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PERILS OF THE SCHOOL-ROOM.

To those who may have objected to the Public School Regulations relating to the provision for space and ventilation in School-houses, we heartily commend the following address on the subject, which was recently delivered before the American Public Health Association of Philadelphia, by Dr. Bell, editor of the N.Y. *Sanitarian*. After reading that address, so full of startling truths, we trust that no person interested in preserving life in the School-room will not only raise no further objection to these Regulations, but will rather aid, as far as possible, and as they have opportunity, in carrying them out. Our Regulations on the subject are as follows:—

**Adequate School Accommodation.**—The law declares Trustees shall provide adequate accommodation for all the children between the ages of five and twenty-one years resident in their school section, city, town, or village. These "accommodations" to be "adequate," should include

(1.) A site of an acre in extent, but in no case less than half an acre, so as to allow the school-house to be set well back from the road, and furnish play-grounds within the fences. A convenient form for school grounds will be found to be an area of ten rods front by sixteen rods deep, with the school-house set back four or six rods from the road. The grounds should be strongly fenced, the yards and outhouses in the rear of the school-house being invariably separated by a high and tight board fence; the front grounds being planted with shade trees and shrubs. For a small school, an area of eight rods front by ten rods deep may be sufficient, the school-house being set back four rods from the front.

(2.) A school-house (with separate rooms where the number of pupils exceed fifty), the walls of which shall not be less than ten feet high in the clear, and which shall not contain less than nine square feet on the floor for each child in the section or division; so as to allow an area in each room, for at least one hundred cubic feet of air for each child.\* It shall also be sufficiently warmed and ventilated, and the premises properly drained.

\* Thus, for instance, a room for fifty children would require a minimum space for 5,000 cubic feet of air. This would be equal to a cube of the following dimensions in

(3.) A sufficient paling or fence round the school premises.  
 (4.) A play ground, or other satisfactory provision for physical exercise, within the fences, and off the road.

(5.) A well, or other means of procuring water for the school.  
 (6.) Proper and separate offices for both sexes, at some little distance from the school house, and suitably enclosed.

It is the duty of Public and High School Inspectors, in examining into the condition of the school-house, to see:—

(3.) *Space for air.*—Whether the required space of nine square feet for each pupil, and the average space of one hundred cubic feet of air for each child, have been allowed in the construction of the school-house and its class rooms + (See regulation 9, *Duties of Trustees.*)

(4.) *Well; Proper Conveniences.*—Whether a well or other means of procuring water is provided; also, whether there are proper conveniences for private purposes of both sexes on the premises; and whether the regulations in regard to them, contained in regulation.

Dr. Bell's remarks, so full of warning to School Trustees and parents, are as follows. (See also Dr. Clarke's remarks, p. 37):—

"While reflecting on how best to open the discussion of a subject so abundant in detail as the perils of the school-room, came the intelligence of the death of Dr. Francis E. Anstie, one of the brightest ornaments of his profession. His death, as we have since learned, was caused by a wound which he received in a post-mortem examination, while engaged in an investigation which had for its object the discovery of the causes of a fatal school disease, acute idiopathic peritonitis—a disease often found to be due to malaria, which in this particular instance, was caused by sewer gas. I use the word malaria in this connection in its simplest sense, to signify bad air, but recognize the usual distinction of two kinds of malaria, vegetable and animal.

"The diseases common to vegetable malaria, or marshy emanations, are, unfortunately, so well known as not to require special description in this connection. It will suffice to state that they are liable to be greatly modified and aggravated by animal malaria, the kind common to school-rooms.

"Animal malaria may be engendered anywhere by the neglect of animal excretions, whether of mankind or of the lower animals. It is especially liable to occur as the result of crowding, darkness, want of ventilation, want of or defective sewerage, and filthy habits, and is subject to intensification by extremes of temperature in crowded apartments. Crowding, or overcrowding, the more common term, is an indefinite expression, and so generally subject to misinterpretation by persons apparently incapable of understanding its true signification, in relation to school-rooms, that its limits require defining. The importance of air space rests upon the absolute necessity of pure air for healthy respiration; but the amount of space required depends upon a variety of circumstances. Hospital conditions, for example, require the largest amount of space, and modern experience has shown that, other things being equal, no enclosed space equals plenary exposure. But, for various practical purposes, the limits of space vary from 300 to 4,000 cubic feet—the smallest proportion being the exaction for lodging-house dormito-

ry, viz.: 25 x 20 x 10, which is equivalent to a room 25 feet long by 20 wide and 10 feet high. Physicians of experience declare that fifty children require 100,000 cubic feet of fresh air hourly, or 2,000 cubic feet per hour for each child. Our regulation is therefore far below the medical standard.

+ *Ventilation* becomes easy as soon as it is known that it is embraced in these two essential operations, viz. 1st, to supply fresh air; 2nd, to expel foul air. It is evident that fresh air cannot be crowded into a room unless the foul air is permitted to pass freely out; and certainly the foul air will not go out unless fresh air comes in to fill its place. It is useless to open ventilating flues when there is no means provided to admit a constant supply of fresh air from without.

*Temperature.*—In winter the temperature during the first school hour in the forenoon or afternoon, should not exceed 70°, and 66° during the rest of the day.

ries, and the largest for hospitals—making due allowance in all cases for space occupied by furniture. And *no deviation should be made on account of children*, whether in regard to the different members of a family or a school-room. With regard to this point, Mr. John Simon well observes: 'It is to be desired that laws and regulations as to overcrowding should not proceed on the assumption that children (to any measurable extent) require less breathing space than adults. Against any such assumption, two facts have been considered—first, that even healthy children, in proportion to their respective bodily weights, are about twice as powerful as adults in deteriorating the air which they breathe; secondly, that the children will almost invariably have certain eruptive and other febrile disorders to pass through, from which adult life is comparatively exempt, and in which the requirement of space is greatly increased. And having regard to these two considerations, I think it best that children and adults should be deemed to require equal allowance of air and ventilation.\*'

"Moreover, it should be observed that the mere space allowance should in no case detract from the absolute necessity of means for renewal, and the smaller the space so much the more certain should be this provision. If 300 cubic feet only be allowed, the air must be changed, at the least, every twenty minutes. *To neutralize the deleterious properties of respired air and to replenish it, every person requires 2,000 cubic feet of fresh air hourly, and with less provision than this contamination is sure to follow.*

"The poisonous effluvia which pervades the atmosphere of close and unventilated rooms is not only re-breathed, it adheres to all the surroundings; it sticks to the walls and furniture, settles into the drinking cups, into the food utensils, food and drink, permeates the clothing, and attaches to the person. It creates a nidus, which is not only in itself poisonous, perpetually lessening the vital force of all who inhabit it, and predisposing to blood poisons of every kind, but it also becomes a hotbed for the planting and propagation of specific poisons, such as small-pox, scarlet fever, measles, whooping cough, diphtheria, and the whole category of epidemic diseases, and a fruitful source of scrofula and consumption. The consideration of these diseases in detail, and their relations to crowded and unventilated places, would comprehend a treatise on the predisposing causes of epidemics. It may be stated in general terms, however, that the specific poisons which perpetuate this class of diseases are kept alive by the conditions common to school-rooms, always exist somewhere, and the history of them all demonstrates alternations of repose and activity, of prevalence in one place and absence in another, of successive invasions of contiguous neighbourhoods and succeeding immunities. But the specific morbid poisons, the *seed*, never die; they remain and live on from generation to generation, ever susceptible to enlivening influences, and liable to transmission from place to place, renewing strength by the way, again to become dormant and lie in ambush, awaiting the return of congenial conditions for renewed activity.

"The epidemic influences or constitution which some authors are wont to describe as conditions precedent to the activity of epidemic diseases, and which are believed to be periods of predisposing receptivity of specific poisons, are due in no small degree to the prevailing condition of school-rooms and their congeners. As a rule, the older these conditions—the longer the period of time in which they have been tolerated—the more depressed the vital powers of their occupants, and the greater their predisposing receptivity. Besides, the depressed state of the organism under such conditions is not only predisposing to epidemic diseases, but the liability to and the danger of all diseases is thereby intensified, and vicissitudes of weather, which, under favourable circumstances may be encountered with impunity, under these depressing influences become dangerous perils; and, doubtless, much that is attributed to the season of the year supposed to be predisposing to scarlet fever, measles, whooping cough, diphtheria, and some other common affections of children, is due to the same cause. It is at any rate very remarkable that the beginning of the autumnal school term should be simultaneous with or speedily followed by the sickly term. There is surely something more than a mere coincidence in these relations; they stand much more like cause and effect. The effect of high temperature, in this regard, may seem to imply an exception to these conclusions. Heat has, indeed, received much consideration lately, as a sort of independent cause of disease, and to its influence especially has been attributed the excess of mortality common to infants in hot weather. There is no question that heat exercises a very important influence, but we are fully persuaded that it is so entirely secondary in its relations, even in the heat of summer, as to be among the most preventable of causes. Its influence is mainly due to its effect on organic matter, unventilated apartments and filthy surroundings, and, above all,

on the food of infants artificially fed. Evidence is almost wholly wanting on the deleterious effect of summer heat on infants nursed by their mothers, or on older children with healthy surroundings. Its specially dangerous effect is, in short, due to conditions such as are usually present in close school-rooms and tenement-houses. Heat intensifies, but it does not cause the excess of summer mortality, and it frequently has the same effect in overheated school-rooms at other seasons.

"Carbonic acid in school-rooms, in some respects, bears similar relations to heat. Dangerous and fatal as it is known to be, when in great excess, its importance, *per se*, is unquestionably very much exaggerated. Naturally it exists in the atmosphere in variable proportions from 2 to 5 volumes in 10,000. But according to Dr. Angus Smith, no discomfort is experienced from the presence of carbonic acid in soda-water manufactories, when the amount is 2 volumes per 1,000, or more than ten times its normal proportion in the atmosphere. And Pettenkofer and Voit, in their experiments with this gas, experienced no discomfort from its presence, even to the extent of five times as much, or ten volumes per 1,000. Notwithstanding, *respired* air, containing only 1.5 volumes of carbonic acid per 1,000, is well known to cause headache, vertigo, and other painful admonitions of danger. And experience abundantly proves that whenever respired air, or the air of occupied apartments, is found to contain of carbonic acid more than 1 volume per 1,000, such an atmosphere is dangerous to health. It is apparent, therefore, that the ill effects of air which contains only a little more than 1 volume per 1,000 of carbonic acid, are due to other and more potent poisons. Such air not only contains, besides the excess of carbonic acid, and not unfrequently the more deadly carbonic oxide, dead and decomposing animal matter, and other mephitic gases and exhalations, but it is deficient in its very first life-sustaining property, oxygen.

"The average amount of oxygen consumed by a healthy person is half a cubic inch every respiration, which in a day amounts to upwards of 25 cubic feet. And as oxygen constitutes but one-fifth of the volume of the air, a single individual renders not less than one hundred and twenty-five cubic feet of air unfit for respiration, every twenty-four hours, by the mere abstraction of oxygen alone. Meanwhile, there is exhaled by the lungs about 15 cubic feet of carbonic acid, 30 ounces of watery vapour, and an indefinite amount of organic matter, which has been variously estimated at from 10 to 240 grains.

"The whole quantity of air actually respired in 24 hours by a healthy person is about 400 cubic feet. This contains, when once passed through the lungs, about five and a-half per cent. of carbonic acid. The proportion of watery vapour depends upon circumstances; as a rule, as much as necessary to saturate it at the temperature of the body: consequently, the amount varies in the inverse proportion of the quantity of moisture the air contained before it was respired. It may be estimated at about 200 cubic feet per hour. 1,000 parts of vapour exhaled from the lungs consists of pure water, 907 parts; carbonic acid, 90 parts, and animal matter, 3 parts. In addition to these, it is well known that other substances introduced into the circulation may be thrown off from the system and increase the danger.

"Besides the danger from active and fatal disease from exposure to the conditions which have now been described, all physiologists recognize the influence of depressing agents on the human organization in blunting the sensibilities, obtunding the intellect, promoting stupidity, idiocy and physical deformity. And in this relation at least, the 'survival of the fittest' often has a painful significance, not alone confined to the present generation, but, recognizing the accepted law of inheritance, well calculated to shock the sensibilities in anticipation of the future. To discuss in detail the collateral dangers of bad construction, bad furniture, disregard of light, the general want of attention to proper school ages, differential management in regard to sex, physical condition, etc., would extend this paper to an inordinate length. For the discussion of these dangers, it will suffice our present purpose to refer to the papers of Dr. Richard Liebrich and Dr. George Ross, of London, recently published in *Public Health*; a paper by Dr. C. R. Agnew, of New York, in *The Sanitarian*; the treatises of Dr. Edward H. Clarke, of Boston, on *Sex in Education* and the *Building of a Brain*; the Report of Dr. Frederick Winsor on *School Hygiene*, in the Report of the State Board of Health of Massachusetts, and other papers recently written on these subjects.

"The following abstract of a Report on the Public Schools of Brooklyn, in March last, by the Sanitary Superintendent of the Board of Health, is submitted as an illustration of the conditions which have now been described. I will read only some of the best and some of the worst examples:

"No. 1. Ten rooms to each floor; average attendance 1,004. In one room there were 70 present in 7,560 cubic feet of space—108 cubic feet for each child. At the time of inspection, the second

\* Eighth Report of the Medical Officer of the Privy Council.

floor had 427 in the grammar department, and the first floor had 708 in the primary department. It was excessively crowded, with not sufficient desk or sitting room.

"No. 2. Registered, 334; average, 284. Heated by coal stoves surrounded by metal shields, within two feet of which children were seated in a temperature of 77°, while in other remote parts of the room the temperature was 67°. The windows were open for fresh air, and some children were seated so as to be exposed both to hot stoves and open windows, the former in front, the latter at the side. The outer clothing was hung up in the recitation room.

"No. 6. Registered, 983; average, 94 per cent.; 514 in primary department. Ventilators have been provided, but many of them closed and beyond reach, the cards wanting, and practically useless. The heat is introduced directly upon the children. The middle rooms upon the east side of the building are so poorly lighted as to require gas burning at midday. In these rooms the air was very oppressive, and the supply through other occupied rooms.

"No. 7. Heated by steam radiators in each room; renewal of air only through doors and windows. One class-room with 32 scholars has 2,250 cubic feet—70 to each scholar.

"No. 8. Registered, 600; average, 570. Adjoining buildings so close that the school is deficient in light and circulation of air. The play-room is in the basement, upon which open the privies, from which offensive gases were perceptible. Hot air and registers from steam and radiators. One of the registers is on a level, and just in front of a pupil's desk. Each room was provided with a thermometer. These stood at from 60° to 74° in the different rooms.

"No. 9. Average, 1,300; heated by hot air from steam pipes. In one of the rooms there were 126 children, the windows all closed, the ventilating shaft closed, and the hot air registers open. Each of these children had fifty cubic feet of space; the clothing hung up in the room.

"No. 12. Average attendance, 745; a one-story frame building and seems taxed to its utmost capacity to accommodate its ordinary attendance. It is ventilated mainly by windows; although it is provided with a usual number of ventilating shafts, they are not used, and are looked upon as useless. In addition to the large class-rooms, divided by glass partitions, are four small recitation rooms, much overcrowded—one especially, occupied by over thirty pupils, that would not properly accommodate more than fifteen. These smaller rooms have no ventilating appliances besides the windows.

"No. 13. Seating capacity, 1,500; average attendance, 1,250; grammar department, 411; primary department, 641; total on day of visit, 1,382. The cubic space on each floor is the same, but primary department contains nearly half the entire attendance.

"No. 15. Constructed for 800, has 1,900. Lower floor for primary has 700. Ceilings low, air renewed only through windows. In one room, 2,000 cubic feet; 67 children, 30 cubic feet to each child. Playground, 45 x 30 for 1,000 girls; less than two square feet for each to recreate in.

"No. 17. Temperature in the several rooms ranged from 58° to 82°. The latter temperature was in a room which had steam pipes, besides the hot air register. In the grammar department the crowding ranged from 95 to 270 cubic feet for each person. In the primary department, from 49 to 152 cubic feet to each child. Special attention is called to the crowded condition of the small rooms on all the floors. In one of the small rooms in the female grammar department, thirty-six girls, 14 years of age and upwards, are confined in 3,430 cubic feet, 95 to each; temperature, 82 degrees; ventilation by a small ventilator near the floor, and by two windows slightly lowered from the top. Another small room in the primary department has fifty children in 2,450 cubic feet of space, 49 to each child. Temperature of room, 59 degrees. The air in all the small rooms, and in all the primary rooms, was quite impure to the senses.

"No. 18. 525 children on ground floor; 823 on second floor, with an average of 63 cubic feet: on each of the floors above, 400 scholars; in one of the rooms on the ground floor, 32 cubic feet for each scholar, and in part over stone flagging. The room is heated by a stove in a corner. Another room, 75x20x6, numbers 150 pupils, and has two openings or windows, about 24x30 inches each; gas burning for light.

"No. 19. Wings on each side of the building cut off six class-rooms in the main building from any direct opening upon the external air or light; 960 children on the first floor. The hot air from the register raised the thermometer to 150 degrees, and within three feet of this sat a pupil. Says the Inspector, 'My last visit to this school was made about the time of closing the afternoon sessions. I cannot describe the condition of the atmosphere; the children seemed completely depressed, and hardly had sufficient energy to leave their places.'

"No. 20. Average, 763; warmed partly by stoves; not comfort-

ably warm in cold weather; floors very dirty; furnace rooms in a dangerous condition; combustible material scattered about in dangerous proximity to furnaces.

"No. 21. Two class-rooms on each side of the stairs; not sufficiently warmed by the hot air registers; the children complain bitterly of the cold. The stairs are narrow and crooked. It would be impossible, in case of fire, for the children to escape from the building without injury and probable loss of life. Main building heated by stoves; 1,045 registered; 621, first floor; 424 on second; the boys' closet unfit to enter.

"No. 22. 1,275; overcrowded; insufficiently heated, partly by stoves. The children suffer for want of pure air. One class-room, 12x18, has one hundred and three scholars. The floor of the playground is old, worn through, and dangerous; the children at play suffer falls and injuries. The stairs are old, worn, winding, and unsafe; an alarm would cause disaster. Says the Inspector, 'Sanitary reasons demand the enlargement of this building. Seventy-five to one hundred children in a room containing not over 225 square feet!'

"No. 23. The small children (900) are on first floor; on second—grammar department—494. The room in the rear extension, 12x20=240 square feet, has 56 scholars—about four square feet and twenty-seven cubic feet only to each! Closet vaults filthy.

"No. 27. Sanitary improvement of the locality necessary. It is the 'pig district,' not sewered. Sunken lots and stagnant water are a feature of the district. 1,175 registered; small building heated with stoves; large with furnaces; closets offensive; no disinfectants used.

"No. 29. The arrangement and care of closets are bad; require more water, and should be disinfected. A number of class-rooms without a thermometer, those found ranged from 60° to 64°. An elaborate system of ventilating shafts is supplemented by open windows. 420 in the primary department, and 580 in the other two, illustrating the crowding of the young children; 130 more lives must be sustained in the same cubic space in one instance than in the other. If it is argued their bodies are smaller, and therefore need less room, it may be fairly answered, their bodies are younger, more tender, and so require a purer air. Difficulty is experienced in heating the rooms on the south side in extremely cold weather.

"No. 30. Colored School No. 4, average 70; majority under eight years of age; two rooms; two windows to each room; stove heat; window and doors only afford change of air; 52 cubic feet of air space to each scholar. The Sanitary Inspector states that during his visits to the schools in his district he endeavoured to ascertain the amount of sickness in the various departments, and was surprised to learn the number of children unable to attend school on account of contagious diseases. From one class, numbering about sixty, ten children were absent, either from measles or scarlatina, at the time of visit, and one child had just returned to the school after an attack of measles. 'I had the curiosity,' the Inspector states, 'to visit the child's home, which I found to be in a tenement house. The mother informed me the child had been sick with the measles, and when she thought she was well enough she had sent her back. No physician had seen her, nor had any disinfection of the premises been performed. I visited the homes of several children and found much the same condition of things as in the first one visited. With the exception of School No. 15, I ascertained that no physician's certificate was necessary for the re-admission of pupils after absence caused by contagious diseases; that the decision of the proper time for the child's return was left to the discretion of the parents. If this practice was general throughout the schools of the city, I think we should naturally expect an increase in the number of contagious diseases after the June vacation, when the children reassemble for the school term.' I have compiled the following statistics from the record of contagious diseases, and the mortality has been kindly furnished me by Registrar, Dr. Watt:

	Reported Scarlatina.	Reported Diphtheria.	Deaths Scarlatina.	Deaths Diphtheria.	
July, 1873	56	8			} Vacation. Begin'g Fall T'm
Aug. "	50	7			
Sept. "	45	23	8	20	
Oct. "	97	60	18	30	
Nov. "	141	67	26	25	
Dec. "	192	84	48	96	
Jan. "	184	81	40	29	

"Total deaths in 1873 from measles, scarlatina and diphtheria, 635. Scarlatina and measles are contagious for an indefinite time (certainly long after the child is able to attend school). I hardly know whether it is a legitimate deduction from these figures that the rapid increase in number of reported cases of scarlatina and diphtheria is due to the spread of the contagion in the schools, but the few cases in July, August and September, and rapid increase in the subsequent months, certainly justify the suspicion that some

such element is at work. The absence of many children in the country would partially account for the small number in July and August, but early in September they return to the city, and if material was the only requisite, the number of cases in September would be larger than it is. If the schools are free of contagion, should there not be a sanitary supervision over them? If the Board of Education should report to the Health Office any case of contagious disease occurring in their schools, and a similar report be required from all other schools, this department could have an opportunity of quarantining and disinfecting, and a certificate from the Health Office alone should re-admit to the schools a child convalescent from a contagious disease. It would doubtless occupy the entire time of one inspector, but it would be time and money well expended if these scourges of childhood could in any way be mitigated, and if one life could be saved from the hundreds yearly carried off by measles, scarlatina and diphtheria.

"Nearly allied to this condition of the public schools of Brooklyn is the Nursery, a department of the Almshouse for the care of pauper children. The crowded and filthy condition of that institution has very recently powerfully touched the public conscience. With an average number of inmates, the space for each child in the Nursery, without allowance for furniture, is 380 cubic feet. There are attached to it two school-rooms, and these measure, respectively, 117 and 153 cubic feet to each pupil, or five times as much as some of the rooms of the public schools, and are scarcely exceeded by any, either in space or appointments, in regard to light and warmth. The object of giving this example is not, by any means, to show that it has not deserved the complaint against it which it has received, but to illustrate the public apathy in regard to other institutions, the school-rooms for children who are not paupers being at the least equally worthy of public attention.

"In an examination of sixteen of the public school-rooms, and, with two or three exceptions, the same as here reported upon (but when they were less crowded than they are at the present time), and seven private schools in 1869, by the late R. Cresson Styles, M.D., the average proportion of carbonic acid present was 1.64 volume per 1,000, or 3.3 times its normal amount. Two only (and both of these were private schools) were perfectly ventilated; one of the public school-rooms had eight times the normal proportion of carbonic acid present, and more than half of them four times the normal proportion.

"It is very far from my purpose to show that the school-rooms of Brooklyn are more perilous than the school-rooms of other cities; indeed, they are not so. In the neighboring city of New York the plan of construction in some of the new buildings is believed to be an improvement over any of the Brooklyn buildings, but, taking them altogether, they are about equally perilous. While engaged in the preparation of this paper, I addressed a note to Dr. R. J. O'Sullivan—for some time sanitary superintendent of the public schools of New York—for special observations. He replied, in part, as follows:

"NEW YORK, Nov. 5th, 1874.

"I have practised in one of the most densely populated portions of the city for the past eighteen years, and have been a school officer for several years, and attending and consulting physician of the Eastern Dispensary for upwards of fourteen years, and in the experience I have had in the schools and in the midst of an immense tenement-house population, I have not at any period within the time stated known contagious diseases among school children so prevalent as at the present time. I can merely give you an instance to show how school contagion has contributed to this result: I was called to see a child, six years of age, a few days since, who contracted diphtheria while attending school, and died after a brief illness. Two other cases where defective drainage and ventilation were the predisposing causes also occurred in my practice. The children were aged respectively four and six. They were attacked with diphtheria and scarlet fever, with these results: one recovery and one death. Did time permit, I could go on enumerating cases of a similar character; suffice it to say that there is abundant evidence to show that the present unsanitary condition of our city's schools has contributed in no small degree to the increase of infantile mortality by the great majority of the children living in tenement-houses, in narrow rooms, in close contact with the sick, and carrying contagion through their persons and clothing to the schools. Attending and visiting physicians in dispensary practice will concur in the statement that school contagion has been carried to the homes of the children in various parts of the city. Thus diseases that could be prevented by proper sanitary direction, have, through the negligence of the school authorities, become the means of propagating disease to the entire community.

"Truly yours, R. J. O'SULLIVAN, M.D."

"Philadelphia, I am sorry to believe, is no better. With an en- viable amount of house room for all other purposes, and the banner city of America, for the health of her people, her school-houses, notwithstanding, are a disgraceful exception. The general plan of her school buildings is faulty in the extreme.

"Availing myself of the kindness of one of the officers of the Philadelphia school board, I visited one of these buildings a few nights ago, during the school session. And it may here be remarked, as generally applicable, that however necessary night schools may be to meet the convenience of working children and others who cannot attend the day schools, the night schools as a rule are more perilous than the day. The rooms already filled with the mephitic exhalations of the day's service, and with no sufficient time for purification—add gas light—an additional means of impurity. The night pupils are, for the most part, clad in their working clothes, and many of them from factory life and other occupations which render their persons and clothing unclean.

"Of this condition the school I visited on Tuesday night, a few blocks from this hall, is an example. Crowded to the extent of less than 100 cubic feet of air space to each person, in several of the rooms, warmed by radiation from hot-air pipes, without any provision for moisture, and no means for the escape of foul air, an offensive odor pervaded the whole school; and the entire aspect was one of perspective disease and early death. On descending to the cellar, the sickening odor of carbonic acid and oxide was so unbearable as to suggest the propriety of a speedy retreat. The cellar had evidently never been cleansed, or even aerated, since the floors were laid above. And to this hot-bed of disease and death—well stocked with coal, and most likely at the time of storage rendered more certain to evolve its deleterious gases by wetting—every teacher and pupil of this school was exposed. Nor is this, bad as it is, an exceptional case. Indeed the evil is so general, in all of our cities, as to fully justify the conclusion that the examples given are examples of American school-houses generally, and of no particular city. They are a disgrace to our civilization and a shame to our humanity."

#### VENTILATION ESSENTIAL IN SCHOOLS.

A writer in the *Pennsylvania School Journal* has sent out a circular of queries on various school subjects, the tenth question was as follows—

10. How can our schools be modified to improve their hygienic influence? (a.) As to tasks and discipline. (b.) As to physical conditions.

The reforms called for in the answers to this question (a), are:

Lightening tasks.....	38	More cheerfulness.....	24
More discriminating teachers.....	27	Abolishing "marking".....	16
Less routine in methods.....	32	Pursuing fewer studies.....	14
Lightening discipline.....	25	More variety of exercises.....	15

The answer to (b) may be analyzed as follows:

Better ventilation.....	77	Better seats and desks.....	17
More equable heating.....	27	Shorter sessions.....	17
Regularity in daily physical exercises.....	21	Better lighting.....	14
More frequent change and freedom of position.....	21	More frequent recesses.....	13
		Fewer pupils to each teacher.....	10

If *unnatural incentives to study* did not exist probably there would have been little call for *lightening tasks*. The other reforms called for are worthy of the most careful consideration.

Defective ventilation is complained of in very emphatic terms. Common sense seems to fail entirely in matters of ventilation. Trustees and directors too often do not *know* the value of fresh air, and yet are too wise to be told.

This makes the case most lamentable. A building on the warming and ventilation of which "much thought and care have been bestowed" by the directors, was inspected, and this is the report: "I visited several several of the rooms and found the air offensive in all to the smell, the odor being such as one would imagine old boots, dirty clothes and perspiration would make if boiled down together;" and yet those who erected this house called it a *model*. We have have abundance of such "models." Fresh air within doors costs money. "There's the rub." Ventilation by the windows is almost criminal. Dr. Angus Smith says: "Though foul air is a slow poison, we must not forget that a blast of cold air may slay like a sword. To ventilate properly a building to accommodate two hundred students will require but little less than \$500, and yet it will probably save scores of precious lives. The air should be *fresh*; it should be warmed before entering the room; it should leave the room as soon as it has been breathed once. Pure air should be insisted upon. *It is cheap at any price*. A paper on the "Ventilation of School-houses," published in the report of the Massachusetts State Board of Health for 1871, ought to be read by every person who has anything to do with building school-houses, or it would pay him to visit the school



at No. 5 Otis Place, Boston. This is "an instance of *completely satisfactory* arrangements for heating and ventilation, working well at all times, and supplying to the school-room, during severe winter weather, an atmosphere like that of June, in which one is warm enough at a temperature of 65° F."

Some of the correspondents urge greater care in the location of school buildings and more attention to the condition of the sewers and privies, and it is time that an alarm be sounded in regard to the latter. Many thousands of deaths are paid yearly to the carelessness of those who select locations for school buildings and arrange the sewers and privies. We have in mind now an institution in this state and several in adjoining states in which fevers have occurred the present year from these causes. Indeed, in one of these not less than two thirds of the students had the fever and several died. So it is in very many boarding-schools, as well as private and public schools of various grades, and private homes all over the land. We are confident that a majority of the cases of fever result from these and similar causes, directly; or indirectly, from the contamination of wells in their vicinity. Would it not be well to have medical inspectors who should inspect every school building in their district at least once per year at a time when they are not expected and report upon the sanitary condition of the school; and if the environment of the pupils is such as to endanger their health, such school should be condemned and closed by authority, till the influences prejudicial to good health be removed. Especially if a State compel children to attend school, it ought at the same time to compel school authorities to erect such buildings and provide such accommodations that the children *need not die* because of this enforced attendance.

It would be both interesting and profitable to quote from the letters of the correspondents upon the several reforms proposed, but space will not permit each of the reforms called for in our analysis to the tenth question is a subject for most careful consideration and should be kept before the people. These various reforms are called for after earnest thought, and express the deliberately formed opinions of educators of Massachusetts and others, in carefully chosen and emphatically pronounced words.

## I. Papers on Practical Education.

### 1. EXCESS OF BRAIN DEVELOPMENT IN THE YOUNG.

BY F. C. CLARKE, M.D.

The subject of School Hygiene has, of late, been receiving the attention it has so long demanded, and, very properly, at the hands of the medical faculty. At the last meeting of the Rhode Island Medical Society, in Providence, in December, the committee, previously appointed to make a report in regard to the health of our public schools, and the advantages of the present system of education, reported fully upon the subject. Dr. Newell, chairman of the committee, in connection with the report, drew up the following resolutions, which were unanimously adopted and are to be made the special subject for discussion at the next meeting of the society in March:

WHEREAS, Although the present school system has been brought to a high degree of completeness in intellectual culture, and to an exalted position of which its friends and the community may well be proud; yet, entertaining for its welfare a profound interest, and viewing it as we do from a physical standpoint, and believing that in the haste for intellectual culture the physical is too much neglected; that the nervous system is developed to the omission of other portions of the body, thus giving rise to a long train of ills and producing an unsymmetrical and distorted organization in the young, entirely unfitted for the stern duties of life; therefore

*Resolved*, First.—That physical culture is of primary importance in our public schools, and that gymnastic exercise should be made a part of our school system.

Second.—That the "Kindergarten system" should be engrafted upon our public School system. (See p. 39 of this Number).

Third.—That the school buildings should not exceed two stories in height.

Fourth.—That three hundred cubic feet of space and twenty-five square feet of floor space should be the minimum for each child in a school-room in connection with good ventilation. (See p. 33).

Fifth.—That proper warmth and pure air are of the first importance, and should be considered before ornamentation.

Sixth.—That scholars should not maintain the same position more than half an hour at a time.

Seventh.—That two short sessions daily, are better than one long one.

Eighth.—That no child should be admitted in our public schools as now conducted, under seven years of age.

Ninth.—That under twelve years of age, three hours a day, and for twelve and over, four hours a day is sufficiently long confinement to mental culture.

Tenth.—That study out of school should not usually be permitted.

Eleventh.—That all incentives to emulation should be used cautiously, especially with girls.

Twelfth.—That the "Half-Time" system should be introduced into our public schools.

Copies of these resolutions have been very widely circulated in newspapers and otherwise, and they seem also to deserve a place in an educational journal. Besides, they so well express the defects of the modern system of education, and the desirable changes to be made, that comment upon them seems hardly necessary.

But yet, one or two considerations in regard to this overcrowding of the young and growing mind it is hoped may not appear out of place here. Indeed, any advantages of the present system of education should be duly considered and rightly estimated. Treasure enough, certainly, has been spent already upon the common schools, and unless the returns in some form to the State, balance the expenditure, the outlay is a dead loss.

And first, let the present system of educating be considered from a physiological point of view. It is a never-varying law of Nature that one faculty alone can be developed only at the expense of another; the mind at the expense of the physical organization; and the contrary.

Generally speaking life may be divided into three periods: the first of youth; the second of maturity, or where the system undergoes changes without loss of tissue; that is—a maintenance of tissue metamorphosis; and lastly, the decline of life, or the period of decay. The first may be characterised as a period of development; the second of activity; and the last of relaxation. Each of these periods may again be sub-divided into three others, of which sleep constitutes a third of life; labour another, and rest another. Nature makes these laws unalterable, and any attempt to disobey them is to force nature beyond its regular course; and thus to overturn the existing state of affairs, which implies a gradual, if not a rapid, extinction of the race.

Hot-house plants thrive in direct ratio of the artificial relations and conditions to the natural. Any attempt to disturb these relations at once becomes detrimental to the growth of the plant.

Many anthropologists tell us that the attempts at European colonization are every day proving to be failures. The average number of children born to a parent is now only three, whereas the average number formerly was from eight to ten. Unless the American stock be maintained by constant renewals from the European, none of the former productiveness can be attained. Emigrants, so soon as they become established in this country, fall into the ways of the American Anglo-Saxon. We soon note in them the same defects as are apparent in those of Puritanic descent. Therefore, unless a stronger physical organization be given to the coming race, the colonization of America will as signally fail as it has done in Australia and in other American colonies.

The growing child, therefore, must have exercise. The child is now in the period of growth, where the mind develops gradually and in proportion to the body. The brain which determines the phenomena of mind must be nourished as much as the rest of the animal economy. A child of tender years, especially, should never have tasks forced upon him which will interfere with this growth. It is only with increasing years that it is necessary to increase the tasks; anxiety about studies should never at this period of life be permitted; else we have a frail physical organization, a precocious and short-lived human being. Not only are the physiological functions impaired, but the mind itself is weakened. If strength is lost by the great intellectuality achieved, how many years are taken from the period of growth, or how much sooner is maturity reached?

History furnishes us with thousands of facts to prove that little or nothing of great importance is done in the first twenty-five years of life. Nature at this time seems to reserve her favours, to bestow only at a time when the just balance between loss and removal of tissue is complete. Whether in science, philosophy or literature, the calm is always obtained by men of mature age. Even men of the greatest genius date the establishment of their fame after the age of thirty. Milton was over fifty when he wrote the "Paradise Lost"; Bacon was in middle age when he published his great work on philosophy. Mr. Darwin was seventy years of age when he wrote the "Descent of Man."

It is not intended to overlook anything in earlier life which may give promise of future excellence. But it is desired to show that the powers of the intellect are never fully established, as a rule, till after the first twenty-five years of life; that is, not until the system has ceased growing.

Therefore, to insist upon studies ill-proportioned to age, circumstances and conditions, is to cripple rather than develop. And these

tasks required many times of children of tender years, are most of them forgotten ere the child reaches maturity. Principles only are retained in their minds. Even when great intellectuality is gained at the expense of health and happiness, the child on reaching maturity, in nine cases out of ten, will follow his favourite pursuit were it in direct opposition to his previous training; and never use one-tenth of what he was forced to commit to memory twenty or twenty-five years previously.

Hence, in concluding, the mind of the child is to be educated, his faculties are to be *led out*, developed, according to the growth and strength of the system. Principles alone can be taught with advantage, and these only so far as the development of the *brain substance* will admit. If individual tasks and preferences are rightly directed, we may dispense with much labour and ponderous masses of disassociated facts.—*N. E. J. of E.*

## 2. MUSIC ON THE BLACKBOARD.

Lessons in music written on the blackboard the moment they are wanted are always more interesting to pupils than such as are contained in a book. The teacher should accustom himself to write with ease and rapidity, and should depend more upon the blackboard lessons than upon any others. The board should have the lines of the staff painted upon it, so as to save the time of the teacher. The staff, without clefs, should also be so cut into the slates of the pupils that it may always be ready for use when they are called upon to write what is sung, as well as to sing what is written. The time which is occupied in writing a lesson is not lost in a well regulated school, for the pupils will watch the movements of the teacher with interest, and will examine each note and character as it is written. It may also at times be desirable for the teacher to have his pupils name the tones as he writes them. No written lessons can possibly do away with the necessity for the blackboard. If all the teachers in the world should set themselves to writing lessons, and all the printers in the world should be employed to print them, and all the shops should be full of the books containing them, and all the pupils in the world should have all the money in the world with which to purchase all the books of printed lessons in the world, and every pupil should be furnished with a copy of every book that was ever printed, still the necessity for the blackboard would remain. It might indeed be superseded in part by a sufficiency of printed lessons, so far as practical vocal exercises are concerned; but yet of these it can never be given up by a good teacher; but even if it were given up for these, it would still be needed constantly for the illustration of such subjects as will be constantly coming up in teaching. The idea of giving up the blackboard is preposterous, and any one who entertains the thought of doing without one proves conclusively that he cannot possibly be a good practical teacher. Perhaps our language on this point may appear to be strong, but surely there is no subject on which we feel a greater degree of certainty than this. That the blackboard is an indispensable requisite in every well furnished school room, whatever be the subject taught, is the concurrent testimony of all good teachers in all parts of the world, in all departments of school teaching. It is needed, too, from the beginning to the end of a course; it is not to be used for a few of the first lessons, and then to be given up; its use is never to be wholly discontinued.—*T. F. Seward.*

## 3. MILITARY DRILL IN SCHOOLS.

DR. BROUSE moved that a Select Committee be appointed to report upon our present system of military drill, with the view to ascertain if some improvement might not be effected therein. He said he had called the attention of the Government to the matter with the intention of recommending the introduction of military drill into our common schools. From year to year the taxes had largely increased, and the Finance Minister could scarcely promise any diminution; any legitimate means, therefore, for diminishing our expenditure would receive the support of the House. The House yearly voted large sums of money to keep up a militia system which did not accomplish the objects desired. In 1872 the sum of one and a half million dollars was voted for militia purposes, and last year the Finance Minister included in the estimates the sum of one million dollars for militia expenses. This was an extensive drain upon our resources. The House would do well to consider the question of establishing a system of military education in our public schools. The subject had received considerable attention both in England and the United States. In 1860 a Commission was appointed in England to report upon the state of elementary education. Appended to the report was a statement by Mr. Chadwick to the effect that too much time was devoted to book

instruction in the English schools, and too little to the physical training of the children, that the mind was overworked and the body insufficiently exercised, and that book-work was generally prolonged much beyond the capacity of the pupil, to the injury alike of his physical and mental powers. It was further stated that it was demonstrated that the physical training of the pupils, particularly by a system of military drill, was productive of incalculable benefit. After making further quotations, he proceeded to say that he contended that the education of youth should be of a mixed character. The mental training should be associated with physical training until the period of maturity. Nothing was more calculated to produce mental disease than excessive mental application on the part of the young. The next thing to be considered was what was the best kind of physical training. The exercise must not be severe, as the natural tendency of a child was to over-exert himself when engaged in the ordinary pursuits of sport. Mr. Chadwick contended that military drill afforded the best kind of physical training, which would create a class from which the most efficient results would be received, for military service. The drill, too, being acquired when young, would be developed to a far greater extent than if commenced at a later age. Then the introduction of military drill into our schools would improve the discipline of those schools. In referring to the manner in which the adoption of his proposition would tend to strengthen our means of military defence, he said about one-fifth might be incapacitated from military drill, and he would deduct another one-fifth for other causes. This would leave 300,000 boys who would be drilled, and at the end of ten years the country would be in possession of about three-quarters of a million of young men who had been under a regular course of drill, and ready, with a little additional training, to constitute part of our military defence. In Toronto, and in several cities in the United States, the School Board authorities had spoken favourably of a system of drill in public schools. In England the system has been adopted in many of the public and private schools. In Prussia the education was not considered complete until the pupil had received a course of instruction in military drill. There might be some difficulty in what he proposed, inasmuch as school affairs were under the control of the several Provinces. He reminded the House that in case of war it was absolutely necessary to be prepared for defence, as the facility of water communication that existed at the present day prevented any preparation by rendering military operations exceedingly rapid.

Hon. J. H. CAMERON thought the House was indebted to the hon. member for South Grenville for introducing the subject. He felt sure that the Committee the hon. gentleman asked for would bring out a great deal of useful information. It was not often that they found private members taking so much trouble to place a matter in so clear a light. He hoped that the Committee would be granted.

Hon. Mr. MACKENZIE said the Government was not in a position to make any promises in reference to the matter. A new general officer had been engaged by the Government, who had made a subject of special duty the question of bringing the Dominion Militia to the best possible stage of efficiency. The Government decided last year to establish military colleges in order to afford a system of education for staff officers. These had not yet been established, but in a few months something would be done. Two or three suggestions had been made by the general officer, which the Government had under consideration, with reference to radical changes in the military instruction of the country. While these suggestions were being considered, the Government would not care to be embarrassed by the action of a Committee appointed by the House.

Sir JOHN A. MACDONALD thought that the department having control of the Militia defences of the country might make it a part of the system to enforce military drill in the common schools; at any rate, there would be no difficulty if there could be concerted action between the Local Governments and the Dominion Government. The Dominion Government would then have to supply a certain quantity of arms, &c., for school purposes.

Mr. MACKENZIE said that the suggestion of the hon. member for Carleton could not be carried out by the Dominion Government. It was for the Local Governments to say whether they would dispense with the enforcement of the statute labour.

Mr. YOUNG said it was a question that really belonged to the Provinces. As it was, our schools suffered from a multiplicity of subjects in the curriculum of study, and the addition of military drill would but increase the evil. So far as his constituency was concerned, there was a strong feeling against introducing military drill into the public schools.

Mr. McDUGALL (Elgin) thought the question an important one, which should be inquired into by the Government, so as to ascertain whether the Dominion had power to interfere with the Common School system of the various Provinces, then to ascertain whether such an interference would be advisable. He thought, therefore,

the hon. member should withdraw his motion, and leave the subject, which was too important to be entrusted to private members, to the Government.

Mr. CASEY thought the introduction of military drill into our schools would be very expensive, and it was not universally admitted that it would prove of much service to our system of defence.

Mr. MILLS did not believe that any great service to the country would be derived from the adoption of the proposed system, which would prove a heavy burden to the country. He thought that the Military Colleges would prove centres around which to organize military power if necessary. He believed that the disposition shown in Prussia to submit to arbitrary government was mainly owing to the military education of the schools. It was no doubt probable, if the Dominion Government thought it desirable, that the Local Governments, if aided from the funds of the Dominion, would agree to the introduction of military drill into the schools. He thought the matter should be left to the Minister of Militia, who was responsible for all these matters.

Mr. SCATCHERD thought that the motion should be granted.

Mr. PLUMB thought it possible that some advantage might be gained from a consideration of the subject by a Committee. He thought that the patriotism shown by Prussia was a sufficient answer to the attack made upon its educational system. A monarchical Government prevailed in Prussia long before the present system of education was adopted.

Mr. VAIL said the proposed scheme, if adopted, would add largely to the expenses already complained of.

Mr. OLIVER suggested that the Government should recognize independent companies in different sections of the country. In his section of the country the people were anxious to have an independent Cavalry Company, and what was asked was that the Government should recognize it as a branch of the Cavalry force.

Mr. ROSS (Prince Edward) thought the Committee ought to be granted, and considered the First Minister ought to receive the thanks of the country for having put an item in the estimates for those veterans who served Canada in 1812. (Cheers.)

Mr. CAMERON (Ontario) said he would as soon teach his child to drink whiskey or to steal as to be a soldier. He thought the worst thing they could do to a man, except to hang him, was to make him a soldier. They ought to be in favour of peace and universal brotherhood, and not teach their children to strike back "eye for eye" and "tooth for tooth." Canada ought to bring about a treaty of peace with the United States, England and France. He protested against Canada being made the battle ground of a war between the United States and England with which we had nothing to do. He moved in amendment, seconded by Mr. Forbes:—That all the words after "that" be struck out and the following substituted:—"So far from its being desirable that our youth should be taught in schools the art of war, and the military spirit engendered, the doctrines of peace and brotherhood should be inculcated, and that our Government would add greatly to its popularity if it were to make an effort by Ministerial delegation to the mother country, to the United States at Washington, and to the Government at Paris, to endeavour to obtain a treaty of peace on a basis of decision by arbitration, in case of any difficulty arising with any one of these powers, the said difficulty to be referred to a Committee of four to be named by the other two nations."

Mr. McDUGALL (Elgin), moved in amendment to the amendment, "That the subject of military education is of such vital importance that the Ministry of the day should assume the entire responsibility of submitting all legislation upon it."

After a short conversation, Mr. BROUSE withdrew the resolution. The amendments were also withdrawn.—*Globe*.

#### 4. KINDERGARTEN IN OUR PUBLIC SCHOOLS.

The following is from a lecture by Dr. B. G. Northrop, Secretary of the Connecticut State Board of Education.

Nature was meant to be our first and greatest teacher, and young children, by the system of Kindergarten instruction, were taught to observe clearly all the many lessons that were thus lavished around them.

Geometry, or geometric lines, and solids, he particularly suggested as forming one of the most important principles of teaching, for the youngest children; they should be taught by blocks, sticks and all forms; as playthings and as toys they would thus serve a double purpose of amusement and instruction. They would educate the eye, improve the inventive faculty and train the intellect to work correctly.

First, children should be taught the idea; second, the form of that idea, so that by association they would instantly recognize it

when seen in any form; third, the distinct pronunciation of the name; and fourth, the use of it.

Show the children some geometric form, let them point out in the room some object of the same shape, thus fixing it permanently by the eye. Here Mr. Northrop showed sets of Kindergarten blocks, rings, sticks, balls, and forms of various kinds, to illustrate his idea. He also showed a piece of jointed wire, capable of being turned in many ways, thus forming various geometrical forms. This was of great value, and teachers would be surprised to find how many different combinations children would form from it.

Lines or linear measure should be taught by means of strips and by Gunter's chain, so that children should have a distinct idea of distance. They should be taught the size of a square yard, acre and mile. A set of true measures for liquid measure he then produced, saying each school should have them.

Drawing he considered one of the most important studies in school. He was pleased to see the many beautiful drawings that adorned the blackboards, and was glad to learn that such care was taken in the instruction of it, also that it had been introduced into our primary schools.

The teaching of colours, their combination and contrasts, was of the utmost importance; it was for some purpose that God had placed around us so many beautiful flowers, and we should profit by study from them.

Again, he gave illustrations in highly coloured cards, both large and small, making an interesting study for all children.

If they were too costly, worsted dresses or trimmings might be used as illustrations, as well as flowers.

He almost doubted if there was ever a real case of colour blindness; he believed people's eyes had not been cultivated. Reading, and writing, and drawing he considered the most important studies, and in reply to a question from a gentleman, he stated that he believed the easiest method of teaching to read was by the word method, and that the most important and best way to teach spelling was to educate the eye.

Specimens of drawings by children in schools of Switzerland and Germany were shown, most of them by children five, six and seven years of age; they were very pretty and displayed wonderful skill.

#### 5. THE KINDERGARTEN IN CANADA.

The allegation may sound somewhat strangely in the ears of Canadian and American people—that Germany occupies, in some respects, the van in regard to social and political economy. As is well-known, the Prussian system of education is one of the most complete, perhaps it is not going too far to say, it is the most perfect and thorough system in the world. Standing *in loco parentis*, in such a way as not necessarily to take the law and authority out of the parent's hands, the State in Prussia provides for the free education of every child within the Kingdom, and by a compulsory statute strictly enforced, secures to the meanest and poorest the benefits of a good common school training, based on religion. One peculiar feature, however, of the educational system in Germany, is the Kindergarten—or as the original word indicates, *Child Garden*—by which provision is made for the cultivation of the intellect and conscience of children of tender years. One has only to turn to the state of things in England, to witness the imperative necessity, there exists for some such system, where multitudes of very young children, who grow up in ignorance and crime, exposed to the most vicious influences, might be saved from destruction. Hence the existence of institutions of a benevolent nature in the different parts of the United Kingdom, prompted by high Christian principles, for reclaiming those who have been floating as waifs on society, or to save from the whirlpool of destructive influences those who are left without the protection of parents. Any one with an ordinary amount of observation must know that the *formative period* in life begins with children, under the age at which they are usually sent to the public schools. The responsibility devolves on the parent, primarily and by the law of nature, as to the character of those who are to be the men and women of the next generation. Specially on mothers does the duty, or rather we should say the privilege, devolve of bringing up their children in the recognition of morals, and of training them up by careful discipline for the stern realities of life. But in how many cases, is this duty or privilege practically ignored! We are old fashioned enough in our ideas in thinking that the present age is one of *degeneracy* on this point of youthful training. Young people are too often allowed to have their own way, and even to dictate to their parents, instead of being under subjection. The usages of modern society, more especially in cities, towns, and villages, where people and children are more closely associated together, and have greater temptations presented, and that more frequently than in farming districts—are un-



favourable to the growth of youthful obedience, and the cultivation of filial affection. In the case of the poor children, a large part of their education is acquired upon the streets and under cover of darkness. While in the case of those more highly favoured as to social status in society, either are intrusted largely to the care of nurses or servants, often of doubtful fitness for their office as conservators of youthful morals, or they are handed over to boarding schools, where they are exposed often to influences of an injurious nature. Hence private schools have often to be adopted as the next best resort, to escape the influences of contamination. But we need hardly say that, for various reasons, this is but a temporary shift—and does not fully meet the necessities of the case. If something could be done to supplement the present school system, excellent in many respects, by the addition of something similar to the Kindergarten of Germany, that which is now a desert in our community in Canada might soon be made to blossom as the rose.—*Smith's Falls News.*

## II. Education in Various Countries.

### 1. A MODEL SCHOOL APPROXIMATION.

While travelling through a central county in Kansas, I chanced to drop into a country school taught by a Mr. Riley, and I was so struck by its peculiar methods of instruction, that I cannot forbear to give the readers of *The Journal* a summary of what I saw and heard on my half-day visit.

There were about thirty pupils present, ranging from five to eighteen years, and of course, including all grades of advancement, from the alphabet to algebra. It will be impossible, for want of room, to give more than a brief summary of the principles observed and the methods of instruction practised.

#### PRINCIPLES.

1. Each study was divided into subjects in their natural order; each subject into its logical division; each division into the steps of its development; each step into lesson steps; each lesson step into lessons, each containing but *one new idea*, and so simple that the teacher could give *all* the necessary illustrations and instruction in at least *one minute*.

2. In the primary or intermediate classes no facts or principles were given to commit to memory *as a task*; memory simply recorded the use in a variety of exercises which directly or indirectly referred to the senses.

3. Every lesson was thoroughly understood and applied before the next was presented to the attention.

4. No time was wasted in trying to illustrate or explain what the pupils, on account of age or lack of experience, were unable to understand.

5. In advanced classes the principle of generalization were deduced from primary and intermediate practice.

#### PLANS.

1. Close classification in which pupils of the same degree of advancement only were placed in the same class.

2. The lessons were given in a brief, pointed and methodical manner, with no extra words to obscure the sense. In every case, when possible, the pupils repeated the illustration of the teacher with the objects in their *own hands*.

3. The text-book was used to furnish exercises for a review rather than as a manual of instruction.

4. No lesson was recited that the preparation did not in some way exercise the judgment in discriminating and comparing, cultivate neatness and taste in penmanship, correctness of orthography or punctuation, or require skill in the logical order of arrangement on the slate or black-board.

5. In recitation the teacher had nothing to say by way of assistance, but when possible endeavoured to lead the pupils to make inconsistent statements; thereby cultivating on their part entire self-reliance. Pupils were required to ask question as often as to answer them.

6. Short and prompt recitations, the average time being only twelve minutes.

7. Nearly double the usual time was given to the primary and intermediate grades, consequently not more than one-third the usual time was required in the advanced grades to make the same progress.

As a result of the above system, habits of personal industry in the school-room were secured in a remarkable degree. No special system of discipline was required, the pupils apparently had no time for mischief. Every recitation was an eminent success or a positive failure; no blundering, no helping, make-believe. Self-confidence was based upon actual ability and not on self-concession.—*Cor. N. Y. School Journal.*

### 2. BAPTIST EDUCATION IN THE UNITED STATES.

The proposal of the Educational Commission of the Baptist Church, that the denomination celebrate the coming Centennial by raising endowments for their colleges, academies, etc, has met with general approval, and has been acted upon in several of the States. State Committees have been formed to settle the plans of procedure, the college or colleges to be endowed, and to take charge of the funds. The Baptists of New York State propose to raise \$1,000,000 for the colleges at Rochester and at Hamilton. The sum of \$1,000,000 is also to be raised in Illinois for the College and Seminary at Chicago, for the Shurtluff College, and for the Baptist academies in the State. In New England five academies are to be aided in Maine, one in New Hampshire at Sufield, one in Vermont, the Newton Institution and Worcester Academy in Massachusetts, Brown University in Rhode Island, and the Academy at New-London, in Connecticut. In New Jersey, the institutions at Heights-town and at Bridgeton are to receive endowments.

### 3. THE METHODIST COLLEGE AT COBOURG.

Our readers are aware that for six years past our Methodist friends have been labouring to endow Victoria College, so as to relieve it of its financial embarrassment, and secure it as an educational institution upon a permanent footing. Towards a fund for this object, Rev. Dr. Punshon gave \$3,000, and the late Edward Jackson, Esq., of Hamilton, and John McDonald, Esq., of Toronto, \$2,000 each, Rev. Dr. Ryerson, \$1,000, and other prominent Wesleyans gave largely, and Mr. Jackson left a legacy of \$10,000 for the founding of a theological chair, which his widow supplemented with \$10,000 more, making \$20,000 for that special object. But while many subscriptions have been received, there is still a great deal to be raised and only the same people to apply to who have previously given, or had the opportunity to do so. Rev. J. H. Johnson, M.A., of Toronto, has been selected by the Methodist Conference to make this appeal, in which so far he has been very successful. It being the settled policy of the Legislature to give no more aid to such institutions, it follows that each denomination must endow its own college. The Church of Scotland has finished the work with Queen's College, and we are sure the Methodist people and their friends are abundantly able to accomplish the undertaking for Victoria. It is thought that about \$150,000 will be required, of which, we understand, about \$120,000 has been subscribed, and about \$90,000 of it paid in and invested.—*St. Catharines Journal.*

### 4. EDUCATION IN ENGLISH RURAL DISTRICTS.

The correspondent of the *London Free Press* says: "The debate in the House of Commons, on Tuesday, on the condition of education in the rural districts, is remarkable for the proofs it affords of the rapid spread of opinion in favour of compulsion as a means of securing school attendance. A few years ago the idea was repugnant to the nature of the average Englishman. The Factory Acts accustomed men to governmental 'influences,' so far as the hours of children is concerned, and many of the towns are being familiarized by School Boards with compulsion in its application to education. A couple of months ago an act came into operation, called the Agricultural Children's Act, whose object is to compel the attendance at School of children in rural districts. Its provisions are loose, and the power of enforcing it is ill-defined; and hence the attempt of Mr. Fawcett to render rural education more effective. The proposition was rejected, but the ground on which it was offered shows how rapidly we are advancing towards the realization of the compulsory idea. The old *laissez faire* doctrine is dying out. Instead of narrowing the functions of government, the tendency is to enlarge them, and there is a certain irony of fate in the fact, that disciples of Jeremy Bentham are loudest in the demand for abandoning one of the pet doctrines of their great teacher."

### 5. SCHOOLS IN MEXICO.

In the City of Mexico there are now three classes of public schools, the primary, the preparatory, and the collegiate. There are sixty primary schools, forty-nine of which are supported by the city, and the balance by the general government. The schools are attended by 6,300 children, who are taught by sixty-five teachers, at a cost of \$32,200 per annum. The primary schools are in session from 8 till 12 o'clock, and from 2 to 5 o'clock.

In addition to the elements of popular education, great attention is given to drawing, etiquette, etc., so that the Mexican children are compelled to cultivate attractive and graceful manners.

The preparatory college has accommodation for one thousand boys, and is attended by over seven hundred. The expense of those students who come from the country is \$200 per annum. The course is five years, and embraces the usual collegiate studies, John Stuart Mill's Logic being a favourite text-book. This preparatory college sends the boys to colleges of jurisprudence, medicine, engineers, and agriculture, which are well supplied with all the appurtenances of similar first-class institutions. Besides these public schools there are hundreds of private educational institutions, the various trades' organizations each having its own school. The Presbyterians, Methodists, and Episcopalians have flourishing mission schools in the Mexican capital.—*New England Journal of Education.*

#### 6. SCHOOLS IN JAMAICA.

The American Commissioner of Education informs me that during the year 1874 the island of Jamaica had 500 elementary schools under the inspection of the school authorities, with an enrolment of 43,135 pupils, and an average number attending, 25,160; as the children of school-age, between 5 and 15 years, numbered 123,834, the enrolment is by no means a satisfactory one. These schools received £14,293 from the government, and collected about £6,087 for tuition fees. The school year has 45 weeks.—*Cor. New England Journal of Education.*

#### 7. OLD-FASHIONED SPELLING SCHOOLS

Are the popular evening entertainments in New England just now, and from Eastport to Stamford old men and maidens, young men and children, are engaged in the youthful amusement of "spelling up" and "spelling down," for prizes and for honours; and spelling-books, dictionaries, and newspapers are ransacked from beginning to end for the toughest specimens of orthography. Never did gallant knights enter the lists for the honours of chivalry with more zeal, than do the graduates from spelling-books and grammars seek to be enrolled among the competitors in this literary contest for the victor's palm. Halls are crowded and doors are besieged with anxious and excited spectators, and dictionary-makers have a busy time in supplying the demand for prizes.

At Providence, R. I., the spelling mania is now raging with peculiar energy, and the present week has witnessed two of these bloodless contests, one on Tuesday evening, at Music Hall, presided over by Commissioner Stockwell, and open to all competitors, and the second a most remarkable trial of spelling strength between sixty picked men from the students of Brown University and an equal number of selected young ladies from among the pupils of the State Normal School. There were two elegant prizes, which the *Boston Globe* declared in advance would certainly be borne off by the young ladies, who would easily confuse their adversaries by their distracting glances, even if the collegians should be ungallant enough to attempt to outspell them.—*New England Journal of Education.*

Recently 60 boys in Boston spelled down the same number of editors, reporters, etc.

#### 8. LORD DUFFERIN ON THE NEW YORK NORMAL SCHOOLS.

I spent two entire days inspecting the Normal Schools in New York. We arrived early in the morning for the purpose of seeing the scholars assemble for the day's work. We were shown to a large hall four or five times the size of this one. A bell rang, piano struck up, and in three minutes and a half eleven hundred young women had taken their places. We were then entertained by most beautiful singing in alternate chorus, and that part of the performance concluded with several of these young ladies rising in turn and repeating some apophthegm or other quotation which had struck them in the previous day's reading. This system had been adopted for the purpose of giving them confidence as teachers in addressing large audiences.

We then proceeded to the hall, where two hundred of them went through their gymnastic exercises, and a lovelier or more interesting sight no person could wish to behold than was presented to our view. From this we proceeded to the various class-rooms, and I was certainly struck beyond the power of expression by observing how thorough and how complete was the instruction there administered.

I went into the class-room where ladies were receiving instruction in geology, and the first thing that caught my eye was a spirited and accurate drawing, the size of life—if that is not an Irish bull—of a human skeleton. I said: "The surgeon who drew that anatomical figure must have been as great an artist as a man of science," so complete and so masterly were the outlines and shading, but the

teacher replied, "One of our young ladies did that." Then I heard them examined on various subjects.

For instance, they were asked if they could give any account of Shakespeare. A young lady got up, and in ten minutes she told me a great deal more about Shakespeare than I ever knew—and I imagine that a great many about me knew—in my life. And so we went on from astronomy, mathematics, botany, mythology. In every class was the same system and the same thoroughness.

I mentioned this circumstance in order that those who are interested in the bringing up of these younger children, sitting upon my right hand, may be able to comprehend what enormous advantages are open to those who, in the earlier portion of their lives, and while they are still school children, fit themselves, as it were, for passing on to that higher education which, I have ventured to describe to you. There can be no doubt that every year the secret of successful administering youthful education is better understood and more successfully applied.

#### 9. TUCKERSMITH TOWNSHIP SCHOOL BOARD.

The ratepayers of the Township of Tuckersmith, to the number of about 250, met at the hall in Brucefield, 6th February, for the purpose of electing five gentlemen to serve in the positions of Township School Trustees. The good effects of the Township Board system were evident in the large attendance at the meeting. It is very doubtful if there ever was, in the history of Tuckersmith, so large a gathering at, and so much interest taken in, the election of a School Board. And large as the attendance was, it would have been very much larger had the weather not been so extremely cold, and the roads so bad.—*Huron Expositor.*

### III. Correspondence of the Journal.

#### 1. THE SCHOOL YARD.

To the Editor of Journal.

DEAR SIR,—A great deal has been said and written about the School Room, how it should be kept, &c.; but I purpose making a few suggestions with regard to the School Yard. Many a favourable impression received in the School Room has been more than overbalanced by the dilapidated appearance of the surroundings. Now why, I ask, should this be the case, is it not quite as possible to keep the Yard neat and attractive, as the Room, if there is any ambition whatever, on the part of either Teacher or pupils to do so, and what an auxiliary this would prove to the well-being of the School, for if there are no attractions to induce the pupils to quit their pleasant homes there will naturally be a dislike for School instilled into them. In winter, of course, the ground is frequently covered with snow, so that we can not do much towards adding to its appearance, and indeed it is beyond our power to add to its attractiveness at such times, for the beautiful mantle with which Divine Providence has clothed it needs not the aid of human hands to make it perfect. But as Spring with all her beauties will shortly burst upon us, let us try and see if something cannot be done to make the yard harmonise with the season. As Teachers we should superintend, give advice, and, if necessary, render assistance in having removed everything that is offensive to the eye, such as knots of wood, stones, dry weeds, grass, &c., and especially the rubbish which may have accumulated near the door by sweeping during the long winter months; let each boy assist in banishing all such during Intermission and Noon spells. After this is done, and the weather becomes warm enough, measure off small patches, for all who are willing to look after them, to lay out with flowers and shrubs; there should be some kind of mark made to denote the boundary of each child's plot, after which the Teacher should impress upon each the Scriptural injunction not to move their neighbour's land mark. A border around these may be made very cheaply by taking bits of wire, or small switches of uniform length, and binding them in the shape of a bow, and then press the ends into the soil. By pursuing the above course, you will not only be adding ten-fold to the appearance of your yard, but will at the same time, be instilling into the minds of your pupils principles of order, neatness and a love for the beautiful in nature, which lesson cannot fail to exert an influence which will prove beneficial to them through their whole lives. Each one should keep his or her share of the paths, leading to their flowers, neatly trimmed and straight, and if any weed presents itself on any part of the grounds, have them extirpate it immediately, showing them at the same time that a weed among their flower beds is like evil habits in our own nature, which if not corrected, or rooted out as it were, will continue to grow and choke all our better qualities. After having arranged everything nicely, care should be taken not to allow stock of any kind to trespass within the gates, to prevent which some

kind of spring or weight should be attached so as to cause it to close itself after each person who passes through. By observing these few suggestions, which cost nothing but a little pleasant exercise to carry them into execution, a great deal might be done to make the Yard what it ought to be.

Yours,  
A TEACHER.

## 2. SHALL THERE BE HOME STUDY?

To the Editor of the Journal of Education.

DEAR SIR,—I noticed a short time ago in your Journal, a small insertion from one of the United States Journals. It was entitled "Home Study," or something akin to that. It spoke against having children study at home. "Children were sent to school to study." "Schools were erected for studying." "Parents required their children at home," "Teachers sent home studies because they were too lazy to teach them in school, and so had to get the parents to take their place." These, I think, formed the leading ideas of the paragraph. Now, I do not agree with our more Southern neighbours. Children are without doubt sent to school to study, but what are those to do, to occupy their time, that have no work at home, or in other words, whose parents do not require them. Are they to waste it? Surely, never! Again. During the winter months farmers' children have from two to three hours every evening, that you may call idle time. Now, what better than to give them some tasks for the morrow, and when they go to school on the morrow let them employ their "gained time" on Arithmetic. If we had Public School Libraries, it might then be said, "let them read at home," but while we are without them (and may the time be short) let us send home some exercises for the evening, and thus help to banish the two curses, "light literature" and "social," or, as some know to their cost, "convivial" hours.

Truly yours,  
RONALD GREY, Teacher.

Some experienced correspondent will please give a plan which, in his opinion, will be the best, that is, as to study at home, or the devoting of all the time at school to study.—*Ed. J. of E.*

## IV. Biographical Sketches.

SIR CHARLES LYELL, the eminent geologist, is dead, in his seventy-eighth year. His services to geological science were great and his reputation world-wide. One of the most important of his many works is an account of his explorations in North America, of the formations of which, especially in the Dominion, he made careful study during a visit of some duration.

B. W. SMITH, Esq., who was Sheriff of this county from 1842, a period of nearly 33 years. At the date of appointment he was a merchant doing business on Yonge street. Mr. Smith was a Canadian by birth, having been born near Kingston, and was of English extraction. He was a very charitable man, and gave liberally to any good cause and the relief of the distressed.—*Northern Advance.*

RIGHT REV. BISHOP HORAN, Kingston, was born in Canada, and for many years was a priest in the diocese of which he subsequently became so prominent a figure. He was called in Consistory on Jan. 8, 1858, and succeeded his Lordship the late Bishop Whelan, and his consecration took place in the May of that year. His diocese has been in existence only about forty-eight years, nevertheless, it contains sixty-six churches and nearly fifty priests. His Lordship also held the important position of assistant at the Pontifical throne since the 22nd March, 1861. Owing to ill health, he resigned his See in April last.

MR. WM. LAWSON was born at Lower Denton, Cumberland, England, and emigrated to Canada in the year 1829—settled in Toronto, (then Little York) on the 11th of June in that year. After pursuing his calling in that place for a number of years he proceeded to Brampton, where he resided for fourteen or fifteen years; from thence he came to Hamilton in the fall of 1847, where he established himself in business. Deceased was early imbued with the principles of Primitive Methodism, and was the first, we believe, to introduce the doctrines of that Church in this country, and has continued a steadfast member thereof up to his death.—*Hamilton Times.*

JOHN BIRRELL, Esq., was born in 1814, in Serwick, a town in the Shetland Islands. He emigrated to Canada about the year 1837, and began his mercantile career in the establishment of Mr. Isaac Buchanan, of Hamilton. He subsequently came to London, and entered into partnership with Mr. Augus, which was dissolved in the year 1843. In 1845 he joined with Mr. Adam Hope, who had removed here from St. Thomas. The firm lasted for five or six years, when Mr. Birrell opened a retail establishment, which, proving very successful, was eventually merged into an extensive wholesale trade. Prospering exceedingly in business, a fact due to judicious care and scrupulous probity, the deceased identified himself very prominently with other local interests, taking a leading share in the conduct of our railways and monetary institutions, and lending his moral and material support to the advancement of every commendable scheme of public enterprise.—*Free Press.*

COL. WM. MERCER WILSON, County Judge of Norfolk, and Grand Master of the Masonic fraternity of Canada, was born in Scotland in 1813, and emigrated to this country in April, 1832, receiving next year the appointment of Commissioner of the Court of Requests. For three years, during the Mackenzie rebellion, he actively commanded a troop of cavalry, and did dashing service on more than one occasion. In 1838 he was appointed Clerk of the Peace and Clerk of the County Court of Norfolk; in 1842, Registrar of the Surrogate Court; in 1848, gazetted as Lieut.-Colonel of Militia; in 1853, called to the Bar of Upper Canada; in 1858, appointed County Crown Attorney; from 1862 to 1864, served as Warden of Norfolk County; in 1869, tendered his resignation as commander of the 3rd Battalion, Norfolk Militia, and was allowed to retire retaining his rank—a special Gazette, in which his past services were noticed in most complimentary terms, being issued, and an engrossed copy forwarded to himself by order of His Excellency the Governor-General.

D'ARCY BOULTON, Esq., M.P.P.—The deceased gentleman was grandson to the Hon. D'Arcy Boulton, who in coming to Canada, in the year 1796, was taken prisoner on the high seas by a French privateer, and carried back to France, where he was held in custody for a number of years. Ultimately, however, he reached Canada, where he held, from time to time, the position of Solicitor and Attorney-General. He was subsequently raised to the Bench, forming a prominent figure in the early history of Upper Canada. Judge Boulton had four sons, the youngest of them, Mr. James Boulton, Barrister-at-Law, being the father of the subject of this memoir. The deceased was born at Perth, Ont. In the Michaelmas Term of 1847, he was called to the Bar of Upper Canada, and in 1873 created a Queen's Counsel. In 1870 he was unanimously elected Grand Master of the Orangemen of Ontario West, and in the year following was appointed Deputy Grand Master of British America. He contested unsuccessfully North Simcoe in 1861, North Gray in 1867, and Muskoka in 1872. He was returned for South Simcoe in 1873, and re-elected for the same constituency at the last general election.

WILLIAM MOLSON, President of the Molson's Bank, was 81 years of age, and was of English descent. Hon. John Molson, his father, visited Canada in 1782, and was so much pleased with the country that he decided to settle, and two years after returned to England, raised a considerable sum of money on his English estate, and came back. Deceased was connected with most of the enterprises for the advancement of the country, and took an active part in furthering them. He was, till two years ago, a Grand Trunk Railway Director. In 1863 he retired from the Board of Directors of the Bank of Montreal, and with the Hon. John Molson established Molson's Bank, under the Free Banking Act. Deceased was highly Conservative in his views, and recently refused to enter public life, preferring to carry out important enterprises for the advancement of his country. He took part with other loyal men in suppressing the rebellion of 1838, but strongly objected to the passage of the Act of 1849 against the rebels, and signed the annexation manifesto. As a private citizen he was highly esteemed, there being scarcely any educational or charitable institution in the city which does not experience his beneficence.

DR. R. H. THORNTON came to this country as a missionary from the then United Secession Church in the year 1834; and very shortly thereafter settled in the neighbourhood of Oshawa, where he has lived and laboured ever since. The amount of hard pioneering work done by the doctor, especially in the early years of his missionary career, was very great. He travelled over a very wide extent of what was then a very new and very rough country, though

now among the finest in Canada; opened preaching stations in many districts, and had the happiness before his death of seeing many of these become large and flourishing congregations. Dr. Thornton has, in addition to his more immediate work as a clergyman, taken, during all his forty years' residence in Whitby township, an active and enlightened interest in the cause of education, and has done more, perhaps, than any other person to raise the character and efficiency of the schools in that district. He was an indefatigable worker, and spared neither toil nor personal exposure if anything were to be done for the social education or religious interests of the community. As one so long and so prominently identified with Canadian Presbyterianism, the Doctor will be much missed, and will be long remembered by many as an able preacher, a well-read theologian, an upright citizen, in one word, "a good man."—*Ex.*

Captain THOMAS G. ANDERSON, who died at Port Hope, late Superintendent of Indian Affairs, was well known in the early history of Canada. He was born at Sorel, Que., on the 12th of November, 1779, and had consequently attained the advanced age of 96 years. He was son of Samuel Anderson, a captain in what was then known as the Continental army, and who at its reduction in 1783 was placed on the half-pay list, removing the year after with his family to Cornwall, where he had obtained a grant of 1,200 acres of land. Having served an apprenticeship of five years to the late Thomas Markland, of Kingston, Thomas joined Mr. McKenzie, the latter's half brother at Montreal, and went with him by way of the Ottawa and French rivers to Mackinaw, taking with them a heavily laden bark canoe, manned by eight men. There he remained a year trading with the Indians, proceeding afterwards to other points for the same purpose. It is related of Captain Anderson that while at Milwaukee, he rode to Chicago on horseback to see Captain Whistler, of the American army, commanding the first troops stationed there, and was invited to dine with him. While the company were waiting dinner, a band of wild Indians in war paint, entered the room, and the chief going round the table, took the bread that had been placed beside each plate and gave it to his men. The ladies and gentlemen all left the room, Captains Whistler and Anderson alone remaining, and the latter, turning to the Indians, with much presence of mind, asked them why they had come ready for war, when their great father had sent them an army to protect them from their enemies. They thereupon turned and left the place peaceably, and Captain Anderson's tact in dealing with them probably averted an attack in which the whole company would have been murdered. It is also related of him, that one day while he was lying in his tent, a drunken Indian came and bent over him, knife in hand, pretending to stab him in several places, and would have done so in good earnest, had not the Captain with customary coolness, and knowing the Indian character, pretended to be asleep and refrained from making the slightest movement.

After amusing himself in this way for some minutes, the Indian left. Captain Anderson then called to his men to ask what was wanted. "Rum," was the reply. He asked for the bottle, and on its being handed him knocked the Indian down with it, gave him a good beating, and never saw him again.

In 1807 he returned to Mackinaw and got a supply of goods to trade with the Sioux Indians on the Mississippi, and continued trading with these Indians till 1813. Up to this time he knew nothing about the war of 1812 except by vague reports. In 1814, leaving his goods at Prairie-du-Chien, he went to Mackinaw, but had not been there a week when an express arrived from Prairie-du-Chien informing him that a portion of the American army had gone up to that place from St. Louis and were building a fort. His reply to the messenger was, "We must go and take it; you try how many volunteers you can raise." At this time Col. McDowell, whom Captain Anderson had never seen and who was not aware of what he was doing, was glad to hear that there was some chance of support from the rear in the shape of Indians, and sent to his aid Col. McKay, giving him what small stores and ammunition he could spare.

They started on the third day after receiving the news, and on the next day the Indians began to collect around them, supplying themselves with such provisions as in their hurry they could obtain. On reaching Green Bay a number of white volunteers joined them, and they arrived at Prairie-du-Chien the latter end of August. After pitching their tents Captain Anderson went with a flag of truce to the fort and called on them to surrender, which they refused to do. They then commenced an attack on the fort, the Indians and volunteers firing upon it with their small arms from all directions, and wounding some of the American soldiers through the port-holes of their block-houses. On the night of the third day they approached within a short distance of the fort, and by daylight had a rousing fire heating a shot with a view to setting fire to the fort, which the Americans saw, and at once hoisted the white flag. Our

volunteers had now one of the American boats, into which Captain Anderson hurried all the garrison troops, and sent them away under the British flag to pass Rock river, where they would be safe from the attacks of the Indians. The Americans in the other boat continued to fire upon them, but were soon conquered, and having cut their cable, drifted off down the Mississippi, which Capt. Anderson permitted lest they should be massacred by the Indians. They were now rid of their enemy, and Capt. Anderson remained in command of the fort in Prairie-du-Chien until the end of the war. He then returned to Mackinaw, discharged his volunteers, and was immediately sent back to the fort again with loads of presents for the Indians, and to declare peace formally. On his return from this service he found the garrison moved to Drummond Island, and was appointed to take charge of the Indian Department at that place. In November, 1828, the garrison was removed to Penetanguishene. In the course of the winter he went to Toronto at the request of Sir John Colborne to make systematic arrangements for the civilization of the Indians, and it was determined that the first establishment should be formed at Coldwater, where he built saw and grist mills, a large school-house, in which divine service was held, houses for himself and the Indian chief, besides some fourteen smaller ones for the Indians. At Orillia a similar establishment was formed, and at both places proper teachers were placed over the children, making great improvements. Three years afterwards Sir John's ideas were enlarged, and he determined to form a general settlement at the Manitoulin Island, with a view of drawing the Indians from the settled parts of the Province to that place. A commissariat store, a church, and several other public buildings were erected there. The boys were taught several trades, and the girls taught to spin and knit. In 1845 Capt. Anderson was removed to Toronto to fill a different office in the same department. He had now to visit ten tribes of Indians annually to pay them the annuity allowed by the Government, and to perform this he had to travel from the Rideau to Owen Sound. In 1858, finding himself growing old and unable to perform his arduous duties satisfactorily, he memorialized the Imperial Government for a retired allowance, which was kindly granted, and which he enjoyed till his death.—*Mont. Witness.*

## V. Papers on Scientific Subjects.

### 1. THE BIRTHDAY OF MODERN CHEMISTRY.

Although the science of chemistry is of very remote origin, reaching far back into those ancient times when Moses, learned in all the mystic lore of Egypt, performed the exceedingly difficult feat of reducing into a potable liquor the golden calf of Horeb; and although many valuable processes were discovered by the ancients and by the alchemists, it underwent, about a century ago, a change so radical and so swift that it may almost be said to have been born anew.

Chemistry, says a learned French *savant*, (with that naïve forgetfulness of all outside nations which is so charming a characteristic of French philosophers,) "is a French science, invented by Lavoisier." No chemist can ever forget the obligations of his science to Lavoisier; but Lavoisier (we can scarcely refrain from quoting the classic A. Ward) is not everybody. Black, Cavendish, Sheele and Priestley all assisted at the birth of modern chemistry. And it is this auspicious birthday which, upon the 1st of August next, all the leading chemists of America will assemble at Northumberland to celebrate. There, at the grave of Priestley, they will commemorate that grand discovery which one hundred years ago opened up a new world of wonders—the discovery of oxygen. Seeing that the innumerable legislative assemblies and corporations which infest our fair country are in vacation, and that, in consequence, there is less than the usual amount of mischief in the air, we may take breath freely and pause a while to think of Joseph Priestley and of the approaching gathering of the *savants*, and to discuss briefly the appropriateness of the time selected for this celebration.

It may be said with truth that one of the fundamental ideas upon which modern chemistry rests, is the true theory of combustion which Lavoisier discovered and demonstrated. During the years 1773 and 1774 he had been experimenting by calcining metals in a current of air, and had observed that, when a substance is burned, it gains in weight precisely to the extent that the air loses; in short, that in burning there is neither gain nor loss, but that the aggregate weight of the metal and the air taken remains the same. In August 1774, Priestley discovered oxygen, and in October of the same year demonstrated it to Lavoisier in Paris. Then Lavoisier first conceived the brilliant idea that burning and oxidation are convertible terms, and that what happens when a substance is burnt in air, is merely that it is combining with oxygen, and the heat and light evolved are the visible signs of the intense, though invisible, che-



mical combination going on. Thus it was that the key to the inner temple of Nature had been found by Priestley and given to Lavoisier, who, with it, unlocked the inner shrine and threw open to the blaze of day secrets which had been hidden from mortals. Then followed Dalton, who, with his law of combining proportions, explained the mystic numbers by which Nature works, and demonstrated the truth dimly hinted by philosophers and seers of old, that God has ordered all things by number, by weight and by measure. We do not suppose that the chemists who will meet at Northumberland will propose to place Priestley in the same rank of philosophers with Lavoisier; but the time they have selected for commemoration has been happily chosen—the moment of the discovery of oxygen. For oxygen is truly the Prince of the Power of the Air entering into combination with all things, and always triumphing at last in its ceaseless warfare with the vital forces.

Joseph Priestley was born in 1733, near Leeds. His education was irregular and imperfect, although, from various teachers at different times, and by unaided labour he acquired considerable knowledge of languages and a smattering of mathematics. In Hebrew and Greek he excelled, and throughout his life he continued to study the Bible in its original languages. He early evinced an aptitude for physical investigation, and a curiosity, well nigh insatiable, for all branches of knowledge. Even in chemistry, however, he was by no means thorough. Many of the usual processes were unknown to him, and he failed in consequence to obtain a professorship for which he competed in that science. Hence he could not draw from his own brilliant discoveries the important inferences which at once suggested themselves to the more philosophic mind of Lavoisier. He was brought up in the most rigid tenets of Calvinism, and studied for the ministry at Daventry. On taking orders he obtained an appointment to a chapel at Needham Market, where he remained until 1758. But his independence and originality of mind troubled him there, as in fact was the case all through his life. He had doubts about original sin and eternal damnation, which his congregation would not tolerate, and in consequence he was obliged to resort for a time to teaching. After several changes he at last settled at Birmingham, in 1780, where he remained almost up to the period when he left England for the United States. During all this time Priestley wrote incessantly. His works, although now seldom met with, are exceedingly voluminous, and treat upon almost every conceivable subject. He wrote upon the theory of language, on oratory, on criticism, on constitutional law, on history, on optics, but his favourite subject was theology. These productions, alternated with acrid defences of the Christian religion in reply to Paine, Gibbon and Volney, violent tracts on the French Revolution, and memoirs on chemical researches which from time to time he contributed to the Royal Society. There was no philosophic calm about Priestley. In his discussions he strongly manifested the odium theologium, combined with scientific and political zeal. He took a keen interest in political matters—sided, of course, with the revolted American colonies, and, when the French Revolution broke out, justified it even at the time of its worst excesses.

In recognition of his advocacy and of his scientific reputation the French nation, which guillotined Lavoisier, declared Priestley to be a citizen of France, and the department of the Orne elected him as representative to the National Convention. He declined to take his seat, pleading his deficient acquaintance with the French language. Society in England, however, looked coldly upon him. The national mind was excited by its deep and bitter hatred of the revolutionary ideas of France. His papers began to be refused by the learned societies, and he was made to feel the popular dislike in many ways. To deny the doctrine of original sin was bad enough, to doubt eternal damnation was worse, but when he openly avowed his sympathy with the Revolutionary Government, and even commemorated the anniversary of the taking of the Bastille, the British Philistine arose in his might, assailed the chapel and the dwelling of the heterodox doctor, gutted the buildings, smashed his apparatus, destroyed his books and manuscripts, and testified in so violent a manner to the popular love of sound political and religious tenets, that the doctor left Birmingham for ever, and before long quitted the shores of England, and settled upon a farm at Northumberland, in Pennsylvania.

Now, it must be said that, wrong as it undoubtedly was of the British Philistine to act in that incoherent and illogical way, he was very unnecessarily provoked by Priestley's flaunting style of airing his religious and social hobbies. The doctor was incessantly attacking or being attacked. He assailed most violently Gibbon, Hume, Paine, or Volney, or anybody in fact, who went further than he thought proper in the path of heterodoxy; while he was defending with the same acridity the particular stripe of heterodoxy which he himself had conscientiously adopted. The great British public would not endure so much originality, and therefore, they tore the doctor's house down, utterly regardless of their obligations

to that same originality in discovering oxygen, hydrochloric, and nitrous gas. Thus the divine right of kings and the doctrine of original sin were gloriously vindicated at the same time.

Although by the discovery of oxygen Priestley enabled Lavoisier utterly to explode the current theory of combustion, yet he himself, with a perverseness incomprehensible, clung to the doctrine of *Phlogiston* with the utmost tenacity. A man less conscientious than Priestley would eagerly have adopted a new theory which grew out of his own discovery; but in Priestley there was a love of truth, mixed with a peculiar perverseness, which led him to his dying day to combat for *Phlogiston* with the same zeal as he did against original sin. He never was able to take that broad view of the facts established by his researches which characterised Lavoisier, and he remained with an inconsistency peculiarly his own as conservative in science as he was radical in religion and politics.

Before we can rightly appreciate the enormous stride which chemistry has made since the discovery of oxygen, we must dwell a moment upon the theory of *Phlogiston*. It seems scarcely credible that all chemists should have believed in the existence of an invisible substance which was not only imponderable, but even, to borrow a term from algebra, negatively ponderable. *Phlogiston* was a gas or inflammable ether which added lightness, as well as inflammability, to the substance with which it combined. Let a pound of pure iron be rusted (or oxidised) to red oxide, it will be found to have gained about two-fifths in weight. It has combined with something, said Lavoisier; not so, replied Priestley, and all the old school, it has *lost Phlogiston*, it cannot be burned any more. Let the same oxide be reduced to the condition of metallic iron—it has now, they said *gained Phlogiston*; it is combustible, and may be burnt. It is true it is lighter, but *Phlogiston* is an element of lightness. We repeat, though true, it is scarcely credible that such a theory should ever have been held against Lavoisier by such men as Priestley and Cavendish. This *Phlogiston* was, in fact, nothing but the elementary fire of which Lucretius wrote, and the Greek physicists. It has lasted up to one hundred years ago. Nor can we, in the present day, claim to be free from French theories. Tyndall's theory of interstellar ether is equally undemonstrable, although it must serve until a better be found, but *Phlogiston* is the quintessence of pure reason compared with Sir Wm. Thompson's theory, that all living things have sprung from germs carried to our earth by stray *aerolites* from some other world.

The grand experiment which will be commemorated on August 1st is familiar now to every schoolboy. Dr. Priestley placed in a tube some red oxide of mercury ("the red precipitate," familiar to druggists), and connected the tube with a pneumatic apparatus. Then, applying heat by means of a powerful lens, he had the satisfaction of seeing a gas come bubbling up which, when examined, differed greatly from common air, while the red crystalline powder gradually took on the bright fluid appearance of metallic mercury. This was the critical experiment which changed the course of chemical science and—although it was afterwards shown that there are modes of combustion which do not depend upon oxygen, as for instance the burning of metals, under certain conditions, in chloride—the theory which Lavoisier based upon Priestley's discovery is, with minor adaptations, the theory which has guided chemists and analysts to its most brilliant triumphs.

## 2. PRECAUTIONS AGAINST FIRE.

### GENERAL HINTS IN CASE OF FIRE, AND ON MEANS OF PREVENTION.

1. Be well acquainted with the best means of escape from your house, at both the top and the bottom.
2. Do not get confused; admit no one to your house except firemen, and policemen, or neighbours.
3. If a lady's or child's dress takes fire, endeavour to roll the person up in a rug or carpet, or any piece of woollen stuff.
4. Keep all doors and windows closed until the firemen arrive.
5. Always keep a piece of rope sufficiently long to reach the sidewalk, in case you cannot make your exit by the stairway.
6. If you cannot make your way from a building by the stairway, endeavour to get in a front room, and be careful to keep all doors shut behind you, for smoke will follow a draft and flames the smoke. If smoke enter the room and it is difficult to stand erect, get your mouth as close to the floor as possible and breath easy, as there is always a current of fresh air near the floor. A wet cloth over the mouth will aid breathing.
7. In getting smoke from a room, always open the upper portion of a window.
8. In case of a fire in a theatre, or any place where numbers of persons are, keep perfectly cool, and do all you can to prevent a panic, as there is generally plenty of time to escape, if there is no panic.



9. Do not go into a building where there is a thick smoke, if you can help it, without a saturated sponge in your mouth, or a wet cloth or handkerchief over your mouth and nose.
10. In ascending or descending a ladder, do so with regular step, to prevent vibration.
11. Have metal or earthen vessels for matches, keep them out of the reach of children. Wax matches are not safe.
12. Never leave small children in a room alone where there are matches or an open fire.
13. Do not deposit ashes in a wooden vessel or upon a wooden floor.
14. Never use a light in examining a gas meter.
15. Never take a light into a closet.
16. Never smoke or read in bed by candle or lamp light.
17. Never put kindling wood on the top of a stove.
18. Never leave clothes near a grate or fire-place.
19. Be careful in making fires with shavings, and never use any kind of oil to kindle a fire.
20. Keep all lights as far from curtains as possible.
21. Never pour out liquor near a open light.
22. Always fill and trim your lamps by daylight, and never near a fire.
23. Never blow out a fluid lamp.
24. Never allow fluids used for lamps to be kept in a room where a fire or light is used.
25. Always try your coal-oil by pouring a little of it into a saucer or cup, and, if you can make it burn with a match or piece of paper do not use it.
26. Put wire work over your gas-light in show window, and keep your goods from them.
27. Benzine, naphtha, camphine, varnish, turpentine, ethereal oil &c., should be never drawn by candle or lamp light, or where there is a fire.
28. Sand in place of saw-dust should be used on the floors of oil stores, drug stores, &c.
29. Always use a closed lantern and never allow smoking in hay-barn, stables, warehouses, or in stories where goods are closely packed.
30. Always keep shavings and fine kindling wood away from steam boilers and furnaces.
31. Keep lofts, cupboards, corners, boxes, &c., free from greasy rags.
32. Before leaving your place of business see that all lights and fires are out.
33. Before going to bed see that your lights and fires are out.
34. See that your stovepipes enter well in the chimney.

## VI. Miscellaneous.

### 1. THE DYING BLIND BOY TO HIS MOTHER.

This pathetic poem is copied from an English publication, called "The World." Whoever can read the plaintive strains of the poem, and not experience an emotion difficult to be suppressed, must possess feelings different from those which act upon our hearts.

Mother I am dying now,  
 Death's cold damps are on my brow ;  
 Leave me not—each pang grows stronger,  
 Patient watch a little longer.  
 Sweet it is your voice to hear,  
 Though dull and heavy grows mine ear ;  
 Wait and take my last adieu,  
 Never mother lov'd like you !  
 Though your form I ne'er might see,  
 Your image was not hid from me—  
 Stamp'd on my adoring mind,  
 Beautiful but undefin'd ;  
 Ever fair and ever bright,  
 That vision fill'd me with delight.  
 Well I knew what'er might be :  
 Those oft-prais'd forms I could not see,  
 Might I all their beauty view,  
 None of them could rival you.\*  
 Life to me was sweet and dear,

\* It has been related of some who were recovered from early blindness, that they evidently expected to find those whom affection and kindness had endeared to them the most beautiful to the eye.

—From the German.

While I liv'd the tales to hear,  
 Told by you on wintry hearth,  
 All to make your blind boy mirth ;  
 And I lov'd my voice to join  
 In chorus of hymns divine,  
 By which you fondly taught your boy,  
 To look to Heaven with hope and joy.  
 Sun or moon I could not see,  
 But lore measured time for me,  
 When your kiss my slumber broke,  
 Then I knew the morn had woke ;  
 And when came the hour to pray,  
 Then I knew 'twas close of day,  
 When I heard the loud winds blow,  
 And I felt the warm fire glow,  
 Then I knew 'twas winter wild,  
 And kept at home—your helpless child !  
 When the air grew mild and soft,  
 And the gay lark sang aloft ;  
 And I heard the streamlet flowing,  
 And I smelt the wild flow'r blowing,  
 And the bee did round me hum,  
 Then I knew that spring had come.  
 Forth I wandered with delight,  
 When I knew when days were bright ;  
 When I climb'd the green hill's side,  
 Fancy traced the prospect wide ;  
 And 'twas pleasant when I press'd  
 The warm and downy turf to rest,  
 Now I never more shall roam  
 The many paths around my home ;  
 And you will often look in vain,  
 Nor hail your wanderer e'er again,  
 Never more on tiptoe creep,  
 Where he lay as if asleep.  
 Or with a low and plaintive moan,  
 Humming to himself alone,  
 On a bed of wild flowers stretch'd,  
 Starting when a kiss you snatch'd  
 Till nature whisper'd 'twas my mother,  
 And affection gave another !  
 But 'tis sweeter thus to die,  
 With my tender mother by,  
 Than to be in life alone,  
 When she and every friend were gone.  
 Mourn not o'er me broken hearted,  
 Not for long shall we be parted ;  
 Soon in vales which ever bloom,  
 Which unfading flow'rs perfume,  
 In realms of life, of light and joy,  
 You will meet your poor blind boy.

N.

### 2. A WORD TO MOTHERS.

Each mother is a historian. She writes not the history of empires or of nations on paper, but she writes her own history on the imperishable mind of her child. That tablet and that history will remain indelible when time shall be no more. That history each mother will read again, and read with eternal joy or unutterable woe in the far ages of eternity. This thought should weigh on the mind of every mother, and render her deeply circumspect and prayerful, and faithful in her solemn work of training up her children for heaven and immortality. The minds of children are very susceptible and easily impressed. A word, a look, a frown, may engrave an impression on the mind of a child which no lapse of time can efface or wash out. You walk along the seashore when the tide is out, and you form characters, or write words or names in the smooth white sand which lies spread out so clear and beautiful at your feet, according as your running fancy may dictate, but the running tide shall, in a few hours, wash out and efface forever all that you have written. Not so the lines and characters of truth and error which your conduct imprints on the mind of your child. There you write impressions for the eternal good or ill of your child, which neither the floods nor storms of earth can wash out, nor death's cold finger can erase, nor the slow moving ages of eternity can obliterate. How careful, then, should each mother be of herself in this treatment of her child. How prayerful, how serious, and how earnest, to write the truths of God on his mind—those truths which shall be his guide and teacher when her voice shall be silent in death, and her lips no longer move in prayer in his behalf in commending her dear child to her covenant with God.

VII. Monthly Report on Meteorology of the Province of Ontario.

ABSTRACT OF MONTHLY METEOROLOGICAL RESULTS, compiled from the Returns of the daily observations at ten High School Stations, for DECEMBER, 1874.

OBSERVERS: -Pembroke—R. G. Scott, Esq., M.A.; Cornwall—James Smith, Esq., A.M.; Barrie—H. B. Spotton, Esq., M.A.; Peterborough—J. B. Dixon, Esq., M.A. Belleville—A. Burdon, Esq.; Goderich—Hugh J. Straug, Esq., B.A.; Stratford—C. J. Macgregor, Esq., M.A.; Hamilton—George Dickson, Esq., M.A.; Simcoe—Rev. George Grant, B.A.; Windsor—J. Johnston, Esq., B.A.

Table with columns: STATION, BAROMETER AT TEMPERATURE OF 32° FAHRENHEIT, TEMPERATURE OF THE AIR, TENSION OF VAPOUR. Includes sub-headers for Monthly Means, Range, Highest, Lowest, Daily Range, Highest, Lowest, Warmest Day, Coldest Day, and Monthly Means for various months.

Table with columns: STATION, WINDS, NUMBER OF OBSERVATIONS, AMOUNT OF CLOUDINESS, RAIN, SNOW, AURORA S. Includes sub-headers for Monthly Means, Estimated Velocity of Wind, Motion of Clouds, Surface Current, and various weather observations.

Where the clouds have contrary motions, the higher current is entered here. Velocity is estimated, 0 denoting calm or light air; 10 denoting very heavy hurricane. REMARKS: Cornwall—Wind storms, 9th, 10th, 13th, 25th. Snow, 2nd, 6th—9th, 13th, 17th—19th, 22nd—24th, 25th, Rain, 28th, 29th. Very brilliant meteor, 8th and 9th; three on 11th. BARRIE—Snow, 1st, 5th, 7th, 9th—13th, 17th, 18th, 24th, 25th, 29th, 30th, 31st. Rain, 3rd. PETERBOROUGH—Wind storms, 3rd, 7th, 17th—19th, 29th. Fogs, 11th—14th, 16th, 17th, 21st—24th, 30th. Rain, 16th, 23rd. Barometer 31st, higher than ever observed for several years. STRATFORD.—Wind storms, 2nd, 8th, 9th, 17th, 18th, 23rd, 24th, 29th. Fog, 1st, 27th, 28th. Snow, 1st, 5th, 9th, 11th, 13th, 17th, 18th, 22nd—24th, 30th. Rain, 16th, 17th, 27th. Mean monthly temperature—difference from average of 13 years—0°-0.3.

HAMILTON.—Snow, 1st, 9th, 18th, 22nd, 26th, 27th. Rain, 17th, 28th.  
 SIMCOE.—Wind storms, 2nd, 3rd, 9th, 17th, 18th, 23rd, 29th. Fog, 28th.  
 Snow, 1st, 9th, 13th, 18th, 23rd. Rain, 16th, 22nd, 27th, 28th. A  
 month of bare ground—no sleighing. Water scarce in some parts.  
 WINDSOR.—Wind storms, 24th, 29th. Snow, 1st, 11th, 13th, 22nd.  
 Rain, 5th, 16th.

### VIII. Short Critical Notices of Books.

*Tackabury's Atlas of the Dominion of Canada*, 1875. N. F. TACKABURY. Montreal & London.

This important and valuable work will supply a want long felt by the Canadian public. Our interest in it is enhanced by the fact of its being almost wholly the product of Canadian skill and industry. Great care, labour and research have evidently been employed in its preparation. Preceding the Atlas proper, is a valuable series of descriptive memoirs on the Topography and Physical Geography of the Provinces of Ontario and Quebec; on the Geology of the different Provinces of the Dominion; and on the Zoology of Canada. There are also comprehensive and interesting sketches of the History of Canada; (nor has the Educational Institutions and systems of the various Provinces been forgotten.) A chapter on the Railways of the Dominion, and an exhaustive memoir on Canadian Steam Navigation. There are likewise Mineral Statistics; a list of Railways in Canada, and their distance in miles; and a list of Foreign Consuls in the Dominion, exclusive of U. S. Consuls. These introductory papers, occupying more than 100 pages of letter-press, contain a fund of reliable information presented in a lucid and graphic manner by gentlemen eminently fitted to do justice to their respective subjects. Appended to the Atlas is a Gazetteer containing lists of the cities and villages of Ontario and Quebec, with their estimated population, their distance from the nearest Railway Station and their Post Offices. To business men, this portion of the Atlas, will prove valuable and serviceable.

The maps in the Atlas proper, may be noticed under four classes. The first contains six General Maps, each of which fills two pages. (Size of page, 18 inches by 14.) The introductory map is one of the Dominion, coloured to show the Geological formations: the second exhibits the line of the Canada Pacific Railway between Manitoba and Lake Nipissing. The next is a beautifully executed and valuable map, illustrative of the Climatology of the Dominion. The system of lines introduced by Humboldt in 1817, to afford an insight into the distribution of heat in the atmosphere is successfully applied to B. N. America, and by lines of equal winter, equal summer, and equal annual temperature, the comparative climate of the Dominion is presented in a graphic form. The distribution of rain fall is also well delineated. The remaining three General Maps show the civil divisions of Canada; of the United States; and of Europe.

The second class contains Special Maps of the Provinces. Ontario, British Columbia, and Manitoba, are each two-page maps. Quebec occupies three double pages, the first comprising the western part of the Province; the second, the central; and the third, the eastern. New Brunswick and Newfoundland occupy a page each; Nova Scotia and Prince Edward Island are given on one page. We may next mention the maps of the Districts (Algonoma, Muskoka, Nipissing, and Parry Sound), and of the counties of Ontario and Quebec. The list is completed by maps of the five cities of Ontario, and two of Quebec. The County maps are given on a scale of six miles to an inch. They contain the concession lines of the townships, and the villages, post offices, and school-houses are clearly and accurately indicated.

We cordially recommend the Atlas as a reliable and admirably executed work, which every intelligent Canadian may advantageously use for study or reference.

*The British Quarterly Review*, for January, from the LEONARD SCOTT PUBLISHING CO., 41 Barclay Street, New York.

*Paparchy and Nationality*. In this article the writer shows that the controversy now waging in Germany is "deeply rooted in the historical incompatibility of the pretensions of the Papacy with the autonomy of the State;" that the conflict was inevitable, and admits of no evasion or compromise; and, "upon every ground of Scripture, of reason, of society, of history, and of humanity," takes side with the civil against the ecclesiastical power, in the struggle for supremacy within the state.

*The History of Greece*, by G. W. Cox, author of "The Mythology of the Aryan Nations," receives much commendation, especially for the discrimination between true history and mere legend. The two volumes now published conclude the Peloponnesian War.

*The Bible's Place in a Sense of Religion*, is best described in the writer's own words: "He has sought to present, in the data of Scriptural religion, a great body of scientific facts which must remain positive knowledge in the department of religion, whatever new knowledge may raise in physical science."

*Europe and Peace* would have been more aptly entitled "Europe preparing for War," and for a war of terrific proportions. The description of the condition and temper of the nations, affords little hope for the continuance of peace.

The other articles and the extended notices of Contemporary Literature bring more topics to the reader's attention than we have room to particularize.

*Westminster Review*, for January, reprinted by the LEONARD SCOTT PUBLISHING CO., 41 Barclay Street, New York.

Mr. Mill's posthumous work, *Nature; The Utility of Religion and Theism*, is the subject of the first article.

*The Bible and Strong Drink* is a short article, showing the probable effect of the passage of the bill to prevent the sale, manufacture, purchase or importation of intoxicating liquors in England.

*Rocks Ahead; or the Warnings of Cassandra*, is the review of a recent work by Mr. Greg, "which is remarkable alike for the gloomy views it depicts and the great ability with which it is written." It portrays the difficulty likely to arise from the parliamentary rulers of the country becoming more and more members, in some sort, of the aristocracy.

*Aristotle*, the work which occupied the last six years of Mr. Grote's life, has just been given to the public, and is the subject of this essay. The object of this work, as well as those on Plato and the companions of Socrates, which preceded it, is to "show the speculative activity of the Greeks, by a critical examination of the works of their chief thinkers." The present article is devoted principally to his treatment of the treatises known as the *Organon*.

*Charity, Pauperism, and Self-Help*, suggests a modification of the English Poor Laws, and sets forth the plan for a Friendly Relief Society.

*The First Metallurgists* mentions the traces left by prehistoric men in the shape of tumuli, &c., which we find in all parts of the world, and the gradual advance in civilization proclaimed by their contents.

*The Edinburgh Review*, for January, from the LEONARD SCOTT PUBLISHING CO., New York.

*Mill's Theism*.—The first article takes up Mr. Mill's last work, which was reviewed with great praise by a writer in the *Westminster Review* for January, and argues with much earnestness against the materialistic opinions therein proclaimed, on the origin of all things, the nature of man, and the being and attributes of God.

*Lord Ellenborough's Indian Administration*.

Those who know *Leonardo da Vinci* only as an artist, will be surprised on reading the account of his career here given, to find that he was equally, if not more eminent, as a physiologist, engineer, and mathematician; that he was a skilled labourer in every department; that he invented numerous mechanical appliances; and that he was "chiefly artist to the generation in which he lived, because the arts were the only form of his activity then generally in demand."

Four of the remaining articles are devoted to topics which, like that of the first, have been discussed in one or more of the other Reviews.

There is a very interesting article on "The Heart of Africa and the Slave Trade," in which we have a short account of the two late expeditions under Dr. Schweinfurth and Sir Samuel Baker.

### IX. Educational Intelligence.

—WATERLOO HIGH SCHOOLS.—After a long and able discussion of the whole case relating to the High Schools (as we learn from the *Waterloo Chronicle*), in which every point was duly considered, the Waterloo County Council, at last session, came to the conclusion to ask Berlin and Waterloo to contribute \$3,000 towards the building, and they would at the June session divide the whole County into two High School districts. This is a step in the right direction.

—HIGH SCHOOLS IN ONTARIO.—A good deal of discussion has taken place lately in Hamilton, Port Hope, and various other towns in this Province, on the question as to whether it is expedient to retain the 4th, 5th and 6th classes in the Public Schools, and also the corresponding classes in the High Schools. Financial considerations have prevailed to decide the question in the negative, as against the Public Schools, thus reducing them to the status of mere primary Schools. This is most unfortunate, and a remedy must be applied to prevent the evil.

—MCGILL UNIVERSITY, MONTREAL.—By the courtesy of Principal Dawson of this University, we have received the annual report to the Government General, of the Institution. We shall give an abstract of the report in our next.

—COLLEGE AND SCHOOL JOURNALS.—We have received *The Queen's College Journal* from Kingston and the Collegiate Institute — of St. Catharines. We shall refer to them in our next.

—Manitoba College contains thirty-nine students. Messrs. Bryce and Hart are the Professors.

—The successful Gilchrist scholars up to last year are: 1868. S. R. Wiggins, Ontario; 1869, J. L. McKenzie, Quebec; 1870, F. B. Robertson, Ontario; 1871, F. G. Macgregor, Nova Scotia; 1872, — Pattulo, Ontario; 1873, W. J. Fraser, Ontario; 1874, W. J. Alexander, Ontario.

Such of the Prussian schoolmasters as are to give secular instruction

says Matthew Arnold, have only an oral examination in divinity and are not examined in Hebrew, as those who are to give the religious instruction; but they must satisfy the Examining Commission as to their acquaintance with Scripture, and with the dogmatic and moral tenets of Christianity. Candidates weak in their divinity have this weakness noted in their certificate, and the Provincial School Boards are directed not to appoint any teacher weak in this particular, until he has been re-examined and has passed satisfactorily.

Prof. Francis W. Newman, arguing in the London *Examiner* in favour of free schools in England, says that their present system involves an immense waste of teaching power, a fact which appears also in Germany. A Professor of Natural History in University College, London, whose fame was European, for a series of years had classes which could always be counted on the fingers. Another bad result of the system which he notes is, the expense of highly educating a family, which he calls a "great moral mischief to the gentry." "On one side," he says, "it leads to delaying marriage too long, and on the other makes it harder to be content with comparative poverty, by which a father becomes incapable of fitly educating his children. Men's minds are hereby made less independent; on both sides the evil recoils on the public."

## X. Departmental Notices.

### ADMISSION TO COLLEGIATE INSTITUTES AND HIGH SCHOOLS.

Notice is hereby given, that the next Examinations for admission to Collegiate Institutes and High Schools will be held on Tuesday and Wednesday, the 8th and 9th of June, 1875.

Any Candidate who fails at the above-mentioned, or at any subsequent Examination, to obtain one-third of the marks in any subject will not be considered by the High School Inspectors to have shown that "competent knowledge" of the subject which the law requires, notwithstanding his having gained fifty per cent of the total. (See Regulations for the Admission of Pupils).

In order to prevent any misunderstanding of the intention of the Regulations, Local Examiners are hereby reminded that the object of the Examinations is to prevent unqualified pupils from entering the High Schools, and that in fixing a minimum of *fifty per cent. of the total marks* assigned, it is not expected that the Local Boards will divest themselves of their judgment or of the power to exclude candidates who make a total failure in the fundamental subjects of primary Education.

### THE NORMAL SCHOOL SESSION.

In future there will be but one Session of the Normal School instead of two.

The Session will commence on the 15th September, and will close on 15th July, with vacation from the third Wednesday in December to the second Tuesday in January; and from the Wednesday before, to the Tuesday after Easter, inclusive.

The School will consist of two Divisions. The work of the Second Division will be entirely with a view to Second Class Certificates, and the First Division will be prepared for First Class Certificates.

The Second Division will be divided into two sections. The Junior Section will comprise students who, having passed the entrance examination, are preparing for Second Class Certificates grade B. The Senior Section will comprise, (1) students who are preparing for Second Class Certificates, grade A, having already passed through the Junior Section and obtained grade B Certificates; (2) those who have obtained grade B, granted by County Boards, and passed a special examination in Arithmetic, Algebra and Natural Philosophy within certain limits; (3) lastly, those who have passed the entire entrance examination for this Section.

The First Division will contain (1) the students who have passed through the Second Division and obtained Second Class Certificates, grade A; and (2) those who hold Second Class, grade A certificates granted by County Boards, provided they can pass in certain specified subjects.

These regulations will go into effect on the 15th of next September.

**ERRATA.**—On the second column of page 30 of the last *Journal*, fourth line from the top, for "The Books," read "The English Books," &c.; from the list in the same column omit the words "Tales of Martyr Times," inserted by mistake.

### NORMAL, PUBLIC AND HIGH SCHOOL EXAMINATION PAPERS.

The sets of Examination Papers used in the Normal School during the 20th, 21st, 22nd, 23rd and 24th sessions can be sent free of postage on receipt of 30 cents each. Those of the 25th, 26th, 27th, 28th, 31st, 33rd, 38th, 39th, 40th, 41st, 42nd, and 44th sessions, at 40 cents each, and those of the 45th, 47th, 48th, 49th, 50th and 51st sessions, at 50 cents each.

The entire sets of Examination Papers for First, Second and Third Class Teachers for July, 1873, December, 1873, or July, 1874, neatly stitched, can be sent free of postage on receipt of 55 cents per set. Those used at the County Examination for Second and Third Class Teachers for July, 1871, July, 1872, or December, 1873, can be sent, free of postage, on receipt of 50 cents per set.

The Entrance Examination Papers for High Schools and Collegiate Institutes used at the Autumn Term, 1873, January, 1874, or June, 1874, can be supplied free of postage at 15 cents per set.

### PRICES OF PRIZE AND LIBRARY BOOKS REVISED.

After the First of March, and until further notice, it has been decided.

#### TO SUPPLY ALL THE BOOKS.

enumerated in the two Official Catalogues of Prize and Library Books issued last year by the Education Department at the rate of **EIGHTEEN CENTS** on the shilling sterling of retail cost (being also at the rate of **NINETY CENTS** for a five shilling sterling book, at retail cost), instead of the rate of Nineteen and Ninety-five cents respectively, as mentioned in these Catalogues.

After that date, therefore (1st March, 1875), and until further notice, the Books enumerated in the two Catalogues named will be supplied from the

#### PEOPLE'S DEPOSITORY OF ONTARIO.

to Municipal and School Corporations at the revised official prices name above.

### 100 PER CENT ALLOWED ON REGISTERS.

The Chief Superintendent will allow the 100 per cent. on all remittances of \$5 and upwards, which may be sent to the People's Depository for Maps, Charts, Apparatus, General and Daily Registers, Pupils' Monthly Reports and Merit Cards. Trustees who have, during the present year, paid the full net price for Registers, will, until the 1st of July next, have the 100 per cent. allowed on such purchases, in any remittances up to the minimum amount (\$5) which they may send in to the People's Depository up to that date, for Maps, Charts, Object Lessons, Apparatus, Monthly Reports and Merit Cards, but the Registers cannot be sent (or allowed) with Prize or Library Books. Parties will please be particular to give date of remittance for Registers since the 1st of January, and Post Office.

### THE PUBLIC SCHOOL LAW FULLY EXPLAINED.

#### BLANK SCHOOL FORMS.

Messrs. Copp, Clark & Co. have just published an Exposition of the new School Law relating to Rural Schools of this Province, the Official Regulations and Decisions of the Superior Courts, by Dr. Hodgins, Deputy Superintendent of Education, sent free on receipt of 55 cents.

The same publishers have also recently issued blanks of the official forms used under the Public School Laws, such as School Deeds, Forms of Agreements with Teachers, School Rate, Rolls, &c. Lists with prices may be obtained.