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# Educational Weekly

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## The Educational Weekly.

Edited by T. ARNOLD HAULTAIN, M.A.

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JAMES V. WRIGHT, General Manager.

TORONTO, SEPTEMBER 30, 1886.

WE cheerfully publish in this issue the letter of Mr. W. J. Robertson animadverting on the review of "The Public School History of England and Canada" which appeared in the EDUCATIONAL WEEKLY of the 23rd ult.

The chief point upon which the reviewers (for the work was criticised by two persons) based their criticism was that the narrow limits of the work precluded the possibility of writing such a history of England and a history of Canada as would meet the demands and the requirements of the pupils or the teachers of public schools, and that the method of treatment dealt too largely in abstract terms to allow of the histories being sufficiently interesting to captivate the attention of youthful readers.

Upon these two points we adhere to the opinion expressed in the review.

The position advanced by Mr. Robertson is that the authors purposely left to the teacher the duty of making interesting to the pupil the skeleton sketched for

them in the text book. Whether the average public school teacher is equal to this task is, we fear, an open question. The authors have certainly done their best to aid him, and have given long lists of authorities which they recommend him to read. The lists so given are admirable. They comprise names of splendid writers, historical, romantic, and other. But—and this is a most important question—will these lists be of practical value to these average public school teachers? For example, for the Victorian era of English history the teacher is referred to May's "Constitutional History," McCathy's "History of Our Own Times," Mackenzie's "XIXth. Century," Molesworth's "History of England," Sir Theodore Martin's "Life of the Prince Consort," Morley's "Life of Cobden," Ashley's "Life of Palmerston," Trevelyan's "Life and Letters of Lord Macaulay," Kinglake's "Crimean War," Mrs. Oliphant's, Taine's, and Morley's "English Literature." A good list everybody will grant. But will the average teacher, to whom twenty-five per cent. of these works probably will be known only by name and reputation, be able to peruse all these before commencing the study of the Victorian era? To have placed this list before him is something. Could nothing more be done? In the limited space allowed to the authors it could not. Here again comes in the disadvantage of narrow limits.

The following sentences from the *London Advertiser* show pretty plainly the trend of popular opinion on a subject that was much discussed at the last meeting of the Ontario Teachers' Association:—

There can be no question that whatever tends to raise the average of intelligence and culture of the great army of public school teachers will tend to improve the efficiency of the schools and enlarge their influence for good. In fact, we are inclined to believe that our future educational progress will be made mainly in this direction. At the recent convention of teachers in Toronto it was boldly asserted

by some that the Teachers of Ontario could hardly be said to have attained to the dignity of a profession; that they on one hand lacked the professional *esprit du corps*, and that on the other hand they did not, as a rule, receive either the remunerative or the social consideration accorded to the members of other professions. When one glances over the departmental reports and notes how large a proportion of the teachers actually engaged are working for mere pittances of \$300 or \$400 a year, and in many cases for even less, he is forced to the conclusion that the speakers alluded to were right, so far at least as the question of remuneration is concerned. This is not as it should be. To the teachers of the public schools we, as parents, entrust our most precious possessions, and as a public our country's dearest interests. Whether we reflect upon the delicacy of the plastic material upon which the teacher is daily operating by precept and example or upon the tremendous influence he exerts in moulding and preparing for active life our future citizens, we cannot fail to see that upon the members of no other profession, the ministry not excepted, rest weightier responsibilities. Such responsibilities should be entrusted to none but men and women of the highest character and the best education that can be procured.

The St. Louis *American Journal of Education* is making a strong fight for longer terms of school and better wages to teachers. It demands of the state nine months of school each year and that the minimum salary paid teachers be \$50 per month. The former demand is based on the argument that a tax necessary for the support of the schools for that length of time would be less than that required for the support of paupers, criminals, imbeciles, etc., due to ignorance. The increase in salary is asked in the belief that it would call to the schoolroom more competent and efficient instructors, elevate the standard of the profession, and enhance the results desired to be obtained by popular education.

## Contemporary Thought.

THE utter lack of knowledge which many parents show regarding the schools which their children attend is almost shocking. Indeed, it may be broadly affirmed that not one parent in ten can tell whether the teacher of his child teaches him properly or not.—*Good Cheer.*

DR. HITCHCOCK, professor of physical culture at Amherst, believes that the reason why the average length of life is only forty years, is that men and women live too fast. Their heads are prematurely bankrupt; their stomachs are worn out; their hearts, kidneys, and muscles are over-worked. If the use of tobacco increases during the next as it has during the past twenty-five years, we shall not only know of sudden death from heart and brain injuries consequent upon it, but we shall see in the Anglo-Saxon race, men emasculated and sorely deficient in muscular strength. A lack of control over our bodily and mental functions is a reason why we live forty instead of seventy years.

EDWARD EVERETT HALE, in a recent address, made an interesting statement concerning the Boston Latin School when he was one of its pupils, some fifty years ago. "I am quite sure," he said, "that even cowardly boys of the school would have been more afraid to tell a lie than of any consequence of telling the truth." He attributed this high tone not to the discipline of the school, nor to the example of the teachers, but to the right feeling of the boys themselves. "It was a tone given by the scholars," he remarked. "It was a thing understood among them that a boy who would tell a lie was a cowardly and mean fellow, and as such was to be politely cut by his fellow-pupils, until he had learned better." Dr. Arnold, who attached more importance to this than to anything else, was of the opinion that the elderly boys of the school usually set the fashion, both in morals and in manners, and he directed his best efforts to raising the tone of feeling in his highest class. "It is a shame to lie to Arnold," said one of his pupils, once, "for he always believes us." Which shows his efforts were successful.—*Dominion Churchman.*

THE inability to habitually indulge in sound, refreshing sleep denotes an unnatural condition, which should be immediately corrected. Oftentimes it is the result of some form of dissipation. Over-work, severe mental strain, with irregular intervals of rest, are abuses which nature sets down to the debit side of the unbalanced sheet; and the day of reckoning, if deferred from time to time, is sure to come at last. A resort to drugs to produce drowsiness is only a counterbalance of evils, with a continual gain at the wrong end of the beam. They lower the life currents, weaken the nervous system, and create appetites as harmful and unnatural as they are difficult to overcome. What, then, is to be done? In some instances, *very little*. In others, *very much*. *Forsake bad habits and return to good ones.* This is the sum and substance of it all. It is nature's fiat, which the whole of *materia-medica* is powerless to resist. Divide the day into timely periods of avocational labour, healthful exercise and recuperative rest, and see to it that neither infringes upon the other. Avoid excesses of every kind, especially in eating,

drinking, and needless exposure to heat or cold, and credit nature with that good health of which indifference and neglect would impoverish you.—*Hull's Journal of Health.*

AT Trachenberg, near Dresden, I entered the common school with the inspector, and found the upper class at their reading-lesson. The inspector took the book; the children were reading a well-known ballad by Goethe, "Der Sanger," and he began to question them about Goethe's life. They answered as no children in a similar school in England would answer about the life of Milton or Walter Scott. Then the ballad was read, and the children were asked to compare it with a ballad by Schiller which they had been reading lately, "Der Graf von Habsburg." They were asked what gave to each of these ballads its charm; what the Middle Age was, and whence is the attraction it has for us; what chivalry was, what the career of a minstrel, and so on. They answered in a way in which only children of the cultivated class, children who had had all manner of advantageous influences to mould them, would answer in England; and which led me to write in my note-book the remark which I have already mentioned: the children *human*. You will judge whether you have in your common schools a like soundness of performance in these matters; whether you really have it, I mean, and are not merely said by patriots and newspapers to have it.—*Matthew Arnold.*

THE War Department just now is in the midst of a discussion as to the proper disposal of the Apache Indians, whose capture has cost the Government so much blood and treasure. There are a class of military pundits who imagine that the hunt for these murderers and thieves has been warfare, and that the Indians are entitled to belligerent rights. When a score or two of Indians, who have been living on a reservation, fed and cared for by the Government, stealthily leave there and engage in a raid throughout a wide extent of country, not seeking troops to fight, but robbing and murdering peaceable working people, men, women and children in their homes; obscenely and fiendishly torturing and mutilating men and ravishing women—is that "war" any more than piracy? And when these miscreants, incarnations of cruelty and brutish lust, are pursued, and after long pursuit, either caught or compelled to give themselves up, because they are out of ammunition, out of food and so surrounded that escape and further deviltry is impossible—is that "capitulation" of a hostile force engaged in legitimate warfare? Are they "prisoners of war"? They are simply felons, murderers, assassins, ravishers, brigands, pirates, outlaws, caught red-handed by a pursuing force, a military posse, ministers of outraged justice.—*Quebec Chronicle.*

TIGHT dressing, though the most serious hindrance to the habit of good breathing, is not the only obstacle. There are careless ways of sitting and standing that draw the shoulders forward and cramp the chest; and it is as hard for the lungs to do good work when the chest is narrow and constricted as it is for a closely bandaged hand to set a copy of clear, graceful penmanship. Then there are lazy ways of breathing, and one-sided ways of breathing, and the particularly bad habit of breathing through the mouth. Now the nose was meant

to breathe through, and it is marvellously arranged for filtering the impurities out of the air, and for changing it to a suitable temperature for entering the lungs. The mouth has no such apparatus, and when air is swallowed through the mouth instead of breathed through the nose, it has an injurious effect upon the lungs. A story is told of an Indian who had a personal encounter with a white man much his superior in size and strength, and who was asked afterward if he was not afraid. "Me never afraid of man who keeps mouth open," was the immediate reply. Indeed, breathing through the mouth gives a foolish and weak expression to the face, as you may see by watching any one asleep with the mouth open. It may be noted that an anæmic, or low, condition of the blood is seldom found where there is an established habit of full, deep breathing with the mouth closed.—From "About Breathing," by Hellen Clark Stacey, in *St. Nicholas* for October.

THE *Daily News* has published an outline of the organization of the new Government Emigration Office, which, it states, is to be located at 31 Broadway, Westminster, and will be opened in about a month. The operations of the office will be confined within comparatively narrow limits. The committee of management will consist of a small number of gentlemen interested in the Emigration question, including two representative working men. The object will be simply and solely to supply intending emigrants with useful and trustworthy information respecting British emigration to the colonies. The information so disseminated will be chiefly derived from the various colonial Governments and their representatives in this country, but, in addition, independent reports will be supplied by correspondents likely to be well-informed upon the commercial and industrial conditions of the colonies in which they reside. The principal medium for the distribution of this information will be the post office, but trade and friendly societies, workingmen's clubs, and similar organizations, will also be utilized. The circulars so distributed will be divided into two parts. In the first part particulars will be given as to the cost of passage and the demand for labour in the colony dealt with. In the second part, general information will be afforded, including a very brief and simple statement of the leading facts about the colony—its climate, population, products, religion, education, providence societies, means of internal communication, cost of living, wages, and land system. Circulars will be revised quarterly if a change in the industrial condition of any colony necessitates another issue. Should the inquirer desire further detail he will be referred to the handbook of the colony, which will form part of the series of handbooks prepared for issue by the office. It will thus be seen that the new department is nothing more than an information bureau, and that of necessity it can do little more than has hitherto been done independently of the Imperial Government for the furtherance of emigration to the Colonies. The advocates of State-aided Colonization will possibly hope that the scope of the scheme may to some extent be extended. But that they can be very confident on this score seems extremely doubtful when the time and trouble required to bring about even this small beginning are borne in mind.—*Canadian Gazette.*

## Notes and Comments.

PROFESSOR J. E. WETHERELL, Stratford Collegiate Institute, has had his salary increased to \$1,500 per annum in consideration of his new duties in connexion with the Training Institute.

READERS of Mr. van der Smissen's edition of Grimm's *Märchen* will be glad to see that Messrs. D. C. Heath & Co. have in preparation another work edited by the same writer—Hauff's *Märchen: Das Kalte Herz*.

WE are requested to say that it is the intention of the Education Department not to submit a formal paper in Orthoepy at the next entrance examination to the high schools and collegiate institutes. The examiner in Oral reading, however, will be asked to consider carefully the pronunciation of the candidates.

THERE are many signs that the profession of the Teacher is gradually shaping itself so as to rank in importance with the Medical and Legal professions, and the latest of these signs is, that it has been considered worthy of a special mark of Royal favour.—*Educational Times (London, Eng.)*

THE ignoring of the importance, grandeur, and beauty of the human body is common to both educated and uncultured. Dr. G. Ven well says that the latter does not know, the former does not reflect, that the conscious *ego* has no demonstrable existence independent of the aggregation of organs and apparatus which constitutes the body. The spirit tenant might chafe unheard, unelt, unknown, if the avenues of the senses were also closed, and consciousness, emotion, be never manifested were the brain, out of which they were evolved, not rightly formed.

THE appointment of the Rev. John Potts, D.D., as General Secretary of Education for the Methodist Church, says the *Evangelical Churchman*, seems to point to the fact that, now that university federation has been endorsed by the Conference, the policy is to be steadily pursued. If this is true, such a course is worthy of all praise and speaks highly for the loyalty and forbearance of the members of the Methodist Church towards one another. It is to be hoped that Dr. Potts will have the confederation scheme under his personal direction. If his energy is applied to it, the consummation cannot be far off.

THE remarkable educational exhibit which has been sent to South Kensington under the auspices of the Ontario Government continues to attract the attention it merits from all classes of visitors. Already it has been examined in detail by many educationists, a large number of whom will, however, be freer to spend time in the Court when the Summer Vacation begins. To bring the exhibit before the notice of these gentlemen,

Dr. May has taken a wise step. To official school inspectors, to the principals of the leading schools and colleges, and to clerks of School Boards and other similar authorities—numbering in all several hundreds—he has sent a neatly bound volume containing a description of Ontario's Educational system, and a catalogue of the exhibit. With this volume, which is presented on behalf of the Educational Department of Ontario, by the Hon. G. W. Ross and Dr. S. Passmore May, a special invitation to visit the Court is also forwarded, and an intimation is given that Dr. May will be most happy to furnish personally to such visitors all the information in his power. The invitation will doubtless be gladly accepted by many of the best-known members of the scholastic profession, and by this means much useful information will be disseminated respecting Ontario's enterprise in a matter which is so closely related to the real welfare of the province.—*Globe Colonial Exhibition Supplement*.

We have received the following:—

COLONIAL AND INDIAN EXHIBITION,  
CANADIAN COURT,  
SOUTH KENSINGTON, S. W.,

17th Sept., 1886.

MY DEAR SIR,—The EDUCATIONAL WEEKLY has been received regularly, and distributed to those interested in education, and I am pleased to say that many persons have spoken very highly of your Journal as to its value to educationists and the excellence of typography and paper.

As I have not seen any notice in your paper of this Department, I send a Catalogue of Exhibits and a few newspapers herewith, extracts from which might be of interest to your readers.

Yours truly,

S. P. MAY.

T. ARNOLD HAULTAIN, ESQ., M.A.

THE editor of the *Central School Journal*, Keokuk, Iowa, recently well said: "How many headaches and backaches and general illness that have been ascribed by fond parents to overstudy, were really due to the miserable condition of school buildings, we may not say. We have seen children climb long flights of stairs when such effort was a direct violation of the simplest laws of health. We have entered school-rooms where the air was dense and foul with noxious effluvia. We have seen the children seated so that the glaring light shone directly in their eyes. We have seen them pale and languid. We have noted the listless air, and sympathized with the headaches. We knew the cause, and we have time and again uttered our feeble protest. If our desire is to ruin children physically, the present arrangement of buildings is well suited to the purpose."

Let two stories be the extreme height of our buildings. Let us insist upon scientific modes of ventilation and give the teacher to understand that this matter must not be neglected, and we shall have less trouble with our pupils' health.

We publish the following portion of a circular which has been sent by the Education Department to head masters of high schools and collegiate institutes:—

DEAR SIR,—

As my answers to a number of enquiries made since the re-opening of the High Schools are of general interest, I have deemed it advisable to embody them in a circular, as follows:

1. The Senate of Toronto University having changed the selection from Shakespeare, previously announced for Matriculation, the Literature for First Class Teachers for 1886-7, in addition to Thomson's Seasons and Southey's Life of Nelson as prescribed, will be "The Merchant of Venice."

2. Hereafter, as for 1886-1887, the Literature Texts for Third Class Certificates will be taken from the authorized High School Reader; and, as in the case of those for the Entrance Examination, about half for one examination will be repeated for that next ensuing. Head-Masters are required to use these selections in their forms (see Reg. 98, Form I, 5); and, to enable them to do so with the utmost advantage, some of the selections are, and will be, especially adapted for pupils just promoted from the Fourth Class of the Public Schools.

3. A candidate may write for a Second Class Non-professional Certificate without previously taking a Third Class Non-professional Certificate.

4. While there is nothing in the Regulations to prevent a candidate from writing for a Second and a Third Class Non-professional Certificate in the same year, it is, in most cases, undesirable that he should do so, and Head-Masters may (see Reg. 96) refuse to prepare the same candidate for both examinations in the same year, should the circumstances of his school or the capacity of the candidate render this course advisable.

5. Two examiners will hereafter be required to set each paper, both for the Entrance Examination to High Schools and for Teachers' Certificates.

6. Candidates for Teachers' Certificates will be allowed a choice of questions within certain limitations, that is to say, while an examination paper may consist of 12 questions, the maximum marks may be obtained by answering eight or nine. This will give greater freedom to the examiner and the teacher, and reduce the risk of failure on the part of the candidate who understands the subject.

## Literature and Science.

### THE GROWTH OF THE ENGLISH NOVEL.

EIGHTEENTH-CENTURY realism hastened the disappearance of ideal romances, fostered the growth, and determined the character of contemporary fiction. Nothing was read which was obviously imaginative; the very name of romance died out till the time of Horace Walpole. In one important respect the true province and scope of light literature was better understood by writers of the first half of the century than by their successors. Early novels were playthings, designed for mental recreation; the writers had no moral or social thesis to maintain. In the hands of Voltaire, Diderot, Rousseau, or Godwin, they became party manifestos written to inculcate particular views of life or to create sympathy with some special course of action. When once the use of the novel as a polemical weapon was demonstrated, its character was changed. Instead of reflecting the face of nature, novelists looked on the world through tinted glasses. Artistically this use of the novel was a retrogression; but it obviously imparted a powerful stimulus to its growth. Every subsequent social change has tended to render the novel not so much a luxury as a necessity of life. Aschan denounced the follies of the old romances as unworthy the attention of wise or good men. In his boyhood Montaigne knew nothing of the "Lancelot of the Lake," "Huon of Bordeaux," "Amadis of Gaul," or any other of the "worthless books," which, in his maturer age, amused degenerate youth. Major Bellenden would have had "the fellows that write such nonsense brought to the piquet for leasing-making." Though Olivia Primrose confessed to the study of logic from the arguments of Thwackum and Square, and Robinson Crusoe and Friday, it was not the Quakers only who forbade the reading of novels, or Sir Anthony Absolute alone who regarded "a circulating library as an evergreen tree of diabolical knowledge." The rural aristocracy discarded works of fiction. In their moments of enforced leisure Gwillim lulled to slumber the Sir Hildebrand Osbaldestones of the day; their wives and daughters were busied among the linen and the preserves. Novel-reading was treated as something between a moral frailty and a waste of time. For many years it was a stolen pleasure, bread eaten in secret. It was not only in the boudoir of Lydia Languish or the hymnal of Thomas Tumbull, that "Peregrine Pickle," or books of looser character, were ambushed behind works of graver import. Acting on Olivia's hint, writers at first combined instruction with amusement, lured readers on false pretences from the chair to the sofa, offered the didactic powder

in the sweetmeat of a love-tale. Such shifts and disguises are now antiquated and unnecessary. A novel is a novel, as a play is a play. Its use in life is recognized. Everybody reads; women have more leisure and fewer occupations than formerly; men cannot always, as was said of Sir Roger de Coverley, have their roast-beef stomachs exhausted in brain, nerve, and muscle by the struggle for existence, and crowded together in cities, they cannot, if they would, live the out-door lives of their ancestors. Plays, operas, concerts, require money or an effort. Novels supply the easiest and cheapest form of relaxation.

The modern novel, though not necessarily "a smooth tale," is "generally of love." In the hands of Fielding and Smollett its sphere was not so limited; it presented a more miscellaneous and diversified picture of human life. At the present day the romance element predominates. Novels deal almost exclusively with the passions of love; the sentimental aspect of life is throughout prominent. Other interests and aims may be used to heighten or diminish the colouring; but the principal object to narrate the feelings and fortunes of the hero and heroine. With Sir Walter Scott love is not necessarily the chief topic of interest; yet even he is compelled by the taste of his readers to interweave a thread of love-making. Dickens' genius inclined to the wider range which Fielding and Smollett occupied; but his novels are marred by the necessity, fancied or real, which compelled him to hang his disjointed and detached episodes on the thread of a romantic plot. The eighteenth-century novel, in its first stage of development, may be defined as a continuous prose narrative, intentionally fictitious but consistent with nature, designed to develop character by means of a series of incidents in the life of an imaginary hero or heroine. . . .

The growth of the English novel in the eighteenth century epitomizes the characteristics of the period. It follows the change from the prose of its commencement to the poetry of its conclusion. In the realism of Defoe is represented the extreme of its reaction against the enthusiasm of religion, literature, politics, whether chivalrous or republican. From the fatal effects of that sentimental disease which infected Richardson, England was saved by the sturdy common sense of men like Fielding, and the domestic virtues that are painted by Goldsmith. As the century drew to its close, the pent-up imagination, which here and there had trickled off in Della Cruscan dilettanteism, finally burst its bonds, and flowed into new channels of historical romance, or moral, social, and political idealisms. If in its general outlines the novel represented the age, with still closer fidelity did it reflect its minute details. Life is pre-

sented in every aspect; vivid side-lights fall upon manners and morals; from the thieves' quarter to Almacks no class is omitted. Never before was society so dramatically presented; of no previous age do we possess a knowledge at once so detailed and so general; in none exists so rich a gallery of contemporary portraits.

What an influence for good and evil have novelists become! keen, sarcastic critics of life, genial partakers of its interests, observant students of its hopes and failures, they have imagined stories that strike a chord which vibrates for a life-time, painted pictures of life-scenes and their issues which indelibly brand themselves on the memory, or, with an insight that is born of intuition or experience, laid bare the inmost secrets of the human heart. They have formed conceptions so lofty as to be everlasting possessions, and created characters that are compliments to human nature. As the keen scimitar and nervous arm of Saladin accomplished afeat which the giant strength and ponderous blade of Richard could not perform, so novelists have enforced moral lessons more powerful than a wilderness of homilies, and taught effectively by parables where other teaching has produced only slumber.—*Quarterly Review.*

THE eyes can properly be used only when the body is in an erect position. When we stoop the face is flushed and the eye bloodshot. Thus reading in a recumbent posture is ruinous to the eyesight.

It is stated (*Lancet*) that Mr. Cresswell Hewett has succeeded in the manufacture of quinine by synthesis, and that its cost will be about five cents an ounce. This will interest not only patients and physicians, but chemists and pharmacists.

THE advantage of country life to physical development is shown by Galton, who had found that English country boys of fourteen years average an inch and a quarter more in height, and seven pounds more in weight, than city boys of the same age.

HER VON RITTER has left \$15,000 to the University of Jena, the interest of which is to go to the teaching of the doctrines of Darwin. Prof. Häckel proposes to establish, with part of this sum, a professorship of zoology, to be called the Paul Ritter professorship.

PROBABLY the largest literary prize ever offered is one of \$1,000,000, to be given in 1925, by the Russian National Academy for the best work on the life and reign of Alexander I. In 1825, shortly after the death of Alexander I., the sum of 50,000 roubles was offered by one of his favourite Ministers to be given as a prize a century after his death, and it is this sum at compound interest which will amount in 1925 to \$1,000,000.

## Special Papers.

### HIGHER EDUCATION AND THE HEALTH OF WOMEN.

(Concluded from our last issue.)

SIR BENJAMIN BRODIE says: "The mind, in the case of girls of the affluent classes, is educated at the expense of the physical structure, they spending more time in actual study than their brothers." The late earnest and scholarly Dr. Ed. H. Clarke (U.S.A.) writes: "It is not asserted that all the female graduates of our schools and colleges are pathological specimens, but it is asserted that the number of those graduates who have been disabled in a greater or less degree by these causes is so great as to excite the greatest alarm, and to demand the serious attention of the community. If these causes should continue for the next half-century, and increase in the same ratio as they have for the last fifty years, it requires no prophet to foretell that the women who are to be mothers in our Republic must be drawn from transatlantic homes." There is hardly an American physician who has specially treated the diseases of women who does not corroborate these words. For instance, Dr. Emmett: "I hold that it is not practicable to educate a girl by the methods found best for a boy without entailing serious consequences." Dr. Goodall observes: "From the age of eight to that of sixteen our daughters spend most of their time in the unwholesome air of the recitation room or in poring over their books when they should be at play. As the result, the chief skill of our milliners seems to be directed towards concealing the lack of organs needful alike to beauty and maternity, and the girl of to-day becomes the barren wife or invalid mother of to-morrow. Surely a civilization which stunts, deforms, and enfeebles must be unsound." So, too, Professor Loomes, of Yale College, looking at the increasing deterioration of American girls, remarks: "The cry in our colleges and time-honoured universities is, 'Open your gates that the fairer part of creation may enter and join in the mental toil and tournament.' God save our American people from such a misfortune." And our own lamented Dr. Thorburn, of Owens College, having said that "The struggle for existence on the part of single women, and the capacity of a few of their number to ignore with safety the physiological difficulties of the majority, are demanding opportunities for education, and its honourable as well as valuable distinctions, which cannot and ought not to be refused them," is constrained to add, "Unfortunately, however, up to this time no means have been found which will reconcile this with the physiological necessity for intermittent work by the one sex. It becomes, therefore, the duty of every hon-

est physician to make no secret of the mischief which must inevitably accrue, not only to many of our young women, but to our whole population, if the distinction of sex be disregarded." In like strain Mr. Lawson Tait, after declaring himself an advocate of woman's rights, says: "At the same time I cannot help seeing the mischief women will do to themselves and to the race generally if they avail themselves too fully of their rights when conceded. . . To have only the inferior women to perpetuate the species will do more to deteriorate the human race than all the victories of Girton will do to benefit it. This over-training of young women is wholly unnecessary in the interests of human progress, and it is most mischievous alike to themselves and to humanity. . . Exceptional culture will infallibly have the tendency to remove the fittest individuals, those most likely to add to the production of children of high-class brain power, from out of the ranks of motherhood." In giving evidence as to results, the president said that Dr. Hertel, speaking of over-pressure in the high schools of Denmark, writes that "of the boys 29 per cent., and of the girls 41 per cent., were found to be in a sickly state of health. The diseases most prevalent were anaemia, scrofula, and headache." In confirmation of Dr. Hertel, evidence of Professor N. J. Bystroff was given, "who has examined 7,478 boys and girls in the St. Petersburg schools during the last five years, and found headache in 568—that is 11.6 per cent. He states that the percentage of headache increases in a direct progression with the age of the children, as well as with the number of hours occupied by them for mental labour; thus, while headache occurred in only 5 per cent. of the children aged 8, it attacked from 28 to 40 per cent. of the pupils aged from 14 to 18. The Professor argues that an essential cause of obstinate headache in school children is the excessive mental strain enforced by the present educational programme, which leaves out of consideration the peculiarities of the child's nature, and the elementary principles of scientific hygiene." Even as regards the immediate object—mental progress—it has been well remarked in the *Lancet* that "a system which leads to such disastrous results as regards bodily health is no less pernicious checking mental advance and improvement; for at no epoch of life is the necessity for maintaining the balance between construction and destruction of nervous energy greater than in the period immediately preceding adolescence, and it is just at this time that keen competition is most severely felt in the subjecting, as Dr. Ross remarks, the latest evolved portion of the nervous system to a strain so great that only those possessing the best balanced and strongest systems can escape unscathed." Dr. Tuckmann (Cleveland, U.S.) relates that in 1881, "of 800

pupils in a particular high school, nearly 25 per cent. of the girls, and 16 per cent. of the boys, from one cause or another, had withdrawn; and that it was found, on investigation, that of the girls so withdrawn 75 per cent. had left wholly or in part on account of ill-health were in poor health while at school. Here it appeared that, whether from necessity or from choice, the girls studied more hours out of school than the boys did." Quite in accordance are the results arrived at by the extensive investigations of our able co-associate, Sir Crichton Browne. But, indeed, there are facts daily emerging in this direction of such painful significance that I might almost say a cry of remonstrance has arisen from one end of England to the other. All great dangers are apt to be greatly exaggerated. This one of over-training may, perhaps, not have been an exception to that rule, but the danger does exist and is a great one, and the sequence of punishment after transgression is sure and certain. Degeneration and impaired nutrition come in place of development; evolution passes into dissolution. And with mental training the danger is far greater than with bodily training. The rules of health, sedulously attended to during the latter, are too often disregarded in the former, and thus the nervous system is developed at the expense of the nutritive. In the case of young children, the consequences of over-training are things of frequent observation. The wonderful Westminster boy, "the learned pig," was an imbecile before manhood. In our contemporary school reports, how many do we find resembling that of Mr. Tyson (Penrith School Board) respecting the deaths of two children, "the immediate cause in both cases being brain fever, undoubtedly resulting from over-pressure at school." Again, to come back to the special subject of this address, "There can be no doubt," writes Mr. Alderson, one of Her Majesty's Inspectors of Schools, "that the work required by the Code presses more heavily upon girls than boys. They work more willingly, and they feel the strain more. They require to be protected from their own willingness to study." In conclusion the president summed up his argument as follows.—Excessive work, especially in youth, is ruinous to health, both of mind and body; excessive brain work more surely so than any other. From the eagerness of woman's nature, competitive brain work among gifted girls can hardly but be excessive, especially if the competition be against the superior brain weight and brain strength of man. The resulting ruin can be averted—if it be averted at all—only by drawing so largely upon the woman's whole capital stock of vital force and energy as to leave a remainder quite inadequate for maternity. The Laureate's "sweet girl graduate in her gol-

den hair" will not have in her the fulfilment of his later aspiration—

" May we see, as ages run,  
The mother featured in the son."

The human race will have lost those who should have been her sons. Brion, for want of a mother, will not be born. She who should have been his mother will perhaps be a very distinguished collegian. That one truism says it all—women are made and meant to be, not men, but mothers of men. A noble mother, a noble wife—are not these the designations in which we find the highest ideal of noble womanhood? Woman was formed to be man's helpmate, not his rival; heart, not head; sustainer, not leader. Many times, indeed, woman's fate has set her in the foremost place; in some of those times, no doubt, such place has been well and grandly filled by her. Yet, even then, our admiration is not untinged with compassion. Even in this year, of approaching or commencing jubilee, is it not so with us when we think of that Crown, Royal and Imperial, which, splendid as it is, has so long been left "a lonely splendour!" "*Victoria Regina et Imperatrix*"—bravely, proudly, gloriously is the burden borne; but would she who knows its weight wish a like weight to be laid upon any daughter? Let this address come back to the humbler life which more belongs to it. "I am king of the household, and thou art its queen," says the happy husband in Longfellow.

#### THE LADY TEACHER.

WHAT is a lady? If we hunt the etymology of the word, we shall find it is derived from two Anglo-Saxon words, one of which means to look after, to have charge of, to keep. But a noted gentleman has given us quite another definition, which corresponds with our own views, viz., "A lady is a woman who is the equal of her lord." The lady teacher is the compeer of her brother in the same profession.

Everything seems to qualify her for teaching. Her organisation clearly defines her sphere. She is physically fitted to the close confinement of the school room and to sedentary life. God has endowed her with fine, natural perceptions, an exquisite instinct, and wonderful self control. In fact, ladies are the anointed teachers of our race.

Thoughtfulness for others, modesty and self-respect are the qualities which make a real lady as distinguished from the veneered article which commonly goes by that name. These qualities, coupled with patience, self-control, and a youthful heart that has not forgotten its own sunshiny, cheery childhood, are wanted in all who deal with children.

The lady teacher must be firm but heavenly mild.

"A perfect woman nobly planned  
To warn, to comfort and command."

Children are susceptible creatures. As

you influence them not by arbitrary rules and stern precepts alone, but in a thousand other ways that speak through gentle manners, quiet, pleasing, lady-like tones, so they will grow.

Place a young girl under the care and guidance of a kind-hearted, graceful woman, and unconsciously to herself, she will grow into a graceful lady. Place a rude street-educated boy under the guidance of the same gentle hand, and how quickly the rough edges of that boy's nature are smoothed and toned down.

My opinion is that if a lady teacher does nothing more for the good of a community than to inculcate good morals and gentle manners in the minds and hearts of the youth, she is of inestimable value to that community.

I do not think parents are particular enough about the culture, refinement and character of the one to whom they entrust the education of their children. A noted gentleman, when his daughter asked him what studies she should pursue at college, replied, "It matters not so much what you study, but with whom you study."

There is a tendency nowadays to underestimate the durability of early impressions. They are the reins that guide and stop us all through life, the golden key that locks or unlocks the portals leading to fields of usefulness in maturity.

How often we hear these expressions: "O well, what is the difference who is employed in those primary departments, or who teaches that summer country school?" What a mistake to think that when a child is once on its feet it will grow and flourish like a tree, regardless of soil or cultivation! The labour only begins then. I tell you, mothers, the croup, which you so much dread, is nothing compared with that swearing boy on the corner. You cannot be too careful into whose hands you place the guiding and guarding of those little feet.

The primary teacher ought to combine in one, mother, governess and nurse. She ought to be a lady in every sense of the term. But there are some lady teachers whose field of labour lies away from the busy town. The position of lady teacher in the graded schools is a responsible one, but I can't begin to tell you what it means to be a country schoolma'am.

Am I addressing a fellow-teacher from the rural districts? If so I need not speak of dust, mud, overwork, poor pay, and the opposition of ignorant patrons, for you well understand all about these. Your lot in life is Godlike, for it is yours to give time, strength, activity, and love, without any apparent adequate return. Yet you have a compensation which is even better than money. You are teacher, saviour, guardian and friend. Sometimes unappreciated, sometimes misrepresented, and oftentimes misused, but never the aggressor.

But each one of us, wherever our lot may be cast, can ennoble our profession by putting into it the womanly and divine principle of love and sacrifice.

The lady teacher ought to be a true Christian. An artist gazing upon a block of marble exclaimed, "I see therein an angel!" Grasping his chisel he wrought as if by magic, until his natural eye beheld the image of his mind. Infinite wisdom has entrusted you and me with living, breathing marble, and it is ours, with smiles and tears, with prayer and song, to develop patiently the latent possibilities of the human soul. Our words and thoughts are crystalized in the minds of those around us. We can lead those little feet up and place them upon the King's Highway, or by being unfaithful to our trust we can start them upon the downward path. Next to the minister of the gospel stands the teacher. Then let us go forth to our labour stronger in faith and integrity than ever before; more fully determined to lead a sweet, pure life, replete with good works. Let us "sow beside all waters." Perhaps we can make something grow where before was a waste or a blank.

Let true womanhood shine out of our lives, casting its radiant glow upon the God-given treasures around us, raising, stimulating and encouraging them to self-reliance, and to a true, pure life. If we can drop but a pebble of truth into the vast ocean of humanity, the circle of our influence may go on, deepening and widening, until it shall reach the boundless shore of eternity. Then from our master's lips will we hear the words, "She hath done what she could: well done." —*Ohio Educational Monthly.*

A SIMPLE and easily applied test of actual death was mentioned at a recent meeting of the Amiens Medical Society, by Dr. Lessenne. It consists in pricking the skin with a needle. On the living body such a pin prick leaves no trace. On the corpse the puncture remains open.

THE great reflecting telescope at Melbourne is devoted chiefly to the observation of nebulae. With it have been discovered indications of great changes in some of these celestial bodies during the last few years, such changes being sought to confirm the generally accepted nebular theory of the origin of the solar system.

IT is stated that there was a considerably increased growth of the cortical tissue in the neighbourhood of Broca's convolution in Gambetta's brain. A writer in the *British Medical Journal* thinks this confirmatory of the generally accepted idea that this portion of the brain governs articulate language, Gambetta's powers of oratory and of memorizing being very remarkable.

## *Educational Opinion.*

### *MODERN SPELLING.*

THE "Editor of the Public School Spelling Card" writes to *The Times* (London, Eng.), as follows on the subject of "English Spelling":—During the last ten years I have been collecting mistakes frequently made in dictations, essays, letters, etc., and after having collected some 700, and printed them with a few special rules, I still find a difficulty in laying down an absolute law for a certain number of words for want of some fixed authority in England, such as the Academy in France. "Rateable," for instance, is I find the popular spelling, but all the dictionaries I have consulted give "ratable," though both forms have existed side by side for more than two centuries. "Debatable" and "debateable" also both exist. I find "debatable" in *The Times* of Monday, June 14, bearing out one rule I had given that "Words ending in e before able drop the e when not required to soften the pronunciation of the last consonant of the word," as blamable, lovable, etc., but changeable, peaceable, etc. Again the spelling "license" predominates in several hundred collected quotations both as substantive and verb, though the popular spelling is "license" for the verb and "licence" for the substantive, the etymological c in the first case having strangely become s. This may be by analogy with "advise and advice," "practise and practice," "prophesy and prophecy," in all of which the verb takes the s. Then, modern spelling gives "judgment," "abridgment," "acknowledgment," but we retain the e in "management," "enlargement," "engagement," etc. Among double forms of spelling we have "ecstasy and extasy," "connexion and connection," "infexion and inflection," "despatch and dispatch," "villainous and villainous," "negotiable and negotiable," in all of which one can but bracket the words and say the former spelling is preferable. "Reflexion" is generally found used in a physical and "reflection" in a mental sense. Again, the important rule that "verbs ending in a single consonant preceded by a single vowel double this consonant when adding ed or ing only if accented on the last syllable," though apparently respected by American writers and lexicographers is violated by English writers in more than twenty verbs ending in l, as cancel, equal, level, label, marvel, quarrel, rival, travel, etc., and also in the verb "worship," and the t in benefit, ballot, carpet, etc., is sometimes doubled, though I notice *The Times* always adheres to one t. Modern spelling apparently prefers "inquire" to the older "enquire," and there are other double spellings in en and in. If these anomalies exist, I cannot see what authority

is followed by examiners in the various competitive examinations where a few so-called mistakes might make the difference to passing or failing on the part of a candidate. I noticed "develope" in a letter recently written to *The Times* by a late Cabinet Minister, but I presume this was an oversight on the part of the writer and reader.

### *THE "TIMES" ON MODERN SPELLING.*

PHONETIC spelling would, no doubt, simplify many problems, and for future generations of philologists it would be invaluable to have the language of our day recorded exactly as we speak it. But phonetic spelling is like the decimal coinage; the transition to it from the present state of things would be too severe for weak human nature. Some day there may arise a generation, intellectual sons of Anak, strong enough to make the change; but till that time we must content ourselves with milder modes of simplifying our orthography. Perhaps two leading principles may be laid down, though we are aware that even these are open to much criticism. First, etymology should be followed where not to follow it would be unscholarly; secondly, in cases where usage has definitely spoken, and where to follow it does not commit us to definite etymological blunders, let us agree rule. . . . At the same time, to come to our second principle, there is no need to be pedantic in our spelling, or to follow out a rigid uniformity in the face of usage. We admit "Philip" and "philanthropy," but we do not ask to retain "phantastic." Curiously enough, while "fantastic" has established itself, the rarer and more purely literary word "phantasm" keeps the ph. "Economy," again, has established itself; "era" has nearly driven out the form preferred by the etymologists. The diphthong in both words is dropped by common consent in favour of the single letter. Conversely, in many cases the newer usage is more correct than the old; "critic" and "music" are more right than the "critick" and "musick" of the seventeenth century. But let not any one suppose, with the Americans, that "honor" and "favor" are in the same way more right than "honour" and "favour." These words and their kindred we get, not directly from the Latin equivalents in *or*, but from the French in *eux*, and to drop the u ignores this elementary fact of etymology. Such are a few of the anomalies and suggestions for avoiding or excusing them. The question will be asked whether no authority exists, or can be called into existence, which shall not remove the anomalies—for that by nature of the case is impossible—but shall lay down rules to be followed in doubtful cases. It is the old question of the need of a literary academy;

though it must be owned that the present is an odd time to raise it, when our Academy of Arts is being attacked, weighed, found wanting, emended, and abolished in all directions. Oddly enough, it is to France that we are directed for an example both by those who would abolish the Academy of Arts and by those who would establish an Academy of Letters. French Art, we are told, flourishes because the French have no Royal Academy with authority over the artists and their works; and French literature is so excellent, the French language so precise, so clear, so free from the possibility of solecisms in grammar and spelling, because there is an Académie Française which keeps the language and the literature more or less under its control. The contradiction is one that we will not pretend to harmonise. We may remark, however, that though the excellence of the French Academy's old dictionary is unquestioned, the time spent in the preparation of the new edition is so great that none but an antediluvian patriarch could expect to see the end of it. Our own great dictionary, which Dr. Murray and his assistants are making for the Oxford University Press, is slow enough; but it is nothing in comparison with that of the Academy. Another ten or twelve years, it is said, will see the completion of it. Perhaps, in default of an English Academy—which no English Richelieu has yet shown an inclination to found—we may find the spelling authority that we need in this great Oxford Dictionary.

IN theory, education in Egypt is gratuitous and universal; the most ardent supporter of free education could find no fault with the Egyptian system, which adopts a child from the moment of its birth, and for a charge amounting to about eight cents per head per annum on the whole population provides it with a curriculum that could hardly be equalled outside of the larger European Universities. The young Egyptian of six years of age may, if he chooses, attend a primary school; at the age of 11 he may go to a secondary one; and at 16 may continue his studies at one of seven colleges. A Ministerial report shows that in June, 1885, out of a population of 6,000,000 souls, 8,587 were receiving instruction. For the instruction of these 8,587 scholars, 504 professors are employed, an average, that is, of one teacher to every seventeen taught. The total budget for the Ministry in 1885 was £84,689, but of this £17,470 went to administrative expenses, to feeding some of the scholars, and other charges, so that the actual charge for education alone was only £67,219, which it may be interesting to note is about £7 16s. 6d. per scholar—5 cents per head of the entire population—and would allow £133 for each professor.

TORONTO.

THURSDAY, OCTOBER 7, 1886.

## MODERN SPELLING AND PUNCTUATION.

The letter to the London *Times* on modern spelling, and the article on that subject by the same paper which we print in our "Educational Opinion" columns are interesting and instructive.

The *Times* is not exactly an authority in matters educational, but it is, of course, always cautious in giving its opinions, and its opinions consequently are worthy of a hearing.

It is, we think, out of the question to expect permanency in orthography. Language is a growing thing; spelling must, therefore, be a variable one. And from these two factors there springs an elasticity of which we should not complain. It matters little, after all, whether we write "connection" or "connexion," "debatable," or "debateable," "ratable" or "rateable," etc. No misunderstanding as to the meaning of such words can arise.

Much as they may complain in the British Isles of the unsettled state of spelling, they are there comparatively well off. It is we in Canada who have reason to grumble. Here the antagonistic forces of English conservatism and American innovation contend with each other and produce an astonishing amount of divergence. The two large daily journals in Toronto give evidence of this. The *Mail* retains the *u* in such words as "honour," "labour," spells "marvellous" and "traveller" with two *l*'s, and generally follows the practice of the English papers. In the *Globe*, on the other hand, we always find "honor," "labor," "traveler," "marvelous"—it has not yet gone so far as to spell "cannot" "can not."

However, in this scientific age we all seek for law and accuracy—even in spelling.

The *Times* suggests two laws:—"First, etymology should be followed where not to follow it would be unscholarly; secondly, in cases where usage has definitely spoken, and where to follow it does not commit us to definite etymological blunders, let usage rule." These laws seem to us of little value. When etymology and usage agree there is no need of either of these laws; when they do not agree usage always does "commit us to definite etymological blunders," as, for instance, in

the words "rhyme," "fantastic." The fact is, no rule can be laid down for spelling; we must be content to put up with the inconsistencies of orthography and flatter ourselves that they are proof of a healthy flexibility. All we can do is to preserve as much as possible a certain congruity in the mode we adopt. If we prefer *z* to *s* in words derived from the Greek *τέλος*, let us be careful to always use the *z*; if we expel *u* from "honour," let us be careful to expel it from analogous words also. Modern spelling is a subject in which each must be a law unto himself.

If spelling is in an unstable condition much more is so punctuation. Rules there are without end concerning commas, semi-colons, colons, dashes, parentheses, inverted commas, and all the rest of them. (We have a work before us in which eighty pages and seventy-seven rules are devoted to punctuation alone!)

It is strange to pass from these rules to the great masters of punctuation and to notice the great diversity existing among the latter. Carlyle had a marvellous punctuation, it was characteristic of the man. Take for example the following sentences:

"One was for the sensuous nature: a rude, helpless utterance of the first thoughts of men,—the chief recognized virtue, courage, superiority to fear. The other was not for the sensuous nature, but for the moral. What a progress is here, if in that one respect only!"

"Most poets are very soon forgotten: but not the noblest Shakespeare or Homer of them can be remembered forever;—a day comes when he too is not!"

"No; it is not better to do the one than the other; the one is to the other: as life is to death,—as heaven is to hell. The one must in nowise be done, the other in nowise left undone. You shall not measure them; they are incommensurable: the one is death eternal to a man, the other is life eternal. Bentham's utility, virtue by profit and loss; reducing this God's-world to a dead brute steam-engine, the infinite celestial soul of man to a kind of hay-balance for weighing hay and thistles or pleasures and pains on:—if you ask me which gives, Mohammed or they, the beggarlier and falser view of man and his destinies in this universe, I will answer, it is not Mohammed!"

Compare with this profusion of dashes and colons any article from the London *Times*. The *Times* never permits the use of a colon (except in its advertising columns). It is exceedingly miserly in its use of the semi-colon even. In an editorial of a column and a half in length (in its issue of September the 9th) only two are to be found; the rest are all commas and periods.

Charles Lamb was another adept ... the use of stops. He, too, avoids the colon but is prodigal in dashes as the following proves:—

"There is no flavour comparable, I will contend, to that of the crisp, tawny, well-watched, not over-roasted, crackling, as it is well called,—the very teeth are invited to their share of the pleasure at this banquet, in overcoming the coy, brittle resistance,—with the adhesive oleaginous—O call it not fat! but an indefinable sweetness growing up to it,—the tender blossoming of fat—fat cropped in the bud—taken in the shoot—in the first innocence—the cream and quintessence of the child-pig's yet pure food,—the lean, no lean, but a kind of animal manna,—or, rather, fat and lean (if it must be so) so blended and running into each other, that b'g together make but one ambrosian result, or common substance."

When teaching punctuation in the school-room of course these subtle uses of stops need not even be referred to. It will be long ere the public school pupil will appreciate their delicate beauties. All that is necessary for him is to teach him the difference between the various kinds of stops and to give him easy sentences to punctuate.

It is a pity, however, that so few writers take notice of varieties of punctuation. Thousands of pages of manuscript are sent to the printer upon which the compositor has to use his own ingenuity in the matter of hyphens, colons, dashes, parentheses, inverted commas, notes of exclamation,—to say nothing of semi-colons and commas. Writers little know how large a part of their art they miss in not themselves attending to their own punctuation.

As to the remark made in the letter to the *Times* concerning examiners and their mode of treating varieties of spelling in the papers of candidates, we cannot think that the present fluctuating orthography can in any way affect pupils.

In punctuation, as in spelling, each must be a law unto himself.

## OUR EXCHANGES.

*The Popular Science Monthly* for October, in addition to its usual excellent complement of good, hard reading, contains many articles useful and interesting to what may be called the semi-scientific reader, such articles as "Some Outlines from the History of Education," "A Psychological Study of Fear," "Some Peculiar Habits of Cray-Fish," "A Bald and Toothless Future," "The Philosophy of Diet," etc.

The October *Lippincott* is an unusually attractive number. Among its contributors are W. E. Norris, Grant Allen, Edgar Fawcett, William H. Hayne, and George Parsons Lathrop. "A Bachelor's"

"Blunder" reaches an interesting crisis in Captain Cunningham's History, "How to Choose a Library" is very readable despite the fact that we have been deluged with literature about books and libraries; "The History of James" (Mr. Grant Allen's article) is highly attractive. It reminds one here and there of the essays of "Elia," and is spicy and pointed throughout—like everything of Grant Allen's. The "Experiences of a Base-Ball Umpire" reveals some strange facts connected with that past which those unacquainted with the game of "ball" will be astonished at. Altogether this number of *Lippincott's Monthly Magazine* is one which it would be difficult to improve upon.

*The Library Magazine* (J. B. Alden, publisher) for September the 25th contains: "Natural History of Credit," by John Rae; "Berlin University," by Philip Schaff; "The Knights-Templars. III.; Rise and Growth of the Templars," by J. A. Froude; "Three Roman Letter-Writers," by Augustus Jessop, D.D.; "English Royal Jubilees," London Society. Current thought: "Newspaper Writing," by Augustus A. Levey; "The Recent Earthquake in New Zealand," "Flooding the Sahara," by De Volson Wood; "Payment of the National Debt," by N. P. Hill; "The Beggars of Paris," *Pall Mall Gazette*; "Charles Lamb," by Augustine Birrell, author of the most fascinating little book, "Obiter Dicta"; "Sorghum and Sugar-Cane," by Dr. Peter Collier; "Indian Medicine Men," by Dr. G. A. Stockwell.

#### REVIEWS AND NOTICES OF BOOKS.

*Our Government: How it Grew, What it Does, and How it Does it.* By Jesse Mac. A.M., Professor of History and Political Science in Iowa College. Boston: Ginn & Co.

We cheerfully and highly recommend this book. The author has a clear grasp of his subject, and to this adds a faculty of laying it before his readers as clearly. From the early *tun-scepe* or township, step by step he tracks the march of governmental institution still the constitution of the United States with all its intricacy is reached. The details, also, of educational supervision, road-building, care of the poor, taxation, choice of public servants, courts, postal service, banks, agriculture, army and navy, etc., etc., are all interestingly sketched. The book is admirably divided into two parts and an appendix. This increases the ease with which the subject may be studied.

MISS HELEN DAWES BROWN's "Two College Girls" receives very complimentary notices from the *Academy* and the *Athenaeum*.

MR. PAGET TOYNBEE, says the *Academy*, has completed the first part of his "Dictionary to the *Divina Commedia*."

MR. BARNETT SMITH is compiling a "Life of the Queen," which Routledge & Sons expect to publish this month.

THE centenary of the publication of the first edition of the poems of Robert Burns has been celebrated in Scotland at Kilmarnock by a con-course of 30,000 persons.

THE contents of the third volume of Mr. John Morley's "Miscellanies" in the new globe edition of his works, are ten essays or reviews; one general, on "Popular Culture;" two historical, on

"France in the Eighteenth Century," and the "Expansion of England," the latter of which joins on to Mr. Freeman's book soon to be referred to; the others personal and critical on Mill, George Eliot, Mark Twain, Harriet Martineau, Mr. Greg, and Comte. Those on Mill and Comte strike us as the most important of the set, perhaps because of the author's deeper sympathetic interest in these subjects. But the reader will find in Mr. Morley a very just appraiser of all these six celebrities of the first and second rank.

THE next of his classified catalogues that Mr. Bernard Quaritch has in preparation, says the London *Athenaeum*, is a "Catalogue of Typographical Monuments," consisting of a list of the most valuable works in his possession that were produced in all countries during the years immediately following the invention of printing. It will be arranged in typographical and chronological order, so as to illustrate the history of the art. Among the books comprised in this catalogue will be: Under Germany, the Mentz Psalter, printed on vellum by Schoeffer in 1459, and the *Catholicon*, printed by Guttenberg in 1460; under England, some ten Caxtons, the two Books of St. Alban's, and many works by Wynkyn de Worde, Richard Pynson, and Julian Notary; under France, several issues of the first press established in the Sorbonne, and others printed by Verard and Geoffroy Tory; under Holland, several books with wood-cuts, produced by Geraert de Leeu and other early printers; under Italy, many of the Subiaco and Rome editions printed by Schweinheim and Pannartz, and impressions on vellum by Jenson.

THE *Pall Mall Gazette* of August 2nd gives prominent place to an article by Professor James K. Hosmer of St. Louis, now in Europe, entitled "Imperial Federation and the United States," the point of which is in the following paragraph: "It will, however, be a sad day for America if her people ever allow themselves to be so far swayed by this ancient prejudice or the foreign influences which have been peured in so copiously as to forget that their country is in origin English, that her institutions are the bequests of bygone English generations, and that the land will be past praying for if she forgets the mother from whom she drew life. To such an extent is America overswept, stunned on the one hand by the Irish cry, weighted on the other by inert millions just released from slavery, threatened in still another direction by an Asiatic inundation, penetrated through and through with a Teutonic influx which, welcome though it is, and closely allied though it is, cannot undertake her free life without a process of assimilation—to such an extent is America overswept that it is natural for thoughtful men of the original stock to feel somewhat insecure, and to ask whether it may not some day be desirable and possible to brace themselves by entering into some closer league with those who, in spite of superficial differences, are substantially one with themselves."

THE *Literary World* was recently asked to publish a list of recent popular books on electricity. Thinking it may interest some of our readers we reproduce it:

Silvanus P. Thompson's "Elementary Lessons in Electricity and Magnetism." [Macmillan. 1881. \$1.25] is really all that is needed on this subject, but we add a few other titles:

Baile, J. "Wonders of Electricity." (In Illustrated Library of Wonders.) [Scribner. \$1.50.] Brennan, Martin S. "A Popular Exposition of Electricity." [Appleton. 1885. 75c.]

Greer, Henry, editor. "Recent Wonders in Electricity, Electric Lighting, etc." [New York: Agent College of Electrical Engineering. \$2.00.] Hospitalier, E. "The Modern Application of Electricity." [Appleton. 1882. \$4.50.]

Houston, E. J. "Primer of Electricity." [Philadelphia: Eldredge & Son (?). 1884.] Maxwell, J. C. "Elementary Treatise." [Macmillan. 1881. \$1.90.]

Munro, J. "Electricity and its Uses." [London: Religious Tract Society. 1883. 3s. 6d.]

Sprague, J. T. "Electricity: Its Theory, Sources, and Applications." [London: Spon. 1875. \$3.00.] "Written chiefly for that large and increasing class of thinking people who find pleasure in science."

Tyndall, J. "Lessons on Electricity." [Appleton. 1877. \$1.00.]

THE subject of the fifth "Circular of Information," for 1885, published by the United States Bureau of Education, is "Physical Education." It directs attention to the four different ideas of manly excellence,—the Greek, or aesthetic; the Monkish, or ascetic; the Military, or knightly; and the Medical, or scientific. The recent war popularized the third in America, and reports of work of that class are accordingly to be found here. The teachings of the fourth, down to the most recent day, are, of course, the essence of the paper, and more than once attention is called to the great tendency of such teaching to return to the old standards of the first. It is, however, suggested that games and exercises should be supervised and made a part of education, to be carefully controlled by a competent M.D., who shall be one of the Faculty, on a par with the other masters. Rugby football is condemned by the great Harvard University, as a "brutal and dangerous" game. My strong objections to much that attends public games are recounted, and many careful restrictions on games generally have been agreed to by the highest authorities, both scholastic and medical. The Code, and the books of Mr. Maclaren, of Oxford—a prophet too little honoured in his own country—are highly praised, but Germany carries the palm for science and labourious thoroughness. The manual labour, which has been so successful in the lower-grade schools, is naturally not found popular in the colleges. A warning voice is raised against the high pressure at which girl live, both at work and pleasure, and the necessity of more regular rest and exercise is insisted upon. A large part of the Circular consists of plans and elevations of gymnasiums.

#### BOOKS RECEIVED.

*Elementary Greek Prose Composition*, on the Method of Arnold. By J. Fletcher, M.A., and A. B. Nicholson, B.A. Kingston, Canada: Printed by William Baillie. 1886. 156 pp.

*Modern Petrography*. By George Huntington Williams, of the Johns Hopkins University. "Monographs on Education" series. Boston: D. C. Heath & Co. 35 pp. Price 25 cents.

## Methods and Illustrations

### THE STUDY OF WORDS.

INTELLIGENT reading is more than pronunciation, more than the observance of diacritical marks, vowel sounds, final consonants, accent, slurs, and the various draperies of speech. These are much, but the projection of the power in the words is more. The one is the case of third rate actors on a country stage; the other is the business of a Garrick and an Irving, a Barrett and a Booth.

It is wonderful how attractive to bright pupils the study of words can be made; and it is not surprising that mechanical reading is dull and uninteresting. As reading is often taught, the text of a Ciceronian oration is as easily acquired as the text of some of our stately prose writers. It is as easily understood. Often an English sentence demands for its interpretation as skillful word analysis as a sentence in a foreign language. The brain must be as quick, correct and versatile of thought as the hand of a telegrapher is quick, correct and versatile in transmitting a message.

Among the many reasons why pupils fail to read intelligently, two may be charged to certain teachers.

1st. Some teachers do not read understandingly; and, asleep themselves, are incapable of leading the awakening minds entrusted to them. Most children receive their first instruction in reading from young, inexperienced teachers, whose imaginative powers have scarcely plumed their wings for virgin flight; whose critical ability ranges at nearly zero; and whose stock of comparisons is so small, that they are often as much at a loss to appreciate the language they read as are the children they teach. Figures, synonyms, contrasts, repetitions, and contractions crowd one upon the other. Thought interpretation requires analysis, and analysis demands much of the analyzer.

2nd. Another class of teachers fails in word culture, not from lack of ability, but from indolence, shiftlessness, and lack of interest. This class may not be a large one, but it is large enough. They permit pupils to indulge in looseness of thought, vagueness of idea, and take-for-granted word meanings. These are mental habits most difficult to uproot, and all the strength, energy and patience of a faithful teacher are taxed to overcome them, even to a degree.

No arbitrary rules for word instruction can be formulated. No two successful teachers are, in their methods, wholly alike. Each in his own individuality develops his plans. Some suggestions, not wholly theoretical, may find corroboration in the minds of my fellow-teachers.

Children in the First and Second Readers read with much less hesitation and stammering, if the teacher, in his own words, has first told them the story, read the lesson slowly, and drawn from them, as the result of their own observation, a similar story. I open at random to the 58th lesson in Appleton's Second Reader, and in the second and third paragraphs I read: "The head [wheat] at first is soft and green," \* \* \* "the tall grain bends in long waves," \* \* \* "and looks like golden water." An interesting teacher can make most interesting pupils and better readers by enlarging upon the "head" of wheat, the "tall grain," the "long waves," and the "golden water."

In a chance lesson from the Third Reader of the same series, p. 171, are found the words "cunning," "clever," "mischievous," "possible," "seldom" and "remarkable,"—six words in as many lines. A child, after once reading them, may recognize them again and pronounce them correctly; but he is not likely to use them independently in conversation, unless special attention has been called to them, and their meaning has been made sufficiently clear. We read, not simply to pronounce words, but for the higher instruction of their use. For the larger per cent. of children, reading is the great substitute for that generous word culture resulting from constant intercourse with educated people, whose vocabularies are large and whose speech is fluent. The school-room should be the substitute for this society. A child competent to pronounce words should, as far as possible, be rendered competent to use them. It is one of the first duties of a good teacher to see that his pupils' stock in hand is constantly recruited. In after years, his sufficient reward will be the lasting gratitude of those boys and girls by whom, because of him, such abundant harvests will be gathered from the diversified fields of literature.

A child in the Third Reader should learn to use a dictionary, not perfunctorily, simply for the *required* definitions of words, but freely, cheerfully, and gladly, because he realizes its immense value as a promoter of intelligence. It is as essential as the Reader itself. More than fifty dictionaries are constantly in use in my own school-room. Parents are careful that their children shall spell daily, and provide them with the necessary text-books. Not many parents, unsolicited, provide the dictionary. Often when it is forthcoming it is an expurgated, concentrated, consumptive, twenty-five-cent or fifty-cent edition, in which not twenty-five per cent of the words requiring examination can be found. The best edition for the school-room, of which I have knowledge, is a new edition of Webster, costing \$1.50, net price. It has nearly three times the words of the Academic edition, for about three-fourths of the

price. It is believed not to be all fancy that, if a canvass of good and bad spellers were made, it would be found that good spellers, as a rule, recognize the meaning as well as the form of the word, and that bad spellers cannot define the words over which they stumble. Respect for the soul of a word prompts one to respect its visible body. A child need not become a dictionary. It is not necessary that he take a column of words and commit them and their definitions, as he would a column of words from the spelling-book. True education is a process of selection, a mastering of the practical and essential. A pupil should be conversant with the words of the Bible, and Macaulay, Shakespeare, Carlyle, Ruskin, Emerson, Longfellow, and the best prose and poetical writers of England and America. He may read but a few or none of these authors, but he should be prepared to appreciate their diction when the opportunity for reading them occurs. The task is not an impossible one. To express his wants, his feelings, and his reasoning, the average man, aside from monosyllables, uses less than five hundred words. Many men exhaust their entire vocabulary before that number has been reached. The myriad-minded Shakespeare, it has been said, aside from monosyllables, uses less than five thousand words. These words are not technical or scientific. In some cases their meanings may have changed, or the words themselves become obsolete; but, in general, the transference of them from the vocabulary of the writer to that of the reader is limited only by the incapacity or indolence of teacher and pupil,—either or both.

With higher classes, there are many methods for stimulating activity in the acquirement of words and facility in the use of them. Some in my own practice are the following:

1. A selection of eight words is made, e. g., *dureless*, *diagnosis*, *finance*, *elude*, *digress*, *infer*, *verbose*, *facile*,—nouns, verbs, adjectives and adverbs. The pupil is asked to examine these words in their origin, present and obsolete meanings, direct and figurative uses, and related words, and to place one in each of eight sentences upon the blackboard. These sentences must be intelligible, of not less than eight words, correctly spelled and grammatically correct. We freely criticise our work. Some boys and girls take peculiar pride in the construction of these sentences; and in their other recitations, their essays, and their conversation, their toil is fully recompensed by increased fluency of language. Some sentences, of course, are laughable. Thus, one girl, missing the use of the word "embody," writes: "They tried to embody the town," meaning to incorporate it. Another writes, "The stock could not elude from the barn;" concluding that *elude* was intransitive because one of its defini-

tions, to escape, can be used intransitively. A third, finding one meaning of *behoove* is to become, wrote: "The new dress of Jane Smith behoves her." These written words are the symbols of their thoughts, and index in a degree how largely pupils miss the sense of the printed page. By this exercise, during the last eight months, a class of twenty have been drilled in the spelling, defining, criticism and use of nearly twelve hundred words.

2. For variation, I sometimes write on a slip of paper, in fifty words, two or three sentences upon some familiar topic. In these sentences I place a dozen words not commonly used by pupils. These words alone are given to the class and they are told to write short essays upon the same subject, using properly, somewhere in it, the indicated words. The other day, I wrote:

"The average boy has propensities for mischief which task all the energies of superior wills to control. He is inclined to play rather than to work, and he pines for the culture of the physical rather than the mental."

From this I gave the words *average*, *propensities*, *mischief*, *task* (as a verb), *energies*, *superior*, *control*, *is inclined*, *pines* (a verb), *culture*, *physical*, and *mental*. I told them to write two or three sentences upon the subject, "A Boy." In ten minutes I collected the papers, and the following, not one of the best, is from among a dozen:

"The average boy is inclined to mischief, and when asked to task himself with superior energies, his propensities in that direction are not under the control of his mental nature, but his physical nature pines for those amusements from which he can derive no culture."

3. A third exercise will illustrate the distinctions made by using different prefixes with the same syllable. Let the pupil be required to frame sentences in which shall appear the words *avert*, *advert*, *convert*, *divert*, *invert*, *obvert*, *pervert*, *revert*, *subvert*, or the words *diffuse*, *injuse*, *refuse*, *suffuse*, *transuse*.

4. Another is a discussion of synonyms, as *fortress*, *fort*, *station*, *castle*, *citadel*, *pupil*, *learner*, *student*, *scholar*. Every teacher has pupils; it is to be hoped that they are learners, perhaps they are students, and some may be scholars. Attention can be drawn to the uses of related words, as antiquarian, the noun, and antiquarian, the adjective; antiquary, noun and adjective, antiquate, antiquation, antique, antiquely, antiqueness, antiquist and antiquity.

5. A good exercise is to select a paragraph from the Reader, mark difficult words, and require the paragraph to be written with these words omitted, and in their stead words or phrases conveying the same meaning. Here is a quotation so paraphrased. In the book it reads:

"Most men are born poor, but no man, who has average capacities and tolerable

opportunities, need remain so. And the farmer's calling, though proffering no sudden leaps, no ready short cuts to opulence, is the surest of all ways from poverty and want to comfort and independence. Other men must climb; the temperate, frugal, diligent, provident farmer may grow into competence and every external accessory to happiness. Each year of his devotion to his homestead may find it more valuable, more attractive, than the last, and leave it better still."

A pupil changed it thus:

"Most men are born poor, but no man who has the usual abilities, and under favourable circumstances, need remain so. And the farmer's vocation, though offering no sudden leaps, no prepared short cuts to wealth, is the surest of all ways from poverty and want to comfort and self-sustenance. Other men must climb; the careful, economical, industrious and far-seeing farmer may grow into the possession of every worldly acquisition for happiness. Each year of his devotion to his estate may find it more valuable and pleasing than the last, and leave it better still."

It is a teacher's business to see that pupils appropriate sense as they read. Better one paragraph a week well read, than a hundred pages read carelessly.

What I have said has been wholly with reference to the training, in the school-room, of the pupil in the use of words. A teacher's influence should not end with class work. Familiar conversations should present words aptly chosen as golden apples in silver settings. Incentives to read the best authors should constantly be given by us to those committed to our care. They are the teacher's talents, his opportunities, and the great Steward will some day claim them again with usury. Get your pupils to reach out for the origin, history, poetry, music, grandeur, humility, vice and virtue of words from such books as Trench's "Study of Words," English past and Present," Swinton's "Rambles Among Words," and Matthew's "Words, Their Use and Abuse." Read to your school selections from them, as digressions from the monotonous routine of schedule work, and by all that is within you lead your pupils step by step from word poverty to word wealth, guiding them through the misty valley of vague ideas to those serene heights of accurate criticism, whence the glories of our mother-tongue, in not-to-be-forgotten splendour, shall be revealed to them.—*Ohio Educational Monthly*.

**GRAMMAR.**

An interesting exercise in teaching pupils to discriminate between the uses of words and to become familiar with the syntax of our language, is the following:

Let the teacher place a number of words on the black board, and ask the class what parts of speech can be formed from each.

The skilful teacher will lead the pupils to see that a word may be used in one case as a noun, in another as a verb, or an adjective.

Write on the board the following list of words:

aid	air	light	profit
all	blind	silver	starch
cook	damage	trust	twine.

Each pupil may then arrange the words on the board something as follows, giving sentences to illustrate the different uses of the words:

aid	{ Noun.—He gave him aid. Verb.—They aid us much.
air	{ Noun.—The air is mild. Verb.—Let us air the subject thoroughly.
all	{ Adj.—All men are equal. Adj. Pro.—In this case all are but few.
cook	{ Adv.—He went all alone. Noun.—He gave his all.
blind	{ Noun.—It is an institute for the blind. Adj.—The blind man was led by a dog.
sin	{ Verb.—They blind themselves with sin, etc., etc., etc.— <i>The Teacher's Aid</i> .

#### SINGING IN SCHOOLS.

THERE should be music in every school. If possible it should be taught, but if that cannot be done, let there be plenty of singing. No company of thirty, forty, or fifty children can be brought together without there being among them many who can sing and sing well. All they desire is the opportunity and the teacher should see that this opportunity is given them at least once each day. Singing, besides being in itself a pleasant and entertaining exercise, is a powerful disciplinary force. Other things being equal the school which has singing as one of its regular exercises will be better than the one that does not have it. Such a school will be better as a school and also its pupils will be better as individuals. When there is a help so valuable and so easy to obtain, no teacher should neglect the opportunity.—*West Virginia School Journal*.

WHEN the teacher is easily provoked and falls to scolding to remedy existing evils, it may be set down at once that she knows little of the doctrine of discipline. It is the delight of a certain class of boys to tease the very life out of such a teacher and we don't say their dispositions are very perverse either. Tell one of these quick, nervous fun-loving boys to do a thing, and impress its importance with a scowl and a menacing threat, and if he has any snap about him he will do the opposite. The reason is that the request comes as a stern demand—as a "I dare you not to do it." The corner grocery, man having his front just painted placarded with big black letters on white cardboard—"Freshly painted—don't touch it." It wasn't the "Freshly painted" that caught the boy's eyes but "Don't touch it." Every little fellow had to try it to see if it would stick. Don't placard too many "Don'ts." Patience and plenty of work before these trying spirits will make the best of citizens out of them.—*Missouri School Journal*.

*Table Talk.*

WHEN the object is to raise the permanent condition of a people, small means do not merely produce small effects; they produce no effect at all.—*John Stuart Mill.*

THE teacher of the future will be a reading teacher. He will know what has been done in the past, and what is now being done by those engaged in the profession of teaching.—*South-western Journal of Education.*

THE Chicago Tribune relates the case of a young man who was regarded as a phenomenon, because he took his sister to all the best entertainments, and actually devoted himself to her during the lecture and opera season. Being praised for his unusual attention to his sister, the young man proudly replied: "No, there's nothing wonderful or extraordinary about it. She is the only woman I know in whom I have the most thorough confidence. She is always the same, always pleasant and affectionate, and to tell you the candid truth, I am afraid she'll go and marry some of those imitation men around here, and be unhappy all her life. She has nobody else to look to, and I'll take care she does not look to anybody else. I suppose some day a genuine man will come along. If he's a genuine man, I won't object. Until he does come, she's good enough for me, and if I ever find as good a girl, I'll marry her."

WHY is it that so many women aspire to be called ladies, despising the term woman, which is by far the nobler appellation of the sex. In a recent issue, anent the foolish fashion of using the word lady in preference to woman, *Puck* makes a telling hit. It has been customary, it says, for a long time to call all women ladies. In fact, the term "lady" has got such a hold on the populace that it is almost a questionable piece of propriety to call a female a woman. It is not necessary to resort to argument to prove that "woman" is preferable to "lady." It prints a few quotations from the literature of civilization and polite society, substituting "lady" for "woman," just to let the casual reader know how it works. The following are samples:—

Man that is born of a lady is of few days, and full of trouble.

Ophelia—"Tis brief, my lord—

Hamlet—"As a lady's love.

What mighty ills have not been done by lady? Who was't betrayed the capitol? A lady. Who lost Marc Antony the world? A lady. Who was the cause of a long ten years' war, And laid at last old Troy in ashes? Lady, Desirous, damnable, deceitful lady. Here are a few more.

A continual dropping on a rainy day and a contentious lady are alike.

It is better to dwell in the corner of the house top than with a brawling lady in a wide house.

Fairer is deceitful and beauty in vain, but a lady that feareth the Lord she shall be praised.

No fiend in hell can match the fury of a disappointed lady.

The lady that deliberates is lost.

O, lady! Lovely lady, nature made thee to conquer man.

Her stature tall—I hate a dumpy lady.

A lady morded is like a fountain troubled.—*Hallifax Critic.*

*Correspondence.**THE NEW HISTORY PRIMER.*

To the Editor of the EDUCATIONAL WEEKLY.

SIR,—Judging from the tone and subject-matter of the review of the "Public School History" which recently appeared in your journal, there must exist considerable misapprehension of the scope and object of the work. I certainly thought that the average reader of the Preface and Hints would find no difficulty in detecting the purpose the new Primer is intended to serve. As the literary and historical critic of the EDUCATIONAL WEEKLY has not discovered that purpose, a few words of explanation may not be out of place.

There are two systems of preparing text-books on History for the use of young pupils. One is that followed in the "Children's Picture Book." In such books nothing is left to the teacher to supply and explain. The principal object sought is to amuse, interest and attract. Unfortunately, such works generally ignore, or keep in the background, the principal facts and events, the knowledge and study of which alone makes the study of History of much educational value. Tales and anecdotes, descriptions of battles and pen-portraits of military heroes occupy prominent places; everything is done which is likely to arouse the child's curiosity and keep his attention. Against such a system of introducing the study of History, I have nothing to say—in fact, in the Preface of the "Public School History," the teacher is strongly recommended to avail himself of all manner of helps to make the subject interesting.

The other system, and the one adopted in the "Public School History," is to outline the leading features of the different periods, giving, as far as possible, due prominence to the various great facts, causes and personages which are to be found in the history of a people. To quote from the Preface, "Minor events, names and dates" are passed over, without, however, in any way destroying the chain of cause and effect. Special attention in such a work should be given to historical perspective, to historic proportion. The task of filling up the historic outline, of clothing the skeleton with flesh and blood, is purposely left to the teacher. But in the "Public School History," to assist inexperienced teachers, the proper mode of teaching history has been outlined in the Preface; and the subject-matter to be supplied, and the sources from which it can be supplied have been to a certain extent given in the Hints at the head of each chapter. The "Public School History" let it be borne in mind, is intended to be supplemented very largely from the information of the teacher. If the teacher cannot or will not follow out the line of teaching partially indicated in the Preface and Hints, he is not fitted for his task, and the object sought in the preparation of this Primer will, so far as his pupils are concerned, not be attained.

One word regarding the objection made to the difficulty of the questions. They are such questions as have been asked by the Education Department at Entrance Examinations, and their difficulty, while considerable, is not so great as to be insurmountable by any intelligent pupil with an intelligent teacher. Had the reviewer read carefully the Preface, he would have known that such questions are intended to be preceded by a great

many of a simple and concrete character, gradually leading up to those of an abstract and general nature. The authors do not think it impossible to explain to pupils in the Fourth Form of our Public Schools how "Canada is governed by the people," and if such explanations have not been given hitherto, it is high time that the omissions were supplied.

W. J. ROBERTSON.

Collegiate Institute, St. Catharines,  
September 29th, 1886.

*Educational Intelligence.**ONTARIO'S EDUCATIONAL EXHIBIT.*

*The Morning Post* writes in the following commendatory terms of the educational exhibit of the Province of Ontario at the Colonial Exhibition:—

A very remarkable and deeply interesting exhibit is made by the Educational Department of the Province of Ontario, Canada, which is arranged in the space between the Canadian exhibits and the section devoted to New Zealand. Since 1807, when the first legislative enactment was passed establishing a classical and mathematical school in each of the eight districts in which Upper Canada was then divided, great progress has been made. Year by year the work of educational advancement has been steadily going on, the greatest forward stride being in 1844, when the appointment of the Rev. E. Ryerson, D.D., to the office of Chief Superintendent of Education gave a great impetus to public education. This gentleman set to work to reconstruct upon a broader and more comprehensive basis the system of elementary schools. That now in use may be said to be a combination of the best elements of the system of several countries—notably, the United States and Germany. All are, however, so blended together and modified that they are no longer foreign, but incorporated as part and parcel of the system of public instruction in Ontario. Dr. Samuel Pasmore May, Superintendent of the Mechanics' Institutes and Art Schools, has arranged the display in a manner which reflects greatly upon his judgement and organizing power. The court is decorated in an artistic manner, and embellished with busts of leading citizens who have devoted themselves in an especial manner to the advancement of education. The Kindergarten system has evidently taken deep root in Canada, and the exhibits are worthy of the attention of those who are interested in this admirable method of initiating study for children in this country. The fine arts have not been neglected, and there are models, paintings, drawings from life, casts in bronze, wood carvings, paintings on porcelain, and a variety of other interesting proofs of the zeal which is exercised in Toronto, as elsewhere in Canada, in all that concerns artistic training. Some of the paintings show considerable talent, but the wood carving and bronze work is exceptionally excellent. One cannot help thinking when examining the work here displayed that the importation of a few well-trained Italian teachers of drawing, past masters in the art, such as are to be found in Rome or Florence, and who would willingly emigrate, would prove of incalculable

advantage to the young Canadians, who have evidently talent, but which has not always been well developed, possibly from a lack of proper direction. But in all that concerns science and agriculture no fault can be found. The collection of geological specimens used for teaching purposes is capital, and the photographs for instruction in anatomy are remarkably ingenious, notably so those which have the veterinary science for their object. The Albert University, Belleville, sends some capital photographs, and the Victoria University several publications of a literary character, which prove that the pupils take interest in all that is of importance in ancient and modern art and history. The Roman Catholic ladies' colleges, which are numerous throughout Canada, excel in the beauty of their lace and embroideries, and evidently devote much attention to the arts of painting on silk and the reproduction of every kind of lace. A good hour could be well passed in this section by all who take interest in educational matters, and those who do so should not fail to pay a visit to Dr. May and obtain direct from him information which he is always glad to impart as well as to receive, it being his great object whilst in England to obtain from all sources ideas and views calculated to practically improve the educational system of his native country.

#### CARLETON COUNTY (N.B.) TEACHERS' INSTITUTE.

ONE of the topics discussed at this meeting was a contrast of present school habits with those in vogue twenty years ago. This was introduced by C. McLean, who asked that in making a retrospect of twenty years they would be willing to give credit to school workers of former days, where devotion had been manifested and good work done. Discipline in former years was too severe, but he believed the reaction had gone too far, and now teachers were apt to be too lax. Writing was better taught when teachers set many of the copies. Both teacher and pupil seemed then more interested in the work. The text writing of these old schools was good exercise in making writers. The boarding around was not an unmitigated evil. Teacher and parent were brought to meet more frequently then than now. What had taken the place of the house to house visitation of the old custom?

At the same meeting Mr. Alexander gave an address on irregularity of attendance, its effects and means of remedy. He showed that irregularity was a gigantic evil to school interests. It was weakening to the whole school, lack of interest was taken by pupils in lessons from which some were absent. Those frequently absent lose the lessons, and regular attendants are either kept back or classification is broken up. It also affected the teacher adversely. Irregular attendants make slow progress, and parents are apt to find fault with the teacher for their lack of advance meat. Much of the irregularity was needless. Parents too frequently detain their children at home for frivolous reasons or no reason at all. As to the remedy it was difficult to suggest. While the evil was often considerably reduced by making school work interesting, by having good games or races, by visiting and talking over the trouble with

parents, by prizes, and such like experiments; yet the only effective cure was compulsory attendance.

Besides a number of gentlemen taking part in the debate, it was participated in by Messrs Hoyt, Hendry, Everett and Burpee, who seemed to think that besides making school work interesting, the next best thing was visiting the parents and conversing with them about it. The gentlemen were strongly of opinion that there should be legal enactment with a view of having children between certain ages at school a definite part of the time. It was considered, too, that there would not be so much opposition to a judicious law for that purpose as many might suppose. There was a fair general sentiment now that in justice to all interests at issue attendance at schools supported by assessment and state aid should be compulsory.

Tree planting and beautifying school grounds was also considered. The reports from the teachers on their work was a most interesting feature of the whole meeting. Very much interest had been taken by pupils, trustees and parents, as well as by the teachers, last spring in the matter of setting out trees. Mr. Oakes' address in closing was a truly able one, shewing that this was only a beginning of an awakening of greater interest in all school work. He read a list of districts coming under his notice that had accomplished work last spring in improving the school surrounding, by tree planting as follows:—

Woodstock (college)	95	East Florenceville	30
Upper Woodstock	17	West	63
Grafton	29	Lakeville	19
Oak Bay	36	Weston	25
Milltown	16	Lower Wakefield	20
St. Stephen	310	Irish Settlement	17
Central Newburg	41	Hartland	25
Lower Brighton	61	S. Knowlesville	30
Bull District	19	Hayward	12
Greenfield	40	Debec	16
Moncton	100	McKenzie Corner	40
Widstock, Broad st.	25	Kichmond Corner	17
Barony	30	Greenville Station	41
Lower Prince Wm.	25	Long Settlement	60
Harvey Station	30	Oak Mountain	25
Forest City	41	Dumfries	99
Bloomfield Corner	18	Upper Bloomfield	18
Jacksonville	21	Ickim Settlement	12
Waterville	11	Upper Jacksontown	30
Seventh Tier	26	Farmerton	25
McCready	10	Richibucto	14
Lake George	17	Tracy's Mills	30

#### "HOLIDAY COLONIES."

PFAFFER BION has printed this year a ten years' report on the progress of his experiment in conducting "holiday colonies for the children." It was in the school holidays of 1876 that he took the first of his "Ferienkolonien," consisting of sixty-eight poor children, from the heat of the streets of Zurich into the mountains of Appenzell. "In the year 1886," he writes, "holiday colonies have been introduced in all the States in Europe, with the exception of Spain and Portugal, and they have even been transported to America, where they are being developed upon a large scale." Dr. Adolf Barkan has been giving a popular medical lecture in the United States on the "Holiday Colony," and he applied to Pfarrer Bion for hints and materials. In Germany the conception has found a most fruitful soil. There are "holiday colony funds" already established in some of the great German cities—in Frankfort, Cologne and Hamburg, for instance—at whose offices not only

money, but clothes, books, and other presents are received. Annual "Jahrmärkt" fairs and bazaars are held every winter in Frankfort and Cologne for the benefit of these funds. In Frankfort \$8,000 marks (over £4,000), and in Cologne 93,099 marks were collected at the local "Jahrmärkt" for sending the poor children of the city into the country during the holidays. Pfarrer Bion states that "the very modest Ferienkolonien fund of Zurich is already in possession of a sum of 16,000 francs." The folk of Basel have made a further advance on Pfarrer Bion's lines. Mothers are always forgetting themselves for their children. This instinct is notably illustrated amongst poor mothers, who will endure any degree of personal shabbiness if they can but send their children to school smartly and respectably clothed. The self-forgetfulness of poor mothers is reason enough why they should not be forgotten by the community. Hence the Baslen have started "a summer colony fund for poor mothers." "The mothers are over-working, coughing, and aching at home," writes a Swiss contemporary, "while their boys and girls are filling their young lungs with fresh air, forgotten by others, as well as forgetting themselves."

MR. G. O. PATERSON has tendered his resignation as Principal of the New Glasgow schools.

MR. JAMES N. TAN SHEAREK has been appointed head master of Cambrai public schools, in the room . . . D. McMillan, resigned.

MR. NEIL SHAW, B.A., of Toronto University, a resident of Aldborough, has been engaged by the Ridgeway High School Board for general work as a teacher at a salary of \$600.

ON Friday, October 13th, Hon. G. W. Ross, Minister of Education, is to visit Cobourg, to present the graduation diplomas at the collegiate institute, and to deliver an address on educational matters in the evening.

AT a meeting of the Llandudno School Board it was resolved that Bible teaching should be given in the schools three days a week, and to petition the Education Department to make it a class subject for the Government grant.

THE following are the positions now occupied by the Forest school teachers: Principal, C. S. Falconer; 2nd division, Miss Sutherland; 3rd division, Miss Dickey; 4th division, Miss Livingston; Ward School, Miss Kirkland.

LORD DUFFERIN is, it is stated, about to address a memorandum to the Provincial Governments of India regarding technical education, pointing out where the present system fails, suggesting remedies, advising the adoption of a more practical system, and inviting opinions from the provincial governments on the whole subject.

COURTEN Ladies' College will soon be reopened. The committee have secured the services of Miss Holland, of Sherbrooke, as acting Lady Principal. Miss Ross, a graduate in high honours of the McGill Normal School, is one assistant teacher, and another will be secured when required. Mrs. Dean, a lady of birth and practical experience in Canadian housekeeping is lady matron. The Rev. G. H. Parker is acting bursar, and will deliver a course of lectures on Church and other history during the term.

## Examination Papers.

BOARD OF EDUCATION, MANITOBA

(Protestant Section.)

Examination of Teachers, July 1886.

ALGEBRA.—FIRST CLASS.

Examiner—GEORGE PATTERSON, M.A.

Time—three hours.

(Higher marks allowed for short, neat methods, when available, than for long, labourious methods.)

1. Reduce

$$\frac{4}{x+1} - (x+1)^2 + \frac{1}{(x+1)^3} - \frac{4}{x+2}$$

to its simplest equivalent form; and simplify

$$\frac{\frac{1}{p} + \frac{1}{q+r}}{\frac{1}{q} + \frac{1}{q+r}} \left\{ \frac{1 + \frac{q^2 + r^2 - p^2}{2qr}}{1 + \frac{q^2 + r^2 - p^2}{2qr}} \right\}$$

2. State and prove the rule for the squaring of a polynomial. Write down the square of  $(1 - 3x + 3x^2 - x^3)$  and extract the cube root of .144125-083907.

3. What are the meanings of  $a^3, a^{-2}, a^{\frac{1}{2}}, a^{\frac{n}{m}}$ .

$$\text{Simplify } \frac{\left\{ (a^m)^{\frac{1}{n}} (a^n)^{\frac{1}{m}} \right\}^{nr}}{\left\{ \sqrt[n]{a} \sqrt[m]{a} \right\}^{mr}} = \left\{ \left( \frac{a}{b} \right)^q \right\}^r$$

and divide  $\frac{3^n}{2} - a \frac{-3^n}{2}$  by  $a \frac{n}{2} - a \frac{-n}{2}$ .

4. Find the sum and the difference of the roots of the equation  $ax^2 + bx + c = 0$ .

Solve (1)  $x^2 + (a-x)^2 = b$ .

(2)  $x^4 + 2x^2 - 8$ .

$$(3) \frac{a}{x-a} + \frac{b}{x-b} = \frac{2c}{x-c}$$

5. If  $a+b-1=c+d-1$ , prove  $a=c, b=d$ . From the product and quotient of  $a-b_1=1$ , and  $c+d_1=1$ .

Show that  $\left( -\frac{1}{2} \pm \frac{1-\sqrt{3}}{2} \right)^2 = 1$ ,

$$\text{and } \left\{ \frac{\pm 1 \pm 1 - 1}{1 - 2} \right\}^4 = 1.$$

6. Show how to find the sum of  $n$  terms of the series  $a, a+d, a+2d, a+3d, \dots$

Of how many terms of the series

$$a + \frac{1}{b}, a + \frac{2}{b}, a + \frac{3}{b} \text{ etc.,}$$

will the sum be  $c$ ?

Find the sum of the squares of the first  $n$  natural numbers.

7. Find the number of combinations of  $n$  things taken  $r$  at a time, and show that the number of combinations of ten things taken four at a time, is the same as if taken six at a time.

In how many ways can a party of seven take their places at a round table?

8. Solve the equations:

$$(1) \frac{9x-1}{91} + \frac{9x+50}{1001} = 1$$

$$(2) ax(x-1) + \frac{1}{2} = \frac{x}{a} (x+1) - \frac{1}{2}$$

$$(3) x+y+z+1 \\ ax=by=cz.$$

9. Prove the binomial theorem for a positive integral exponent.

Find the sum of the coefficients of the terms in the expansion of  $(1+x)^n$ .

Write down the coefficient of  $y$  in the expansion of

$$\left( y^2 + \frac{c^2}{y} \right)^n.$$

### GRAMMAR—FIRST CLASS.

Examiners—REV. PROF. HART, M.A., B.D.;

REV. CANON MATHESON, B.D.

Time—three hours.

1. With that she kissed His forehead, then, a moment after, clung About him, and betwixt them blossomed up From out a common vein of memory Sweet household talk, and phrases of the hearth, And far allusions, till the gracious dews Began to glisten and to fall; and while They stood, so rapt, we gazing, came a voice. "I brought a message here from Lady Blanche." Back started she, and turning round we saw The Lady Blanche's daughter where she stood, Melissa, with her hand upon the lock, A rosy blonde, and in a college gown That clad her like an April daffodilly; (Her mother's colour) with her lips apart, And all her thoughts as fair within her eyes, As bottom agates seem to wave and float In crystal currents of clear morning seas.

—Tennyson.

(a) Point out accurately all the sentences, clauses and phrases from "and while" to "seas," and explain fully their syntactical functions.

(b) Parse—after, talk, stood (They stood), rapt, we (we gazing), voice, blonde, clad, like, with (with her lips), apart, thoughts, agates.

(c) Derive—moment, phrases, allusion, gracious, rapt, April, daffodilly, agates, currents.

(d) Write out "I brought a message here from Lady Blanche," in the form of oblique narration.

(e) Point out and explain the figures of speech in the whole extract.

2. Words may be divided into four classes. Name these classes, and assign to each the parts (or part) of speech belonging to it.

3. Explain and illustrate the following terms: Elementary sounds, accents, emphasis, cognate words, irregular comparison, strong conjugation, apposition, parenthesis.

4. Explain and illustrate the chief meanings of the following prepositions: Of, from, about, before, for.

5. Define the term case. What seems to be the present tendency with respect to the use of the possessive case? Illustrate your answer by examples. Explain and illustrate the different uses of the objective case.

6. "It is worth a cent?" "Twice ten are twenty." "It is past ten o'clock." "The crime of being a young man." Parse the words in italics.

7. Correct or justify the following expressions, giving your reasons:

(a) Will I go?

(b) I don't know as I can.

(c) The land grows excellent wheat, thirty bushels the acre.

(d) The board intend to adhere to its former decision.

### COMPOSITION—FIRST CLASS.

Examiner—D. J. GOGGIN.

Time—two hours and a half.

1. Paraphrase the speech of Morocco, using in direct narration.

*Morocco.*—Mislike me not for my complexion, The shadow'd livery of the burnish'd sun, To whom I am a neighbour and near bred. Bring me the fairest creature northward born, Where Phœbus' fire scarce thaws the icicles, And let us make incision for your love, To prove whose blood is reddest, his or mine. I tell thee, lady, this aspect of mine Hath scared the valiant; by my love I swear The best regarded virgins of our clime Have lov'd it too. I would not change this hue, Except to steal your thoughts, my gentle queen.

2. Which of the following sentences has the better arrangement? Why?

(a) The French idea of liberty is—the right of every man to be the master of the test; in practice at least, if not in theory.

(b) Whatever it may be in theory, it is clear that in practice the French idea of liberty is—the right of every man to be master of the test.

3. Improve the following sentences:

(a) This world, in all its trial, is the furnace through which the soul must pass and be developed before it is ripe for the next world.

(b) A modern newspaper statement, though probably true, would be laughed at, if quoted in a book as testimony; but the letter of a court gossip is thought good historical evidence if written some centuries ago.

(c) Tedium is the most fatal of all faults.

(d) With the intention of fulfilling his promise and intending also to clear himself from the suspicion that attached to him, he determined to ascertain how far this testimony was corroborated, and the motives of the prosecutor, who had begun the suit last Christmas.

4. Write sentences in which the following groups of synonyms are properly used: oral, verbal; reverse, converse; character, reputation; enough, sufficient.

5. Write an essay on one, and only one, of the following subjects:

(a) The political destiny of Canada.

(b) The effect of the discovery of minerals on colonization.

(c) Poverty develops the character better than riches.

N.B.—One of these subjects must be attempted.

### DICTATION—FIRST CLASS.

NOTE TO THE PRESIDING EXAMINER.—This paper is not to be seen by the candidates. It is to be read to them *three times*—first at the ordinary rate of reading, they simply listening to catch the meaning of the passages; second, slowly, the candidates writing; third, for review. Candidates are not to be permitted to re-write the passage.

The University of Utopia has a college of literature, science and the arts, a college of medicine, established and endowed during the initiatory stage of the career of the University; an industrial

college, embracing agriculture, practical science (including chemistry), civil engineering and the mechanical arts; and a conservatory of all the literary courses, each covering four years and leading to appropriate degrees. Two years are given to preparatory studies, drawing, painting, ancient and modern languages, and didactics form a part of the curriculum, the last being optional.

During the past year the faculty of the University was strengthened and its efficiency enhanced, and a greater number of baccalaureate degrees given than half the entire number during the previous decade.

The past year was distinguished by the erection of an astronomical observatory in co-operation with the national signal service; this was due to the public-spirited liberality of anonymous donors, whose benefactions are not the less appreciated because they were spontaneous.

The equipment of the observatory includes an equatorial telescope of eight-inch aperture, a transit instrument and various electrical devices, besides a sidereal break circuit chronometer.

#### GEOGRAPHY—FIRST CLASS.

*Examiner—D. J. GOGGIN.*

Time—two hours.

1. How is latitude determined at sea?
2. Why does the Isothermal line run so high in Alaska?
3. Describe physically, politically, and commercially one of the following places: British Columbia, Hindostan, England.
4. Draw a map of the Maritime Provinces, marking thereon the chief towns, mountains, rivers and gulls, or bays.

5. Give the situation of the following places, citing historical circumstances connected with them: Lucknow, Mecca, Blenheim, Detroit, Richmond (U. S.), St. Helena, Plymouth Rock.

6. Show by reference to Asia, Europe, and America the importance of a knowledge of the reliefs of continents.

7. Compare the flora and fauna of South America and Africa. Account for the contrasts.

S. "To a great extent his (man's) thoughts and actions, his industrial pursuits, his social polity, and religious beliefs, are all affected by the physical circumstances or his position."—*Page*.

Briefly discuss this statement.

#### HISTORY—FIRST CLASS.

*Examiner—REV. CANON O'MEARA.*

Time—three hours.

1. Sketch briefly the history of Britain under the Romans.
2. Give a full account of what is usually called the conquest of Ireland.
3. Tell what you know of the writers of the Middle English period and their chief works.
4. Give an account of the development of English commerce under Queen Elizabeth.
5. Trace after Green the influence of the Bible on the English people.
6. Describe the Second Civil War and the death of Charles I.
7. State the causes which led to the Crimean War. Give a brief outline of its leading events.

8. Tell what you know of the "Company of 100 Associates," and its influence on the early history of Canada.

9. Describe fully the circumstances which led to the formation of the Canadian Confederation. Give the conditions upon which the various Provinces entered the Dominion.

10. Write a historical note on the present difficulty between Canada and the United States.

#### READING—FIRST CLASS.

Time—forty minutes.

Write out this passage, and mark as indicated in questions (b), (c) and (d).

*Por.*—You stand within his danger, do you not?

*Ant.*—Ay, so he says.

*Por.*—Do you confess the bond?

*Ant.*—I do.

*Por.*—Then must the Jew be merciful.

*Shy.*—On what compulsion must I? Tell me that?

*Por.*—The quality of mercy is not strain'd;

It droppeth as the gentle rain from heaven

Upon the place beneath ; it is twice bless'd;

It blesseth him that gives and him that

takes ;

'Tis mightiest in the mightiest ; it becom es

The thrond monarch better than his crown ;

His sceptre shows the force of temporal

power,

The attribute to law and majesty,

Wherein doth sit the fear and dread of

kings ;

But mercy is above the sceptered sway.

It is enthroned in the hearts of kings ;

It is an attribute of God himself :

And earthly power doth then show likest

God's

When mercy season's justice.

—*Merchant of Venice.*

(a) What feelings and qualities of voice should mark the delivery of the above passage, in lines 5, 6, 7, 17 and 18?

(b) Indicate the rhetorical pauses in lines 6, 8, 13, 16, 17 and 18 by upright dashes.

(c) In lines 1, 3 and 6, respectively, which inflection would you use, the *rising* or the *falling*?

(d) Denote the words in the above extract requiring the ordinary *emphasis of sense* by a single *under-line*, and those requiring the special *emphasis of feeling* by a double *under-line*.

N. B.—The presiding examiner will also require each candidate to read, *in his hearing alone*, an extract from "The Merchant of Venice," of which no previous notice is to be given, and for which the maximum mark will be thirty (30.)

#### EUCLID—FIRST CLASS.

*Examiners—REV. CANON MATHESON, B. D.; REV. PROF. HART, M.A., B.D.*

Time—three hours.

(Algebraical symbols should not be used in the demonstrations, nor numerals in the figures, but plainly written capital letters.)

1. Define a straight line, a superficies, a right angle, a diameter, and write out the 12th axiom.

2. Upon the same base and upon the same side of it there cannot be two triangles that have their sides which are terminated in one extremity of the base equal to one another, and likewise those which are terminated in the other extremity.

3. If one side of a triangle be produced, the exterior angle is greater than either of the interior opposite angles.

4. Equal triangles upon the same base and upon the same side of it, are between the same parallels.

If a quadrilateral is bisected by one of its diagonals and have two opposite sides equal, shew whether or not it is necessarily a parallelogram.

5. To divide a given straight line into two parts, so that the rectangle contained by the whole and one of the parts, shall be equal to the square of the other part.

6. If a straight line drawn through the centre of a circle bisect a straight line in it which does not pass through the centre, it shall cut it at right angles ; and if it cuts it at right angles it shall bisect it.

Draw a straight line perpendicular to a given straight line so that if it cuts this line in A and a given circle in B C, A B shall be equal to B C.

7. In equal circles, equal straight lines cut off equal circumferences, the greater equal to the greater and the less to the less.

O and P are any two points in a circle. With centre O and radius less than O P a circle is described so as to cut the first circle in A and B. Prove that P O bisects the angle A P B.

8. If a straight line touches a circle and from the point of contact a straight line be drawn cutting the circle, the angles which this line makes with the lines touching the circle shall be equal to the angles which are in the alternate segments of the circle.

Prove that the base of any segment of a circle makes equal angles with the diameter drawn through one extremity of the base, and with the perpendicular let fall from that extremity upon the tangent at the other extremity.

9. To describe a square about a given circle.

10. Define ratio and proportion, and explain what is meant by the terms *permutando*, *intervendo*, *conveniendo* and *convertendo*.

11. In a right-angled triangle, if a perpendicular be drawn from the right angle to the base, the angles on each side of it are similar to the whole triangle and to one another.

The middle point C of a straight line A B is the centre of a semicircle. If any third tangent P Q to the semicircle intersect in P and Q the tangents to it from A and B, prove that the rectangle contained by A P and B Q is equal to the square on A C.

#### ANCIENT HISTORY—FIRST CLASS.

*Examiner—REV. CANON O'MEARA.*

Time—one hour and a half.

1. "The Greeks, as we have already seen, were divided into many independent communities, but several causes bound them together as one people."—*Smith*. State and briefly describe the causes here referred to.

2. State the causes which led to the Peloponnesian War, and briefly describe its leading events.

3. Write historical notes on the following—Thermopylae, The Expedition of Cyrus, The Achaean League, The Peace of Antalcidas.

4. Give a brief sketch of the two Triumvirates.

5. Write historical notes on the following persons: Romulus, The Gracchi, Pompey, Nero.

## PHYSIOLOGY AND HYGIENE—FIRST CLASS.

Examiner—J. A. GREIG.

Time—two hours.

1. Where and how is the bile formed? What determines its flow from the gall bladder? What are the purposes served in the animal economy by its secretion?

2. Give the physiological, physical and chemical properties of the blood in the right and the left sides of the heart respectively.

3. Describe generally the structures through which the rays of light pass before they reach the retina, and state what changes they produce in the course of those rays.

What is the most probable mode by which vision is adjusted to near and distant objects?

4. What is the average quantity of air that passes through the lungs per minute? State the composition of the air we breathe, and the changes which it and the blood undergo in their passage through the lungs.

5. Describe the sympathetic nerve system. What is meant by reflex action? Describe minutely the course of the impulse along the nervous system caused by touching the point of the finger with a needle.

6. How do each of the following affect respiration, circulation and digestion, respectively: Alcohol, tobacco, heat, cold, light, sleep, grief and exercise?

7. State the characters, quantities and uses of the secretions of the skin. What effects result from their suppression?

8. Describe the site, dimensions, position of entrance, mode of heating, means of ventilation and arrangement of light for a school on the prairie to accommodate forty pupils. Give reasons for your answer.

## CHEMISTRY—FIRST CLASS.

Examiner—A. N. MCPHERSON, B.A.

Time—two and a half hours.

1. Explain what is meant by the diffusion of gases? State the law respecting the diffusion of gases. What effect has this quality of gas on the atmosphere?

2. Describe an experiment decomposing water into its two constituent elements. Having collected these elements, how would you distinguish the one from the other.

3. Explain the chemical action which takes place in an ordinary red hot coal fire.

4. Explain the principle of the "Davy" lamp. A candle burns with a luminous flame. Why? Why is the flame non-luminous in the Bunsen burner?

5. Give the characteristics and uses of chlorine gas. Describe its preparation and give the reaction. Upon what property does its bleaching action depend?

6. Give the composition of English gunpowder. Explain the chemical action which takes place when a gun is fired.

7. Explain the cause of the deposition of the crust on the inside of boilers. Why do all waters not deposit it? Can its formation be avoided? If so, how?

8. Write down the formula for copper sulphate. Give some of its uses.

9. How are the various colours imparted to glass?

10. How many grams of nitre and sulphuric acid must I use in order to get 315 grams of pure nitric acid?

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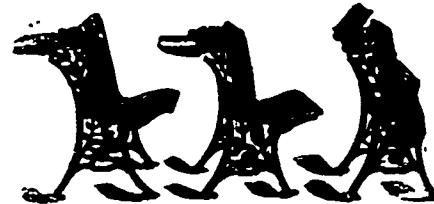
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