one was removed from her sight now, but she knew it was safe from the dangers into which she had led it, and was happily resting on his bosom.

Doubly dear was the Shepherd who had taken her little one; and for the rest of the toilsome and dangerous way, she was the one who clung most closely, and followed most lovingly, and enjoyed the double portion of the Shepherd's tender care. There was nothing to separate her from him now. I believe nothing could have tempted her to turn from the path he trod, or to loiter in the dark valleys. A turn in the track now hid them from my view. I awoke, and behold it was a dream.

Could any words of man's wisdom, however eloquent or well-chosen have shown me half so clearly where my sin had been, which made it necessary for my child to be taken from me? Could anything have taught me so clearly the sin of my rebellious, murmuring spirit, as the lesson I learnt from the restoration of "The wandering sheep?" God says, "They that err in spirit shall come to understanding, and they that murmur shall learn doctrine."—*English Sunday School Teachers' Magazine.*

LESSONS IN NATURAL HISTORY.—(Continued.)

2. THE MASON-BEE.—"The ancients, not content to admire the wonderful instincts and qualities of the hive or honey-bees, gave them credit for some to which they had no just pretensions. Seeing bees flying about, laden with little gravel-stones, the older naturalists thought they did so to prevent their being carried away by the wind; but there can be little doubt, that they mistook the honey-bee for the mason-bee.

"Lumps of mortar may sometimes be seen adhering to the garden wall, when it is exposed to the sun. These have not been formed, as would at first appear, by a careless bricklayer who has left some of his material to disfigure the wall. Any attempt to remove it will prove it able to resist the impression of the strongest knife. This lump is the work of care, and is a house which has been reared by the mason-bee. It contains eight or ten cavities or cells, in each of which is deposited an egg, with the supply of food which the young grub will consume, from the time it is hatched until it is ready to go forth into the world, and seek its own fortune.

"The mason-bee selects with skill a site suitable for its future habitation. Then it sets about collecting the material for building. This is composed of sand made into mortar. The insect knows very well that all kinds of sand will not make a good cement; the grains must neither be too large nor too small. The little creature therefore, selects with the greatest care such as will suit its purpose, only a few such grains being contained in a heap of sand, if we may judge by their actions

"A French naturalist says: 'I could not understand why the bee did not take the whole of its load from that part of the gravel-walk on which it first settled. Having collected a few grains in one spot, it flew to another. The whole walk was covered with the same kind of sand, and I could not discover the slightest difference. Hence, I infer that this insect possesses some sense which leads it to detect advantageous peculiarities, which elude human observation, in the form of the sand.'

"The bee does not carry off the sand grain by grain; but collects a sufficient quantity to form a heap of the size of a small shot, and cements this mass together with a glew which it ejects from its mouth.

With the gravel and cement it mixes a little earth, which makes it firmer. This little pellet of well-tempered mortar is then carried by the bee to the spot selected for its nest; where the foundation is soon formed by a regular, circular succession of such little balls. On this foundation, it proceeds to raise a round tower of very small dimensions.

"Every time a fresh supply of mortar is brought, the insect may be seen to twist and twirl it between its teeth and first pair of legs; it is then laid in the place destined for it, and moulded to its proper shape.

"As the tower increases in height, the bee may be seen thrusting its head into the cell, as if to examine it, and to see if the interior is perfectly smooth, as it will come in contact with the unprotected skin of its cherished offspring. On this account, it is smoothed with all the skill and assiduity the tender parent knows how to exert. The outside, being intended for no such purpose, is left rough. Each cell is separately formed; and then the whole is enveloped in a common covering made of sand.

"After the cell has reached its desired height, and before it is quite finished, the mason-bee, like the carpenter-bee, goes in quest of pollen, which it deposits as a support for its future young. It enters the cup of a flower, covers itself with pollen, and then flies home to its nest, where the dust is brushed neatly off, and mixed with a quantity of honey which the bee disgorges from its honey-bag. Thus it makes the necessary bee bread. When a sufficient quantity of this has been prepared and nicely packed away, an egg is laid, and the cell is closed; and when all are thus filled, they are covered over, and the labor of the mason-bee terminates. The scene of its industry and the object of its unwearied care seem to be at once forgotten. The purposes of nature have been answered; the perpetuation of the race is provided for, and the insect dies.

"In the habits of the mason-bee, we see an illustration of a maxim which prevails to a considerable extent among men. 'Might makes right,' say the strong, and the weak are obliged to yield. It is no uncommon thing for the mason-bee to appropriate to itself the home of another, and usurp its rights.

"Notwithstanding the great strength of their habitations, the mason-bees suffer much from their insect enemies, some of whom steal into these stony towers, and devour the offspring of the industrious mason, in the very recesses of their home.

"But, of all the enemies of this insect, the most destructive is the ant. When one of these strolling marauders has discovered the hidden treasure of the bee, information is at once given to the whole tribe of the prize and they repair in long files to obtain the booty. The poor bee makes every effort to resist its foes, but, fatigued at last, disheartened, and unable to drive off the advancing host, it gives up in despair, and abandons the produce of its labors to unrelenting enemies.

"The eggs, which are left inclosed in their stony prison, undergo the usual changes, and the young eat their way through the hard substance without the aid of their mother! Dr. Hamel put one of the nests of a mason-bee under a glass; the opening he covered with a piece of gauze. He saw three young bees, which had pierced through three inches of their nest, unable to cut the gauze which prevented their escape, and so they perished.

"The mason-bee adds another to the long catalogue of seemingly insignificant creatures, which display, by instinct, powers of forecast. almost silencing the boast of man as a reasoning being."

3. THE HUMBLE BEE.—"There are many kinds of bees whose history seems less wonderful, perhaps, but not less curious, than the hive or honey-bee. Some of these live in societies, but their limited number, rudeness of their habitations, when compared with the populousness of the order, and architecture of the hive, make us feel as though we were contemplating a village, after having seen a large and thickly-settled city. The contrast, however, is interesting; just as it is well for one, who has marked the manners of civilization, to enlarge his knowledge by observing the habits of simple rustics, or even the rude customs of the savage.

"The *Humble-bee*, so well known in the country, may well be called a villager. It makes no pretensions, and passes no sleepless nights, to fill a station, or act a part never designed for it. The communities vary from twenty to three hundred. Like true rustics, they are all born to labor.

"Here is no queen, attended by a numerous guard, who live but for her, and die if she is removed,—no idle males, subsisting upon the fruits of others labor,—but all, male and female, share alike the common efforts for maintenance.

"Alone, and unattended, the female lays the foundation of her future little village, and its inhabitants are all her own children. The *humble-bee*, so truly named, raises her dwelling from the foundation. There is nothing to attract attention in the exterior; a tuft of moss a few inches high and buried seemingly in a clod, conceals all that is dear to those little creatures. Examined more closely, the mossy filaments will be found to be interlaced, and so carefully put together, that not a grain of dirt is intermingled with the texture. The slight vault, although two or three inches thick, is hardly able to protect

the young from the wind and rain; but to remedy this defect, the inner surface is lined with a cement, which excludes the wet.

"Who taught the bee thus to care for and protect its offspring? Who implanted that powerful instinct in its nature which in its workings is so like to reason?"

"If a nest be watched, one of its inhabitants will be seen to bury itself in a mossy hole, about a foot from the nest. This is the entrance to a secret way which leads to its habitation. Sometimes, curiosity to see the bee work, overcomes the reluctance one might feel to destroy its patient labor. The nest is always placed in the middle of the material from which it is to be constructed.

"No one has ever detected them in bringing the moss from a distance; rather than do so, they repair the vault, when it is injured, with materials from their secret way. Sometimes they even do without, rather than forage for moss. They divide their labor very singularly. A bee settles on a tuft of moss, its head being turned from the nest. With its teeth, and first two legs, it divides and disentangles the filaments, and transfers them to the two middle legs. The second pair seize and push it to the third pair, and these thrust it as far behind as they can reach; by which means a piece of moss is advanced toward the place where the nest is to be, by a space which exceeds the whole length of the bee. Another bee, in a line with the first, passes it along; and thus four or five, stationed in a row, spend their time and labor in conveying the materials for building.

"The inside of the nest contains a comb, or combs; but it is entirely destitute of the symmetry and order which are so characteristic of the comb of the hive-bee.

"The upper surface of each comb is irregularly convex, its under concave; and it is composed of oval eminences placed against each other. These are not cells for the young, but cocoons; beside them, are deposited ill-shaped masses, which constitute the chief object of interest with them. These are the receptacles for the eggs, and contain, sometimes, as many as thirty. They are filled with a kind of bee-bread, formed of the pollen of flowers, moistened and prepared by the bee, so that when the little worm is first hatched, it has food and raiment within reach. The nest also contains little vessels, which are filled with excellent honey.

"The humble-bee has a much finer instinct than the hive-bee in discovering the nectary of flowers. In many blossoms this is concealed, but the humble-bee finds it out, and taps it; just as a butler gets at the contents of a cask. But the hive-bee, like the cunning inhabitant of a city, allows the rustic to gather the treasure, and then waylays and robs him.

"A curious story is related to illustrate their generous disposition and good nature. In a time of scarcity, some hive-bees, after robbing an humble-bee's nest, took entire possession of it; one or two, however, still lingered about their old habitation, and went into the fields to collect honey, which they brought home, when the hive-bees surrounded and licked them. These manoeuvres lasted about three weeks.

"Their affection for their young is very remarkable. When about to lay her eggs, the female is obliged to watch, with the greatest care, to keep the others from devouring them. For six or eight hours, she watches the cell containing her precious charge, when the desire to injure the eggs seems changed for the most assiduous care. They know just when the food will be consumed, and a new supply is constantly furnished. As the young increase in size, their cells burst, and the artisans are close at hand, who repair the breach by putting on a patch of wax. When the chrysalis is about to change into a bee, the workers cluster over the cocoon, and cherish the tender inhabitant with the heat, which is necessary to its existence.

"Such are some of the habits of that little creature whom we so thoughtlessly see visit the flowers in our garden. May we not well inquire, 'if God has endowed this insect of a day with such wonderful powers, what are we to infer as to the capacity and obligations of those whom He has created in his own image, and destined for immortality?'—*Student and School-mate.*

BREAD CAST UPON THE WATERS.

I was standing by the side of my mother, under the spacious porch of Dr. Beattie's Church Glasgow, awaiting the hour for afternoon service, when I observed two young men turn a corner, and walk towards the church. They were dressed in their working clothes, unshaven and dirty, and slightly intoxicated. As they passed the church door, they assumed a swaggering, irreverent gait, laughed, and finally commenced singing a profane song. My mother turned to me, and said, "Follow these two men, and invite them to a seat in our pew.

I soon overtook them, and delivered my mother's message. One laughed scornfully, and began to swear; the other paused and pondered; he was evidently struck with the nature of the invitation. His companion again swore, and was about to drag him away; but he still paused. I repeated the invitation, and in a few seconds he looked in my face, and said, "When I was a boy like you, I went to church every Sunday. I have not been inside of a church for three years. I

don't feel right. I believe I will go with you." I seized his hand, and led him back to the house of God, in spite of the remonstrances and oaths of his companion. An excellent sermon was preached from Eccles. xi. 1, "Cast thy bread upon the waters: for thou shalt find it after many days." The young man was attentive, but seemed abashed and downcast.

At the conclusion of the service, my mother kindly said to him, "Have you a Bible young man?" No ma'am; but I can get one," was his reply. "You can read of course?" she said. "Yes ma'am." "Well, take my son's Bible until you procure one of your own, and come to church again next Lord's day. I shall always be happy to accommodate you with a seat."

He put the Bible in his pocket, and hurried away. At family worship that evening, my mother prayed fervently for the conversion of that young man.

Next Sunday came, and the next, but the stranger did not appear. My mother frequently spoke of him, and appeared grieved at his absence. He had, doubtless, been the subject of her closest devotions. On the third Sabbath morning, while the congregation were singing the first psalm, the young man again entered our pew. He was now dressed genteelly, and appeared thin and pale, as if from recent sickness. Immediately after the benediction, the stranger laid my Bible on the desk, and left the church, without giving my mother an opportunity she much desired of conversing with him. On one of the blank leaves of the Bible we found some writing in pencil, signed "W. C." He asked to be remembered in my mother's prayers.

Years rolled on; my mother passed to her heavenly rest; I grew up to manhood, and the stranger was forgotten.

In the autumn of 18—, the ship *St. George*, of which I was the medical officer, anchored in Table Bay.

Next day, being Sabbath, I attended morning service at the Wesleyan Chapel. At the conclusion of worship, a gentleman, seated behind me, asked to look at my Bible. In a few minutes he returned it, and I walked into the street. I had arranged to dine at the "*George*," and was mounting the steps in front of that hotel, when the gentleman who examined my Bible laid his hand on my shoulder, and begged to have a few minutes' conversation. We were shown into a private apartment. As soon as we were seated, he examined my countenance with great attention, and then began to sob; tears rolled down his cheeks; he was evidently labouring under some intense emotion. He asked me several questions—my name, age, occupation, birthplace, &c. He then inquired if I had not, when a boy, many years ago, invited a drunken sabbath-breaker to a seat in Dr. Beattie's church. I was astonished; the subject of my mother's anxiety and prayers was before me. Mutual explanations and congratulations followed, after which Mr. C. gave me a short history of his life.

He was born in the town of Leeds, of highly respectable and religious parents, who gave him a good education, and trained him up in the way of righteousness. When about fifteen years of age, his father died, and his mother's straitened circumstances obliged to take him from school, and put him to learn a trade. In his new situation he imbibed all manner of evil, became incorrigibly vicious, and broke his mother's heart. Freed now from all parental restraint, he left his employers, and travelled to Scotland. In the city of Glasgow he had lived and sinned for two years, when he was arrested in his career through my mother's instrumentality. On the first Sabbath of our strange interview, he confessed that after he left church he was seized with pangs of unutterable remorse. The sight of a mother and a son worshipping God together recalled the happy days of his own boyhood, when he went to church and Sunday school, and when he also had a mother—a mother whose latter days he had embittered, and whose grey hairs he had brought with sorrow to the grave. His mental suffering threw him on a bed of sickness, from which he arose a changed man. He returned to England, cast himself at the feet of his maternal uncle, and asked and obtained forgiveness. With his uncle's consent he studied for the ministry, and on being ordained, he entered the missionary field, and had been labouring for several years in Southern Africa.

"The moment I saw the Bible this morning," he said, "I recognized it. And now, do you know who was my companion on the memorable Sabbath you invited me to church? He was the notorious Jack Hill, who was hanged about a year afterwards for highway robbery. I was dragged from the very brink of infamy and destruction, and saved as a brand from the burning. You remember Dr. Beattie's text on the day of my salvation, 'Cast thy bread upon the waters: for thou shalt find it after many days.'"—*British Mothers' Journal.*

(From the Home Journal.)

The following sweet and touching lines are from the pen of an educated and accomplished woman, well known in the magic circle of good society. They refer to an actual scene, which she very pathetically narrates. Her little boy was dangerously ill of fever. At midnight he suddenly awoke from a troubled sleep, and called wildly for his

mother. Perceiving that she sat near him he became calm, and soon afterwards uttered a little prayer she had taught him in the cradle. The lady had already lost two children, to which affliction she alludes in her own supplication to heaven. This child recovered, and still lives.

THE MIDNIGHT PRAYER.

'Mid the deep and stifling sadness, the stillness, and the gloom,
That hung a veil of mourning round my dimly-lighted room,
I heard a voice at midnight, in strange tones of anguish, say,
"Come near me, dearest mother! Now, my God! oh, let me pray."
And, soft as vesper music, wailing sadly through the aid,
In plaintive utterance, then tolled forth his simple evening prayer,
The same sweet hymn his lisping tongue so oft to me had said,
When but an infant still, he knelt beside his cradle bed.
Methought the Almighty's love must bless that gracious little vine,
Whose budding tendrils I had taught around His throne to twine.
Methought an angel's gentle hand the silver chime did toll.
That called to prayer each thought within the temple of his soul.
And by the tearful beaming of his eyes I seemed to trace
The spiritual worshippers within that holy place,
As solemn light will sometimes through cathedral windows pour,
And reveal the pale nuns kneeling upon a marble floor.
A radiance seemed to gather o'er his mournful face the while,
Like starlight stealing sadly down a consecrated aisle,
And, round his pale high forehead, hung a halo, soft and faint,
As falls from holy tapers on the image of a saint.
And that frail, suffering, patient child, so full of faith divine.
His soul lit up with holiness—that saint-like boy was mine;
And, like the broken chrysalis, my heart was only probed
To see its nursling heavenward spring, in shining vesture robed.
He prayed—and, dumb with anguish, did my trembling spirit wait,
Till that low wail had entered at the everlasting gate;
And then I cried, "Oh! Father, throngs of angels dwell with thee,
And he is thine—but leave him yet a little while with me.
Two buds has Azrael plucked from out the garden of my love,
And place them in the living wreath that spans thy throne above;
Twice o'er love's consecrated harp have swept the cold dark wings;
And when I touch it now, alas! there are two broken strings.
Twice have his strong, sharp arrows pierced the lambs within my
fold,
And now in his unerring grasp another shaft behold!"
Two prayers went up at midnight—and the last so full of woe,
That God did break the arrow set in Azrael's shining bow.

Educational Intelligence.

CANADA.

— UNIVERSITY OF TRINITY COLLEGE.—On Wednesday the 1st inst., a meeting of the Convocation of the University of Trinity College was held in the College Hall, for the purpose of conferring degrees. Sir John Beverley Robinson, Bart. Chancellor of the University, presided, and the Lord Bi-hop of Toronto was also present.—The following gentlemen were admitted by the Chancellor to the honorary degree of D. C. L.

The Venerable Alexander Neil Bethune, D.D., Rector of Cobourg, and Archdeacon of York.

The Rev. Thomas Brock Fuller, D.D., Rector of Thorold, and Rural Dean.

The Rev. Francis Evans, Rector of Woodhouse, and Rural Dean.

The Rev. Henry Patton, Rector of Cornwall and Rural Dean.

The Rev. Samuel S. Strong, D.D., Incumbent of Ottawa, and Rural Dean.

The Rev. William McMurtry, D. D., Rector of Niagara.

The Rev. A. F. Atkinson, Rector of St. Catharines.

The following Degrees were also conferred:

(*ad eundem gradum.*)

The Rev. Stephen Lett, LL.D., Trinity College, Dublin.

The Rev. John Travers Lewis, LL.D., Trinity College, Dublin.

The Rev. William Bernard Lauder, LL.D., Trinity College, Dublin.

The Rev. John Walker Marsh, B. A., King's College, Toronto.

M. A., The Rev. John Walker Marsh; B. A., Henry Hall.

The following gentlemen have competed successfully for Scholarships:

Bethune, Charles Jas. Stewart..... Wellington Scholar.

Cayley, Edward..... Burnside Scholar.

Wood, John..... Allan Scholar.

—Colonist.

— THE REV. DR. JENNINGS.—The honorary degree of D.D. was conferred on the Rev. John Jennings, of the United Secession Church, Toronto, at the twenty fifth annual commencement of the New York University, on the 1st instact,

— SCHOOL APPARATUS FREE OF DUTY.—His Excellency has been pleased to declare that the exemption from duty of "Philosophical Instruments and Apparatus" was intended to be and is confined to such Philosophical Instruments and Apparatus only as are imported for the special use of Philosophical Societies, Universities, Colleges, Public Schools and Institutes.

— WOODSTOCK LITERARY INSTITUTE.—On Tuesday, the twenty-third ultimo, the ceremony of laying the Corner Stone of the Canadian Literary Institute was celebrated. Shortly after twelve o'clock a number of people met at the Town Hall, and, accompanied by the Woodstock Band, the Victoria Fire Brigade, and the children of some of the schools, marched in procession to the site of the building. Colonel Whitehead, the master of ceremonies, announced the object for which they were assembled there, and called upon the Rev. James Cooper to open the proceedings with prayer, after which, Rev. R. A. Fyfe of Toronto stated the object for which the Institution was being established. It was an institution which he had long anxiously desired to see established. The name of it indicated its object. It was called "The Canadian Literary Institute," and it was intended to provide a good education for young men and young women. It was not intended to build up a particular class of views, but for the benefit of that large class of farmers who were growing wealthy and desired to give their sons and daughters an education superior to what could be obtained in the Common Schools. It was not intended to supersede the Common Schools, but rather to begin where they left off. Although the institution was being built under the auspices of the Baptist body, and the education would properly be under religious influences, there was to be no test whatever imposed. It was proposed to establish scholarships, and for this purpose a subscription list would be opened some time next fall. The idea was to give for a scholarship a four years' course of training to one pupil, or, if preferred, two years to two pupils, or four pupils one year. The price of a scholarship to be £20, one half of which would be payable on the opening of the institution, the balance as the pupils receive the value of it in attendance at the institute. The documents and papers that will be deposited in the stone are as follows: a copy of the *Journal of Education for Upper Canada*; the Report of the Chief Superintendent of Education for Upper Canada for 1855; the Report of the Chief Superintendent of Education for Lower Canada for 1855; a copy of the *Baptist Register*, a copy of the *Christian Messenger*, a copy of the *Times*, *Sentinel*, and *Gazetteer*; a manuscript copy of the Minutes of the First Meeting of the Board of Trustees of the Canadian Literary Institute, containing the names of each member of it; a copy of the Charter of the Canadian Literary Institute; a printed copy of the Constitution and By-laws of the Victoria Fire Brigade; a memorandum of the names of the Architect and the Superintendent of the building. Deacon Burch then proceeded to the business of the day, with the trowel, the square, and the hammer. Having pronounced it "square," and placed it in its position, he mounted upon it, and proclaimed that he laid this corner stone in the name of the "Father, the Son, and the Holy Ghost." The Band then struck up "God save the Queen;" after the performance of which George Alexander, Esq. being called upon, he rose and said: That the custom of celebrating the commencement of important public buildings with all the rites of inauguration has long been observed in different parts of the world. Such ceremonies occur very frequently in this country, sometimes upon breaking ground for some contemplated railway, or other great public improvements intimately connected with the progress of our country. The occasion of our being assembled here to-day, would perhaps be an appropriate one for asking ourselves whether, amidst all our progress and all the triumphs of human skill and science, which have added so much to man's comfort and convenience, also to the wealth of our country by the facilities afforded to commerce; I think this would be a suitable moment to enquire whether, amidst all the wonderful discoveries and appliances of mechanism, man himself is becoming *wiser* and *greater*, under all the influences by which he is surrounded. If there is great value and importance to be attached to the steam engine and the electric telegraph, we must value still more the human mind and the social and moral progress of man. Mr. Alexander proceeded to illustrate the great advantages enjoyed by the people of this country, paying a just tribute of respect to Dr. Ryerson, whose never-ceasing exertions had brought into practical operation our excellent school system, with its public libraries of valuable

selected works, now within the reach of all the youth of the country. He further rejoiced to learn that the necessary fund had been obtained to erect this Literary Institute, which would furnish the means of high literary and scientific instruction; and hoped that the success which had attended the efforts of the Rev. Mr. Cooper, Mr. Fyfe, Mr. Hatch, and others, would stimulate the members of other religious bodies to labour for the introduction of similar institutions. No town could be more healthfully or advantageously situated than Woodstock, with its pure water and healthy locality, and being on the Great Western Railway, as a favored spot for some of the public seminaries and colleges of this rising Province. The Rev. J. A. Davidson, of Brantford, next addressed the audience in a short but excellent speech, full of good humour and sound sense. The Rev. Dr. Ryerson spoke for a considerable time in a manner that did equal credit to his head and heart. His thorough and practical acquaintance with educational matters made his remarks, which were listened to with the deepest interest, highly suggestive and entertaining. The Rev. Mr. Wilkinson, of Lobo, closed the proceedings with a few remarks, thanking the Band for the excellent music they had at intervals discoursed, and the Fire Company for honoring the procession with their presence. He then pronounced a benediction, and the audience separated.—*Woodstock Gazetteer*.

COLONIAL.

— R. C. COLLEGE, PRINCE EDWARD ISLAND.—The Right Rev. Dr. Mullock, recently laid the foundation of a Roman Catholic College at Charlottetown, Prince Edward Island.

— EDUCATION IN THE MAURITIUS.—The *London Morning Chronicle* in giving a *resumé* of Governor Higginson's late blue book on the state of the colony over which he presides, thus refers to the difficulties in promoting education there:—"It was a wise remark of Lord Grey, in one of his circular despatches to the governors of our tropical possessions, that no class of proprietors are so deeply and directly interested in the education and moral improvement of their laborers as the planters. At last the Mauritius Government is making efforts to overcome the peculiar impediments opposed in that Colony to educational progress. The principal impediment lies in the difference of language spoken by the two different races of laborers, which suggests the institution of separate schools for the Indians and the Creoles. On this point the Governor and his Council have, it seems, differed; the Governor recommending that teachers and suitable books in the vernacular dialects should be obtained from India for the Coolies; the Council insisting that children of both races should be taught in the same school, through the medium of the Creole or *patois* of the island. There is, however, an annual grant of £8,783 for Common Schools, and a public institution called the Royal College is maintained at an annual charge of £7,000. Two of its pupils are yearly sent over to this country to complete their education, and, of those so sent, three young men of color have recently competed with success for honors in the British Universities."

BRITISH AND FOREIGN.

— NEW PROFESSOR AT OXFORD.—Sir Matthew Arnold has been elected Professor of Poetry, Oxford, by a majority of 363 against his opponent, the Rev. J. Bode, who polled 278 votes; and Mr. C. Neales, M.P., was elected by 194 votes Professor of Political Economy, his opponents, Rev. J. E. F. Rogers polling 130, Mr. Nassau, senior, 128 votes.

— DUBLIN UNIVERSITY PROFESSORSHIP.—The Rev. William Lee, D.D., Fellow of Trinity College, and author of "Lectures on the Inspiration of Holy Scripture," has been elected to the Professorship of Ecclesiastical History, vacant by the promotion of Dr. Fitzgerald to the see of Cork.—*Times*.

— EDUCATION IN WALES.—The want of a superior training college in the Principality has long been acknowledged. To obviate this great want, it has been proposed to take Gnosau Mansion, near the town of Neath; this is situated in the midst of a populous and rich mineral district, adjoining the South Wales Railway Station, and not far from Milford Haven, Swansea, Cardiff, Newport, and Bristol. The number of students at first to be admitted is limited to 200; the course will extend for three years; the fee for each student, 200 guineas per annum. The College is intended to be opened on 1st October next, the preliminary examination to take place in July. A number of influential noblemen and gentlemen, among whom

are the Bishop of St. David's, Earl Jersey, the Lord Lieutenant of Glamorgan, the Dean of Llandaff (Dr. Conybeare), have expressed their willingness to co-operate in the measure.—*Mining Journal*.

UNITED STATES.

— NEW PROFESSORS COLUMBIA COLLEGE.—The following gentlemen have recently been appointed professors in Columbia College, City of New York:—Professor Joy, professor of chemistry in Union College, to the chair of chemistry; Professor Davies, formerly of the U. S. Military Academy, West Point, to the chair of mathematics; and Professor Lieber, recently of Columbia College, South Carolina, to the chair of history and political economy; Professor Samuel Eliot of Trinity College, Hartford, to the chair of ancient and modern literature. Mr. Eliot is known as the author of a "History of Liberty in all Ages," and a "History of the United States." He graduated at Harvard in 1839, and has travelled in Europe. He is an Episcopalian. The chair of philosophy remains to be filled. These four are new chairs,—the two last separated from the chair of intellectual and moral philosophy, evidences of religion, political economy, *belles lettres*, &c. Of the other two, one from the chair of natural and experimental philosophy and chemistry, the other from that of astronomy and mathematics. Other plans for enlarging the scope and perfecting the means of instruction in the College are under consideration, and the whole will, it is believed, be matured to take effect with the beginning of the next academic year, in the third week of September next. The "other plans" here alluded to are said to be to extend the course of study from four to six years, and to establish a number of fellowships at a salary of \$500, to be distributed among the graduates as a reward of eminent scholarships, thus giving the College some of the features of a University.—*N. Y. Commercial Advertiser*.

— EXPENDITURES OF SCHOOLS, CITY OF NEW YORK.—At the last meeting of the Board of Education, the finance committee submitted a report designating the appropriations of money for the year 1857, as follows:—

Various checks drawn on the Chamberlain	\$143,572 18
For salaries of teachers and janitors in the ward and primary schools	500,000 00
For incidental expenses and repairs	65,000 00
For repairs through the shop	10,000 00
For books, stationery, &c.	80,000 00
For rent of premises for school purposes	11,000 00
For appropriations to the corporate schools	28,692 28
For the support of Free Academy	45,000 00
For repairs on Free Academy	2,000 00
For the support of normal schools	15,000 00
For support of evening schools	45,000 00
For salaries of the City Superintendent and assistants; Clerk of the Board of Education, assistants, and other officers	24,000 00
For incidental expenses of the Board of Education, printing, repairs of the hall, &c.	11,000 00
For the purchase of site, for erecting, enlarging, and repairing buildings, and for miscellaneous appropriations made by the Board of Education, on account of Ward schools and school buildings	120,146 36

Amount of school money for the year 1857. \$1,100,410 82

— REPORTS ON THE PROPOSED NEW YORK FREE ACADEMY FOR GIRLS.—The Board of Education some time ago appointed Messrs. Erastus C. Benedict, Dr. A. V. Williams, Nelson J. Waterbury, Dr. William Eager, and William H. Nelson, a special committee to report on the project of establishing in this city a free academy for girls. The majority of the committee, indeed all except Mr. Nelson, has reported in favor of the measure, but he has reported against it, and assigns the following reasons: 1st. That our grammar schools now provide for the young females of the city all the educational advantages which the state is bound to provide; 2nd. Because the establishment of such an institution must be a positive detriment to our present schools; 3rd. Because such an institution would fail of success if established, in consequence of the want of any considerable number of pupils to attend it; 4th. Because it would be an institution for the benefit exclusively of the wealthy, while the poor, or those of limited means would be taxed to maintain it; 5th. Because this is a time for retrenchment and economy, and not for laying out plans for the useless expenditure of public money.—*Id.*

— MASSACHUSETTS has 4,300 public schools. In Boston there are already nearly 20 female physicians, nearly all of them doing a good practice.

Literary and Scientific Intelligence.

—THE NEW READING ROOM OF THE BRITISH MUSEUM—This magnificent room contains ample accommodation for 300 readers. Each person will have a separate table, four feet three inches long. He is screened from the opposite occupant by a longitudinal division, which is fitted with a hinged desk graduated on sloping racks, and a folding shelf for spare books. In the space between the two, which is recessed, an ink-stand is fixed, having suitable penholders. Thus the whole table top is free from writing implement or other embarrassments, and every precaution is taken to preserve the books if the readers will but use common care. The frame-work of each table is of iron, forming air distributing channels, which are contrived so that the air may be delivered at the top of the longitudinal screen division, above the level of the heads of the readers, or, if desired, only at each end pedestal of the tables, all the outlets being under the control of valves. A tubular foot rail also passes from end to end of each table, which may have a current of warm water passed through it at pleasure, and be used as a foot-warmer if the reader have a slow circulation, or perchance there comes a Moscow Winter. It is calculated that the inner library shelves in galleries within the Dome room will contain 80,000 volumes. Two lifts are placed at convenient stations for the purpose of raising the books to the level of the several gallery floors. For convenience of access to the galleries, the staircases have been placed so that, throughout the building, they are within forty feet of each other. The building contains three miles lineal of bookcases, and which in all the cases are eight feet high; assuming them all to be spaced for the average of octavo book size, the entire ranges form twenty-five miles of shelves. The cost, above £150,000, includes the fittings and furniture and the necessary shelves for the working of the existing library establishment. The decoration of the interior dome is happily an exception to the monotonous and dingy shadows usually adopted in this country. Light colors and the purest gilding have been preferred. The great room therefore, notwithstanding its circular shape, has an illuminated and elegant aspect. The growth of the British Museum Library has been rapid since the days when the late Mr. Disraeli and two or three others were all who availed themselves of the books and manuscripts which were stored in Montague House, and the changes since then have been great. The number of readers who now use the Library annually is upward of thirty thousand. In 1836, two years before the opening of the old reading room, the library of printed books consisted of 230,000 volumes. In 1851, it consisted of 470,000 volumes, or at the rate of 16,000 volumes a year on an average. It is probable that the increase of books added to the British Museum will, as education advances among the masses of the people, both at home and abroad, be much more than 16,000 volumes annually; but even at that the library in 1900 (forty-three years hence) will contain 1,270,000 volumes. In 1851, the library occupied 51,050 feet, or very nearly ten miles of shelves; at the end of this century the shelves will extend nearly thirty miles, or ten miles further than from London to St. Alban's.

—A NUBLE DONATION TO THE NEW YORK STATE LIBRARY.—Letters recently received from Mr. J. V. L. Pruyn, now in Europe, advise the trustees of the State Library, that the Great Seal Patent Office of Great Britain has granted his application, on behalf of the State of New York, for a copy of the great work on patents now being published by the British Government, and of which but 250 copies are printed. This publication is comprised in two series. Of the old series, or patents granted prior to 1852, there are 14,200 specifications, which will fill not less than 200 folio and 200 quarto volumes. In the new series, extending from 1852 to 1857, there are about 13,000 specifications, which will fill about 170 folio, and the same number of quarto volumes. The whole work, therefore, will be completed in about 740 folio and quarto volumes, the cost of which (a single set,) is not less than \$25,000. Through the advocacy of Senator Wadsworth, the requisite appropriation for the binding of this splendid work, \$4,000, was made at the last session.—*Albany Atlas.*

—THE INDIAN MATERIA MEDICA.—The Government of India pays upwards of £40,000 a year for quinine alone. Notwithstanding this vast expenditure, the supply might be tripled with advantage. Indents for quinine are jealously watched. At civil stations it is almost refused, and during an outbreak of fever it is always the first article to fall short, and the last to be sufficiently replaced. Of the cost of the remaining drugs we are not informed, but it can scarcely fall short of something like thirty laes of rupees a year. These two figures are sufficient to prove the importance, in an economical point of view, of the substitution of native drugs. There is probably not a medicine imported from Europe, not a

costly drug from South America, which has not its counterpart in India. A skilled chemist, communicating with all India, testing every drug, and bringing all experience into one focus, would do more in a year to ascertain the true qualities of the native pharmacopœia than the board will accomplish in a century. Such an officer would be no very expensive addition to the staff of the medical service.—*Bombay Telegraph.*

Departmental Notices.

PRIZES IN SCHOOLS.

The Chief Superintendent will grant one hundred per cent. upon all moneys transmitted to him by Municipalities or Boards of School Trustees for the purchase of books or reward cards for distribution as prizes in Grammar and Common Schools.

SCHOOL REGISTERS.

School Registers are supplied gratuitously, from the Department, to Grammar and Common School Trustees in Cities, Towns, Villages and Townships by the County Clerks—through the local Superintendents. Application should therefore be made direct to the local Superintendents for them, and not to the Department. The supply for the present year has been sent out.

SPECIAL NOTICE TO TEACHERS.

Public notice is hereby given to all Teachers of Common Schools in Upper Canada, who may wish to avail themselves at any future time of the advantages of the Superannuated Common School Teachers' Fund, that it will be necessary for them to transmit to the Chief Superintendent, without delay, if they have not already done so, their annual subscription of \$4, commencing with 1854. The law authorizing the establishment of this fund provides, "that no teacher shall be entitled to share in the said fund who shall not contribute to such fund at least at the rate of one pound per annum." This proviso of the law will be strictly enforced in all cases; and intimation is thus early given to all Teachers, who have not yet sent in their subscriptions, to enable them to comply with the law, and so prevent future misunderstanding or disappointment, when application is made to be placed as a pensioner on the fund.

TEACHER WANTED.

A HEAD MASTER wanted immediately for the Union Grammar and Common School of Cayuga, County of Haldimand. A liberal salary will be given. Apply to Mr. Winram, Secretary to the Board. Cayuga, 25th July, 1857.

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