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THE CANADA
EDUCATIONAL MONTHLY
AND SCHOOL MAGAZINE.

APRIL, 1885.

THOMAS CARLYLE.

BY W. J. ROBERTSON, M.A., COLL. INST., ST. CATHARINES.

THERE is a peculiar fascination in the personality of a great man. Everything connected with his life, his sayings and doings, is read eagerly, and although disappointment frequently ensues, the appetite for further information remains. The opinions elicited by Froude's publications have been of the most contradictory character. There seems to be a tendency on the part of the majority of readers to accept the revelations of Carlyle's domestic and social life as conclusive evidence that the hero-worshipper, the man who, in season and out of season, denounced cant and barren talk, who counselled action and energy in all departments of life, was in his own life the antithesis of a hero, the originator of a new form of cant, and the vainest of babblers. No doubt, there is a certain heroism in Carlyle's life, and in nothing was it shown more clearly than in his refusal to prostitute his pen to writing that which he did not believe to be wholly true, at a time when want was coming perilously near. But of that heroism, Christian

heroism, it may be called, which manifests itself in bearing patiently the small ills of life, in sacrificing feelings and suppressing emotions to save others from pain and distress, of such a heroism he knew nothing.

There are two points in Carlyle's life and opinions worth noticing:—

(1) Froude has put on record a terrible mental struggle of Carlyle's, a struggle that terminated in an escape from spiritual slavery and in breathing the air of spiritual freedom. Just what the character of that struggle was we are left to conjecture, and we are not fully informed of the nature of his deliverance; but Carlyle has given us some insight into them. He, in true Puritan fashion, had his days of darkness, despair and temptings; and out of the darkness he emerges with the fixed impression that nothing is so dreadful as death, that the worst that can happen to any mortal can be expressed by the word *death*; and that he that wins the victory over the fear of the last enemy, is henceforth spiritually free. Carlyle claimed to have won that

victory, to have looked the grim monster in the face without flinching, and in this great triumph to have become a free man. Reading this, one marvels that a man of Carlyle's spiritual insight and moral discernment should look upon death as the greatest possible evil. That some of the greatest men have shrunk from it, is true; we have it on record that, to Dr. Johnson, death was the very "King of Terrors"; nevertheless, thousands upon thousands of men and women, old and young, learned and ignorant, rich and poor, noble and plebeian, have unfalteringly chosen death as the least of two evils. It is difficult to account for this conviction of Carlyle's save on the hypothesis that a strong regard for self was a prominent feature in his character.

(2) Passing over this incident in Carlyle's life, as one throwing considerable light on the moral nature of the man, some attention is due to the reasons which led him to adopt the creed of an extravagant hero worship. His openly expressed belief in intellectual and physical *force* as a moral power and social regenerator, is too well known to need illustration. The effect produced on young and plastic minds by such a writer as Carlyle was for a time very great; we may be thankful that the doctrine that Might is Right has ceased to have the charm with which the eulogist of Mirabeau, Cromwell, and Frederick the Great invested it. The immediate result of such teaching was the formation of a school of thinkers and writers, of which Froude is the ablest representative. It has led to the production of such historical works as Froude's History of England, and State of Ireland, and to the distortion of state documents and historical papers in the interest of the memory of Henry VIII., and other types of physical force and depraved morality. Carlyle himself, by the acceptance of this creed, was un-

consciously and inevitably led to become the defender of Governor Eyre, and the sympathizer with Southern slave-owners. The question then arises, on what ground could Carlyle base his belief in force as worthy of admiration and veneration? The explanation, defective though it may be, will be found in a letter addressed to John Sterling. Sterling did not hold in much respect the moral qualities of Goethe; he came to the rational conclusion that great as Goethe undoubtedly was, intellectually, his moral character was not worthy of admiration; in fact, he was one of the instances, by no means rare, of a great intellect being found in conjunction with a depraved heart. This view of Goethe Carlyle did not accept. "The sight of such a man," writes Carlyle, "was to me a gospel of gospels, and did literally, I believe, save me from destruction outward and inward. We are far parted now, but the memory of him shall be ever blessed to me as that of a deliverer from death. But on the whole, oh, John! what a belief thou hast *in the devil*; I declare myself an entire sceptic in that faith. Was there, is there, or will there be, a great intellect ever heard tell of without first a true and great heart to begin with? Never, if my experience and faith in this God's world have taught me anything at all. . . . Fear no *seeing* man, therefore. Know that *He* is in heaven whoever else be not; that the arch-enemy is the arch-stupid. I call this my fortieth Church Article, which absorbs into it and covers up in silence all the other thirty-nine." In these sentences we have the clue to Carlyle's political, social, and moral creed. A great and true heart must be found with a great intellect; the *seeing* man, the man of intellectual discernment, is the essentially moral man; he lives in heaven, the stupid abide in darkness. False though such a doctrine undoubtedly is, arguments of a specious character

can be brought forward in its support. The most satisfactory test of moral actions to a certain order of minds, is that of *utility*. In the long run virtue is its own reward, the *useful* and the *right* will be found to harmonize. The man, then, who by force of intellect, forecasts the results of a given course of action is placed in the position of knowing what actions will prove useful and beneficial, and therefore, what actions are morally right. The *seeing* man must adopt the right, for in so doing are safety, utility, and happiness to himself and others. The stupid man cannot foresee what will be the outcome of his actions, he is, therefore, liable to do wrong, to bring about misery and disaster. He walks in darkness; the *seeing* man, the man of intellect, walks in the light. The *stupid* man is an enemy, an arch-enemy to mankind; the *seeing* man is an angel of heaven, a blessing to humanity.

It is not necessary to point out the sophism in this argument; but it is of interest to trace the line of thought which led Carlyle to such conclusions. Having once accepted such a creed, the inevitable result followed. Given intellectual power and force of character, great moral qualities must necessarily accompany them. The *intellectually* great were assumed to be the *morally* perfect; and if facts seemed

to contradict the theory, then so much the worse for the facts. No one will charge Carlyle with wilful distortion of historical facts, a charge that has been substantiated against Froude, his disciple; but no one careful to form an impartial judgment of men and events will place much reliance on his representations of the doings of his heroes and demi-gods. His vivid but disordered imagination threw a lurid light over the facts of history; as seen by him they were not so much facts as creations of fancy. If we add to a marvellous power of forming vivid mental images, an equally marvellous power of describing his visions, we are able to understand in a measure the exaggerations and hyperboles which astonish his readers. Carlyle's sympathies were not, however, very broad or deep. With the oppressed and enslaved he had nothing in common; the hardships of their lot he could not appreciate. The power of "putting yourself in his place" was not his in any wide sense; hence we find little in his writings in advocacy of the rights of downtrodden members of society, nor do we find that he has accomplished much, if anything, in ameliorating the condition of the poor, and in raising the masses in the social, political, and moral world.

PHYSICAL TRAINING OF GIRLS.

BY LUCY M. HALL, M.D.

AN eminent French writer has said, "When you educate a boy, you *perhaps* educate a man; but, when you educate a girl, you are laying the foundation for the education of a family." He might have added that to this end the physical training was of equal importance with the mental.

In these days the subject of the

physical training of young men is occupying much attention, and the discussions are broad and full of interest. The fault is, that the needs of both sexes in this respect are not equally considered.

An erect figure, an organism in which the processes of life may go on without the ceaseless discord of func-

tions at war with each other because of abnormal relations—in short, the added advantages which a fine physical adjustment gives to its possessor—are as necessary to one sex as to the other, and for the same reasons.

If physical education and consequent improvement are things to be desired, it is not that a number of individuals as a result of this training shall be able to perform certain feats of strength or agility, but in its broadest sense it is for the improvement of the race, and the race cannot materially advance physically, intellectually, or morally unless the two factors which constitute the race share equally in whatever tends to its greater perfection. Therefore, if in consequence of proper physical training men can do more work, live longer, and transmit to their offspring a share of this improved condition, women also should be so trained that they can do more work, live longer, and contribute to the higher possibilities of their offspring by supplementing instead of thwarting the promise which has been presupposed in the higher development of the male parent.

The question of the varieties and degree of exercise adapted to young women, and the many theories unsupported by observation which have been advanced, have done much to discourage the efforts and hinder the progress of those who have been honestly endeavouring to establish a reform from which definite results might be determined. The growing recognition of the necessity for thorough work in this direction is the lever which must in time remove all obstacles that have thus far stood in our way.

Professor D. A. Sargent, M.D., of Harvard College, a gentleman who has much practical experience in these matters, writes with regard to his observations in many of our female colleges and seminaries: "They all feel

the demand for improvement in this direction, but for the most part their efforts are lame and impotent." He does not attribute this to lack of ability to come up to the required standards, but says that a need of encouragement and of suitable equipments exists.

Although I have been refused any statistical information, upon the plea that it was too early to make a summary of results, I know that in a few of the colleges for women the work of the drill-room is done with precision, and, what is better, enthusiasm. The late physician of one of these writes: "I am inclined to regard properly-conducted gymnastic exercises as decidedly beneficial to female students. There has been in some instances less headache, in others marked improvement where various disturbances to health had existed. I look for benefit to all students who practice regularly and faithfully. It strengthens more sets of muscles than walking or rowing; the latter takes them into the open air. They need both, in order to do the best work."

A lady, lately connected with a famous English college, writes that gymnastic exercises were employed, but were not so popular as walking, horse-back riding, and tennis. She adds: "Walks of fifteen or twenty miles were not so unusual as to excite remark;" and mentions two friends who "did" thirty miles in a day without fatigue. "Indeed, one of them spent the entire evening afterward in dancing."

These facts certainly indicate that women are not by nature lacking in physical resources. The question, then, arises, What are the best methods of developing these resources?

It is a well-known fact that in women the vital grasp, tenacity of life, if we may so term it, is stronger than it is in man. This is perhaps a necessary provision, because of the

added fact that through the physiological processes of her being she is exposed to greater perils than are her stronger brothers. The existence of these conditions also renders her more liable to injury from any sudden and severe muscular strain, against which the system has not been fortified by previous training.

Some one has said that, in order to improve the health of the present generation, it would be necessary to correct the hygiene of our grandmothers! It is to be regretted that we cannot begin thus early; but we can improve the grandmothers of the future by beginning with the young girls of to-day, and, through a sustained and systematic course of culture, help them to reach maturity with a physical endowment which will enable them more successfully to take their part in the battle of life. I would therefore say, begin the training early; where this is not possible, begin carefully.

Regulated gymnastic exercise is only one means of physical culture: modes of dress, out-of-door exercise, bathing, sleeping, the plays of young children, all are of equal importance.

If the little girl is to be reared with a view to perfect physical development, she should be dressed in as substantial clothing as her brother, and all trimmings and accessories necessitating extra care and stimulating a tendency to self-consciousness and the impression of sex should be avoided. If the boy is provided with a bicycle, the girl should be given a tricycle, and so with all the inducements by which he is stimulated to seek recreation in the open air. She should share them.

If, from the exuberance of health and vitality which this course engenders, the girl should chance to make as much noise as a boy, she should not be checked and repressed, while he is sent out-of-doors to have his

frolic out. Above all, should the following of that routine custom in the education of girls, piano-practice, be avoided. The piano is the family vampire, which has sapped the vitality of thousands of young girls by keeping them from the healthful recreation and exercise which they so much need. It should be a rule of every educator that no girl should be allowed to take a course of music-lessons while she is pursuing the regular routine of her school-work.

As the girl approaches womanhood, let it be remembered that the need of healthful *mental* work is never greater than now. Muscle and nerve and intellect do not develop and grow strong upon sensational literature and fancy-work, and this is why girls at this age often grow morbid, sentimental, and self-conscious. Those instincts which should be kept in abeyance are stimulated into activity, and nervous, hysterical, or chlorotic conditions result.

Where the mind has been healthily directed, the system fortified by unstinted out-of-door recreation, and the muscles trained to endure prolonged effort without fatigue, the above conditions will be looked for in vain.

Walking, running, horseback-riding, tricycle-riding, lawn tennis, swimming, rowing, skating, bowling, hand-ball, and general gymnastics, are the exercises best adapted to girls, and, for that matter, to any persons who wish a healthful and well-balanced rather than an abnormal physical development.

(The harmful and disfiguring accidents which often result from the rougher games practiced by young men, as well as the graver injuries which are the direct result of heavy lifting or a sudden severe strain upon certain sets of muscles, are matters to be deprecated, not emulated, and perfect physical training does not require such sacrifices.)

Where the girl has been allowed to grow to early womanhood neglectful of the requirements for proper physical culture, the question of what she may then undertake is a more serious one. If she be in college, the college physician should ascertain if there are any organic defects, and, if any exist, regulate her exercise in accordance with the requirements of the case. In nearly all cases, if the work is

begun carefully, increased gradually, and sustained systematically, the best results will follow.

Let the girl be properly reared, and it will be found that Nature has imposed no obstacles against the attainment of the most healthful and highest physical standards which are commensurate with the normal development of the system. —*Popular Science Monthly.*

ECHOES FROM THE CLASS-ROOM.

BY A. H. MORRISON, COLLEGIATE INSTITUTE, BRANTFORD.

II.—ON MIND GUIDING IN GENERAL.

Quot homines tot sententiæ.

SO many men so many minds, so runs the old Latin proverb: and there is a great truth contained in the implied statement, inasmuch as it would be hard, nay, impossible to find two human beings whose thoughts were identically the same on all given subjects. Yet, upon a critical examination of the lines quoted, we shall discover that, beneath the surface truth of the statement looked at from a universal standpoint, practically, there is an undercurrent of fact at variance with the theoretical truth embodied in the maxim. We may have, and indeed have had, over and over again, examples of masses of the community, actuated by but one mind and swayed by but one impulse. Were not this the case, government by party would be an impossibility, victory in warfare unattainable, tuition a sham, and even discipline in the college and the school, a chimera not capable of practical application. I am one of those who firmly believe that minds like affections can be trained, and trained moreover to take any shape that the cunning moulder of the intel-

lect sees fit to impose. Look at the great party leader, with what deft persuasions does he combine dissimilar elements into a congruous whole, assimilating so to speak, the flesh and blood of factions into the body corporate and politic. Let the same feat be attempted by a lesser genius, and behold, discomfiture and failure. The diplomatist of the council-chamber is not so far removed from the diplomatist of the class-room as some at a first glance might be led to imagine. In either case tact is the oracle consulted, and patient but far-seeing policy the secret of success: and here again is knowledge of adult nature on the one hand, and of youthful nature on the other, indispensable—that knowledge which we have already gleaned, partly by intuition, partly by observation, in the world, the home, and the class-room, whether this last be the council, the college, or the school. It is a plain matter of fact which admits of no refutation, that the trained mind of man can mould everything in nature, in a sense, to the, shape or circumstance which best suits his ideal of use, or beauty, or caprice. The growing shrub may be distorted into the grotesque figure of the formal parterre; the shapeless

rock may be carved into a Venus de Medici or Apollo Belvidere; the rigid bar of stubborn metal may be beaten to the curved horseshoe or pointed share and arrow-head; the precipice may be scaled and utilized; the depth plumbed and searched. It is a mere question of time and perseverance to erect a pyramid, to tunnel a Genis, to dig a Suez Canal, to construct a Pacific Railroad, or to lay an Atlantic telegraph wire. Suns and moons and stars are brought by instrumental means into our very chambers, and there analysed and mapped with as much precision as have been the distant lands and waters of our own revolving sphere: and as with inanimate nature so with animate man. His mind can mould the fellow-mind into any shape which best suits his ideal of use, or beauty, or caprice. A Newton discovers the theory of gravitation, and by and by, millions of intellects accept the dictum of the philosopher; a Hunt and a Rossetti inaugurate the Pre-Raphaelite school of art, and very soon disciples are numbered by thousands; a Mohammed, professing to be the Prophet of the Most High, formulates his creed, and straightway myriads flock to his banners; the crescent floats from a hundred towers, and the Muëzzin chants his solemn call to prayer from the summits of a hundred mosques. All going to prove pretty conclusively, as I take it, that though the individuals be many the minds are few, in fact, one—one heart beating in a great body, politic, or religious, or scientific, or even æsthetic, or fanciful; that heart the intellect which propels the life blood of government, or creed, or philosophy, or art, or fancy, to the uttermost extremities of the aggregated being. Now all this is but another name for hero-worship. The prototype, of no matter what innovation, must be worthy, first, of admiration, love, or reverence; secondly, of

immortalization. They who cannot love Deity, admire Him and reverence Him, cannot believe in Him as an immortal existence for all good, for far can hardly believe in Him at all. He would be an anomaly, a contradiction, whose characteristics are at constant variance with His methods. But love and reverence and admiration once accorded, what are the results? Implicit trust, obedience, desire to conform to the ideal, and an explicit hope that one day we may be like Him, if not in the perfection of Divinity, at least, as near to perfection as a created spirit can ever hope to become. If we may not wear the robe of the High Priest, we may, perhaps, be permitted to touch the skirts from which all virtue flows.

Arnold is deathless for all time to Tom Brown of Rugby. All time! Aye, all eternity! so long as the pupil spirit can take cognizance of earth and earth's doings. Fancy what a position to hold in the eyes of hundreds; hundreds of strong men and women who were once weakling boys and girls; hundreds of weakling boys and girls, some to become strong men and women! A hero—a mind guider—for all time, for all eternity! Well may the earnest teacher as he steps on the threshold of his profession, tremble, and offer up an inward prayer, asking for heart of grace, and strength of intellect, and magnetic force of mind, to be, not a blind leader of the blind, but a hero, cheering on his columns to the attack, besieging doubt, levelling difficulties, advancing truth, supporting manliness, defeating ignorance and putting to utter and ignominious rout, the serried legions of sloth and sin, winning a golden guerdon, worthier than Roman crown or Spartan shield, the triumph of a thousand hearts, each stamped with the seal of loyalty, each beating with the pulse of affection.

Happy is he who can modify the

old Latin maxim which begins my paper, and say, "So many pupils, one mind." Recollect, it can be done. Done by the master mind which can form all things to its own mould. When the intellect is young, it will naturally look to something outside of itself as a model or copy, to follow and to emulate. I like to think that, even though the home influence be not at all times what one could desire, yet the child mind of itself will naturally follow the good rather than the evil, will learn to admire the noble rather than the depraved, and in time will cast aside the shackles of an ignominious, earth-bound spirit, for the sublimer inheritance of a freed soul. I deem all this not impossible, always providing that, as a counterpoise to any evil example existing outside the class-room walls, within it may be possible to dwell beneath the shadow of the ideal, to sit at the feet of the earnest guide, to learn to love the animating spirit as friend, to admire him as scholar, to reverence him as hero. Then will he become immortal, his teachings deathless. Example is everything; character is everything. Man is a born mimic, a plagiarist of manners if you will. There is little that is original in human nature. Hold out to a youth for evermore a villainous type, and he will become a villain. Temper the teachings of villainy by an occasional relapse into respectability, and there is more than hope, that the human instinct will incline to the good rather than the bad. Keep him continually within view of the good, and he will be good, as humanity goes. I honestly think this has been my experience with, of course, a few exceptions; but the exceptions prove the rule. Character is the teacher's highest certificate; his

example the standard of professional capability. He is somewhat of a great man who can command the love and reverence of his pupils, for think what love and reverence mean. You are in difficulty, and you ask a friend for five dollars, and he lends it to you, expecting reimbursement. How grateful are you for the favour. Yet he has given you nothing. A child, unasked, gives you its young, fresh heart, and desires no repayment. Have you considered the value of that gift? Depend upon it, 'tis worth much more than five dollars. Happy is he who can realise the fact that, through the instrumentality of the child love, he has been the guider of the child mind. Happy, when in contemplating the future, he sees the child, now become a man, casting a glance back from the threshold of content to the old time teachings which have been instrumental to his success.

To sum up briefly, What then are the elements of success in mind-guiding?

First. Character in the teacher. Practice is better than precept.

Second. The ability to lead rather than the power to drive. One volunteer is better than ten pressed men.

Third. A high ideal. Recollect the quaint apophthegm of Josh. Billings; "He who undertakes to jump a mile at least makes a good bid."

Fourth. Indomitable pluck and perseverance. Never despair. Mind can be moulded in spite of adverse circumstances.

Fifth. Tact; which will animate five hundred pupils with but one mind.

Finally. Be truthful, industrious, frank, cheerful, honest, and thoroughly in earnest, and the child, the imitator, *must follow* the type, the imitated.

METHODS OF ILLUSTRATION.

WE all remember that tide of object teaching that swept through the schools and courses of study, and how we envied the favoured ones who first learned its cheap trick with a piece of glass, a button or a basket. There was a time when it was something of an affair to develop the uses of a chair, or to find out in the orthodox fashion that a cat had legs, a back and a tail. And somehow it took years to discover that fragmentary and trivial work diluted solid instruction none the less whether crammed from book or object.

Certain kinds of object teaching have long since been convicted of obtaining credit under false pretences; but it seems to me that the prevailing tendency is to pass through a similar stage in methods of illustrating. We are assimilating a large amount of new knowledge, and finding by trial and error the paths of least resistance in teaching it. Such a time is peculiarly the hey-day of the small theorist and enthusiast.

Teachers are not wanting, nor silent, who seem "pleased with a rattle and tickled with a straw," and we, in our eagerness for novelty, are ever ready to admire a new method of using a wire, a tube or a toy, and sometimes forget that we may cheapen illustrations until they become very dear. And so the insignificant gets prominent, and the good gets in the way of the best.

This tendency to dabble, to multiply details, to magnify the *how* at the expense of the *what*, seems to me a mistake—"an advance backward." To lose the simplicity and impressiveness of great facts and laws is too high a price to pay for trivial illustration or ambitious completeness.

We need neither greater adroitness nor more little things so much as a more comprehensive grasp of what is significant, and greater skill to communicate economically the fundamental things that legitimately enter into the school education of children.

Let me show some general methods of illustration in a single typical study—geography. In teaching the primary elements of earth-study, mountain, plain, desert, cold country, etc., no patent method or device can take the place of vivid artistic description—description that shows a quick human sympathy, and lingers lovingly upon attributes. But this gift will avail itself of any accessories to make the word-picture more definite—the model and moulding-board, the off-hand sketch and painstaking drawing, the photograph and engraving.

But, for myself, I have found the moulding-board of great value. The ideal mountain whose height I wish to emphasize is belittled by being represented in inches. Such a mountain range as this comes nearer: Cloth mountain five feet high, made of a settee, inverted chairs and window sticks, and covered with gossamer waterproofs and a sheet. The difficulty lies in giving the scale; but the little card-board village at the base contributes somewhat. Moss for trees, sawdust roads, foot ruler fences, and tippet rivers, may or may not add to its value. With this we can show mountain, mountain range, mountain peak, water-shed, valley, river basin, diminishing vegetation, snow-cap and snow-line, avalanche-path and glacier.

When, later, the surface of a continent is to be shown, I have found a peck of sawdust and a sheet of brown

paper, or a black-board placed horizontally, sufficient. The sawdust holds its place well, may be used dry, and is cheap and clean. The map is drawn and built up in the usual way.

I prefer pictures, however, rather than models, for most work. The multitude of details in pictures gives the scale of size, and they are cheap, convenient, interesting and beautiful; which can be said of few models. It seems to me there are great possibilities in collecting and studying pictures with classes. Of course I do not mean the fashion-plates or the cuts from almanacs that are sometimes used to keep children still, but a worthy collection, such as could be made easily by a discriminating teacher from illustrated papers and books, mounted separately on cards or cloth.

The photograph is one step nearer nature, and should be used more frequently in teaching. Large photographs of mountains, deserts, icebergs, geysers, tropical vegetation, etc., are valuable, not merely as ornament for the school-room, but as furnishing the best of teaching ma-

terial. But even the blackboard may be made to show these to some extent. These blackboard drawings of a mountain, glacier and volcano are some of the best specimens of the regular work done by our normal students in getting ready to teach geography to beginners. And I think all will agree that there is a time when these, used properly, would contribute to giving clear ideas in an interesting way. I need not speak of the value of easy off-hand sketching on the blackboard; we understand its importance quite as much as we practise it.

When the time comes for work with maps, let me suggest that they be placed horizontally, and used thus for a long time, keeping the north of the map to the north of the room. Later, have the maps hung and used on the north side of the room, if possible, to avoid that dreadful twist that gets into one's head by habitually seeing the right hand of the map toward the west. Maps drawn on the floor, large enough for the pupils to make imaginary journeys on, may sometimes prove of value. — *American Teacher.*

HIGHER EDUCATION OF WOMEN.

To the Editor EDUCATIONAL MONTHLY.

SIR,—When several young women, actuated by a desire to complete their courses and take their degrees in the University of Toronto, succeeded in forcing their way into University College, those who had aided them by taking part in the previous agitation hoped that their task was ended. They had no wish to continue a discussion which was not of their seeking, and which had accomplished what they desired to bring about—the opening of the doors of a public institution to all comers irrespective of sex.

But while we do not court further discussion, we do not shrink from it; and, therefore, I ask the privilege of a brief reply to some portions of Mr. McIntyre's paper on Ladies' Colleges in the February number of THE MONTHLY.

He does not correctly represent the tendency of opinion in England on the question of what is usually called co-education. In Oxford and Cambridge, each of which has a number of men's colleges—residence in some one of which is a *sine qua non*—we find similar colleges established for women, such as Girton and Newnham.

But Girton and Newnham find it difficult to get along with their present resources, and such institutions can never become numerous. They would never have been established had women been admitted freely to colleges already in existence, and therefore "the prevailing opinion" of which Mr. M'Intyre speaks is simply the prevailing opinion of the sex which is in possession of the educational facilities and refuses to share them. In Manchester a similar outside college for women was, not long ago, endowed for five years; but the endowment is not likely to be renewed, and when the time expires the women will be admitted to the regular classes in Owens College. In University College, London, women were admitted several years ago to lectures in separate classes, but the inconvenience of this arrangement was so great that at the instance of the professors themselves, the mixed system was adopted with general satisfaction. My authorities on this point are, Prof. Foxwell, the successor of the late Prof. Jevons, in University College, and Prof. Schurman, of Dalhousie College, who was a student in London both before and after the mixed system was introduced. I may here add that Dr. Schurman is a strong advocate of the mixed system as the best, apart altogether from the question of economy. So far from being against mixed classes in colleges, the prevailing opinion in England is strongly in their favour.

Mr. M'Intyre is equally astray in his reference to what is taking place in the United States. The admission of women to Michigan University fifteen years ago, was not the result of the woman's rights agitation; but of a desire on the part of the management to give women an opportunity to acquire such an education as they could at that time acquire nowhere else. Not long ago the accomplished Principal of Wellesley College, which

is devoted to women only, heard at an educational convention a remark hostile to mixed classes, and she promptly silenced the speaker by telling him that her own university training had been obtained as a member of a mixed class in Michigan University, and that she had no objection to the system. The admission of women to Cornell was not due to the woman's rights agitation; but to the deliberate act of the Faculty, who appointed a committee twelve years ago, to collect evidence before coming to a decision. Quite recently Dr. White, the President, bore emphatic testimony to the complete success of the experiment, even from a moral and social point of view. Dr. Barnard, President of Columbia College, is the most effective advocate of mixed classes in the United States; but Dr. Barnard has never to my knowledge, taken any part in the woman's rights movement.

Mr. M'Intyre is still more unfair, in dealing with the question as it affects Canada. Admitting that it is premature to draw conclusions from an experiment so recently entered on, he nevertheless proceeds to compare the attendance of women at University College, Toronto, with the attendance at McGill College, Montreal. He ought to know, that the doors of University College were opened on the first day of the session, to women, not only without previous announcement that they would be opened, but after assertions repeated for five or six years, that women would never be admitted. If Mr. M'Intyre will postpone his comparisons for five years, he will be permitted by that time to make them without protest; and if the authorities of McGill College attempt to keep up the absurdly complicated system they have promulgated, of separate classes for the earlier years and mixed classes for the later, it needs no prophet to see which system will be preferred by women who are in earnest about self-

culture. Mr. M'Intyre's figures are quite misleading, and his citation from Sir William Dawson is equally so. There are at present thirteen women attending lectures in University College, only two of whom are not taking a full university course. Three of those taking the full course, and with honours, are in the fourth year, and one in the third, the others being in the second and first. I am in a position to assure Mr. M'Intyre that the attendance of women at University College will rapidly increase; and, by way of offset to Sir William Dawson, I refer him to Prof. Murray of McGill College, who has publicly expressed his conviction, that the policy of educating the sexes separately, in that institution, will, if persisted in, be fatal to it. I should add that Mr. M'Intyre has omitted Dalhousie College, from the list of those which admit women to mixed classes.

I beg leave to dissent in the most emphatic terms, from Mr. M'Intyre's theory of what a woman's education should be. "The age demands of the young lady that she should know something of music and painting." I had hoped that at least one ladies' college could be found in Ontario, which discountenances such absurdity. If a young woman is fond of music and painting, and has genius or even talent for it, let her cultivate these delightful pursuits; but to require a woman to learn music who has no sense of time or tune, or to learn painting who has no sense of form or colour is, on the part of an educationist intelligent enough to know better,

little short of criminal. The amount of misery inflicted on poor unfortunate girls, through the agency of that instrument of torture, the piano, is incalculable, and to just the theory laid down by Mr. M'Intyre, must be attributed an immense number of broken constitutions and shortened and blasted lives. For some young girls, the proper training is not artistic, but intellectual. Instead of wasting several hours a day at piano practice, they should be reading literature, under proper guidance of course, or pursuing science. Only by affording them opportunities of doing this, can we get rid of that tiresome vacuity, which is the great drawback of the social circle. The most accomplished woman is not the one that can best play a fantasia, but the one who can take her part most effectively and attractively in conversation.

By her system of local examinations, the University of Toronto furnishes a test and a standard to Ladies' Colleges as well as to High Schools. The grouping of subjects at these examinations can and probably will be improved. And when a young woman who does not care for, and could never excel in, music or painting wants to take a higher course in literature or science than she can do in her preparatory school, she may attend in University College just the course of lectures that suit her, paying only for what she takes. Any arrangement of curriculum and of lectures more favourable for women it would be hard to imagine. WM. HOUSTON.

Toronto, Feb. 26.

YOUNG pupils do not learn half as much good grammar from their text-books as they do from their teacher, if she is accurate and choice in her language. A pupil may decline the pronoun I a hundred times, and repeat the rules for the objective case as often, and yet he will say, "Susan gave the flowers to Mary and I," if his teacher uses such con-

structions. On the other hand, if his teacher says, "She gave it to Mary and me," he will say the same, though he never looked into a grammar. *Corollary 1.*—A child would never use bad grammar, if he never heard bad grammar. *Corollary 2.*—Children are, in language, much as are their models.—*Educationist.*

THE CHILD WHO IS TO BE TAUGHT.*

BY E. E. HIGBEE, SUPERINTENDENT OF SCHOOLS.

IT is a difficult task to understand a boy or a girl; and it is strange indeed that so few people take any interest in it. When we bear in mind that geographies and grammars and arithmetics are all made for the child, and not the child for them, we ought to see and feel the necessity of studying the *child* as well as the *books*. For if we do not in some way grasp the relation of the text to the child's development, and know how its content is to enter into the inner build of his own living being, our mere machine-work will return unto us void, and our own time and that of the child be frittered away.

When the child first comes to school, his mind is not a blank. It has a vast amount of capital—material at hand already provided—that must be worked up from its natural base into conscious ethical significance in the formation of character. This work—this building from within—the child must do for himself. All that the teacher can do is to aid him; and how can he aid him except as he comes to know him, and lead him onward in the great work of realizing the capital which he has to start with, and put out on interest the talents which otherwise he may hide in a napkin and bury in the ground?

There are forces which enter into the life of the child from behind his own conscious existence, and which in various ways condition his physical, psychical, and spiritual growth. For these he is not responsible; but he is responsible for the use he makes of them.

Race is one of these broad antecedent forces, which manifests itself not only in bodily peculiarities, but in the deeper mysteries of mind and spirit. Psychically the Indian differs from the negro fully as much as he does physically; and it would be as vain to attempt to make the two alike metaphysically as physically.

Nationality is another broad force of kindred character. The peculiarities of the Frenchman, the German, the Spaniard, go deeper than the face or the language. These differences themselves depend upon a deeper characterization below them which finds utterance in these more outward forms. You all can feel at a glance the difference between the children of the Celt and the Teuton, and you are compelled to recognize it in your teaching.

Family is another force, less broad it is true, but equally significant. The child bears the marks of parent and grandparent, and the various members of one family have their common features that all can recognize.

Sex also enters into the structure of life, covering not only the physical but also the intellectual and æsthetic. I do not say that boys and girls should not be educated together, but their training must be different, if it is to be from within and not from without. Even in the family, where they are in most intimate communion, they rapidly segregate themselves, the boy riding a stick, while the girl nurses her doll. The inner play of phantasy at the very outset asserts itself differently, and they get farther apart as they go on, until soon, too soon perhaps, brother and sister are not so

*Abstract of an address before the Lancaster County Teacher's Institute, November 11, 1884. Reported by J. D. Pyott.

near together as the lover and his sweetheart.

All these broad forces which enter into the natural furniture of the child's life must be considered; and yet if these were all, our problem would be far easier than it is. But from the other side, reaching directly into the soul and spirit, come other forces, not from the dust, nor from physical antecedents, but from the Eternal. Just as in our physical organism, each sense has its proper correlate—the eye, light; the ear, sound—so also here each inner *soul sense* has its spiritual correlate, in the presence and power of which its activity is challenged. The *will* is for the *good*; the *intellect* is for the *true*; and the *imagination* is for the *beautiful*. Let us not for a moment, however, suppose that any of these senses, or functional activities, create their object. They are only recipients of the same, opening the way for a reciprocal conjunction. The eye does not create Light, but is recipient of it, opening the way for vision. The will does not create the Good, but opens the way for its authentication in our life. The intellect does not create the True, but is that recipient form of our soul-life in which the *true* comes to pass. You demonstrate that the interior angles of a triangle equal two right angles. This is not true *because* you demonstrate it. Your demonstration is but the proper focalizing of the lenses through which this absolute truth of space may shine in upon the soul. You have caught in this way a glimpse of absolute truth whose source is divine and eternal.

There is, however, so far as these recipient faculties are concerned, a process of development—a process of activity—through which they are properly mediated to their correlate. The *Will* is mediated for the Good, through *virtue*, which is but strength

generated in the will to authenticate the Good in its every act. The process here, therefore, should be to develop this inward strength, by opening our life at every stage through the will for the inflowing inspiration of the Good. The process must be inward, and the restraint must always look toward an unselfing of the will in the presence of the Good. It will not do, as any one in a moment can see, to coax the child with candy, or frighten him with "bugaboos," to lead him to righteousness, or deter him from sin. These things are but outward, increasing selfish appetencies, and no virtue can be developed or gained by such machinery.

The *Intellect* is mediated for the True through *thought*, which is but strength generated in the intellect to authenticate the True. The process here, therefore, should be to develop this inward strength. We do not study arithmetic that we may measure cords of wood simply, or find the distance of Venus from Mars—but to give to the mind power to grasp the True, to aid it so far as possible to open wide its windows that God's light may shine in upon the soul and illumine its interior, and fill its vision with the glory of truth, as a substance truly divine.

The *Imagination* is mediated for the Beautiful, through *art-genius*, which is but strength generated in the imagination to authenticate the Beautiful. Hence, every effort should be made to develop the power of the imagination by the presence of the beautiful, as this utters itself in "good manners," the "minor morals;" in amusements in which our ideals are projected into acts—in all the varying forms in which the antetype is made to shine through the type, the *urbild* made to glow forth through the *bild*.

It is plain to be seen from this brief survey that the teacher has a

wide field of study when he opens the book of a child's soul. He soon feels, even before finishing the first chapter, that he must come into direct contact with the whole life of the child, not in school-hours only, when under the necessary restraints of text-book study and recitation, but at recess, and before and after school in the rush and crush of his free life.

What has already been said clearly intimates that there is a bond binding the child to God and God to him; and our highest efforts as teachers should be to cultivate that deep reverence of the soul which, in recognizing such bond, feels its absolute dependence and rejoices in it, feeling exalted in such sublime humility. This does not of necessity require in the school the teaching of any confessional form of theology. There can be a deep soul-feeling of God's presence, giving to the whole spirit of children the reverence of prayer. Is not the most precious memory of every gray-haired man, who has not wasted his whole life in selfish worldliness, the Christian lullaby of his mother, and the almost infinite tenderness which thrills him as he lisps again. "Now I lay me down to sleep," feeling that his weary head rests once more on her lap, where Heaven came so near his soul? Can the mother or the teacher afford to neglect this element of reverence and prayer and communing with the Eternal? We may not use the Augsburg Confession, or the Heidel-

berg Catechism, or the "Thirty-nine Articles," or the Westminster Confession, or the Articles of the Council of Trent, in the school-room; but God may be there, and the reverence for His Holy Name may form the very atmosphere of it, if our directors forget not their duty by employing immoral, frivolous and godless teachers!

But it is not this subject which I wish to discuss. The object is to call attention to the fact that the child is not a spiritual blank, a lump of animated flesh, and nothing more—bound to the earth and only earthly, without any proper fellowship with Heaven, and unmindful of his high origin and destiny. God forbid that a teacher should hold such a view! Allow me, therefore, to call your attention to that profound ode of Wordsworth, where the great thought upon which I wish you to reflect has been sublimely wrought out for the admiration and delight of mankind:

Not in entire forgetfulness,
And not in utrer nakedness,
But trailing clouds of glory do we come
From God, who is our home:

* * *

Hence in season of calm weather
Though inland far we be,
Our souls have sight of that immortal sea
Which brought us hither,
Can in a moment travel thither,
And see the children sport upon the shore,
And hear the mighty waters rolling evermore.

—*Pennsylvania School Journal.*

We learn from the *Times* that a petition is now being circulated among the resident members of Cambridge University, addressed to the University Commissioners, on the subject of limiting the age of candidates for open scholarships. The memorial states that the petitioners, believing that the practice of boys leaving public schools for the University at so advanced an age as is at present the custom is injurious to the schools, to the Universities, and to the boys themselves, wish to express their opinion that if

the Cambridge University Commissioners will frame a regulation with the object of limiting the age of competition for entrance scholarships and exhibitions at the Universities to 19 years they will confer a great benefit on the education of the country. The petition has been signed by many of the influential residents, and also by a number of assistant masters at the chief public schools. The head masters are also preparing to address the Commissioners on the subject through their Conference.

HEATING AND VENTILATION.

BY SUPT. G. T. FLETCHER.

THIS subject receives too little thoughtful attention from those who build school-houses, or from those who have the responsibility for their construction. Very few school-houses have proper or adequate provision for ventilation. Indeed, scientific investigation has hardly determined the conditions and means necessary.

Pure air in sufficient quantities for respiration must be entering the room at all times, and it must be warmed before coming in contact with the pupils. In rooms thoroughly heated by furnaces, the necessary supply of warm air comes in through the registers. When rooms are heated by direct radiation, whether by stoves or steam-radiators, provision should be made to admit free air in such manner as to come in contact with the heating surfaces before distribution.

The second condition necessary to secure ventilation is a proper arrangement for removing the foul air. This must be done by means of openings of sufficient size into air ducts, *heated so as to insure a strong draught*. All chimneys should be built sufficiently large to have two or three flues—a small one for smoke, and one or two others, depending upon the number of rooms to be ventilated—to carry off the foul air. From every room there should be two openings of sufficient size into the ventilating flues—one near the ceiling, one near the floor. The heated air of the room always rises to the top because of its comparative rarity, while the noxious gases from the body and breath will be found in all parts of the room because of the law of diffusion. In order to warm the room the upper

register must be closed, so that the warm air may not escape, and the lower register must be open, so that the cold air may pass out and allow the warm air to descend and fill the room.

The ventilation should be principally through the lower register, to draw off the stratum of air in which the pupils are placed when in their seats, and which becomes impure from contact with the body and by respiration. The upper register should be closed when the room is cold, partially open when the room is warm, and wide open when the room becomes over-heated. The register near the floor should be wide open at all times, as only cold, impure air will escape through it.

These statements are based upon philosophical principle; but, as facts and figures are more convincing to some people, the following experiments are noted:

The school-room used for the tests has proper means of ventilation, upper and lower openings into a chimney. First experiment: The chimney registers were closed so that no air could escape, and a strong current of hot air from the furnace was admitted to the room. Thermometers were placed upon the wall at the top of the room, at the middle, and at the level occupied by the pupils when in their seats. Result: The mercury in the highest thermometer rose 14° in thirty minutes, reaching 72° ; in the middle thermometer, 12° ; in the lowest thermometer but 8° , reaching a temperature of only 55° , nearly 15° below the standard. The warm air was entirely above the pupils' heads, even

when they were standing; hence of no benefit to them. They were breathing over and over again the cold, impure air found in the lower part of the room.

Second experiment; The upper ventilator was opened and the lower one closed. Result: The mercury in the highest thermometer rose to 74° because the hot air in the furnace rose to the top of the room and passed directly to the chimney opening and escaped. The mercury in the thermometer at the level of the pupils remained stationary, the lower stratum of air not being affected in the least by the hot air from the furnace. There was very little circulation of air in the room; hence it must have been impure.

Third experiment: The upper ventilator was closed and the lower one opened. Result: The mercury in the highest thermometer *fell*, while that in the thermometer near the floor

steadily *rose*, because the lower stratum of cold air was being driven out by the descending current of fresh, warm air.

This fact is also worthy of note: Large quantities of warm air cannot be forced into a room by gravity unless there is some opening from the room to allow the air already filling it to escape. It is evident that the lower part of a room cannot be properly warmed unless the cold air near the floor can be removed; and this can be accomplished only by means of openings into the base of a chimney.

Thermometers in most school-rooms are placed too high on the walls; they do not indicate the temperature of the stratum of air in which the pupils are. At recess time the windows should be thrown open that the air of the room may be entirely changed.—*Journal of Education*.

THE RELATION OF SCIENCE TO CULTURE.

CULTURE may, we think, be properly described as that knowledge or training which is essential to, at least, a provisional completeness of human nature. To secure such provisional completeness all the lines of a normal human activity must be more or less occupied, all the permanent faculties and capacities of the normal human intellect must have a certain exercise and development, and so be made channels of happiness and usefulness to the individual. Viewing the matter in this light, we see that while this or that special piece of knowledge may not be necessary to culture, each *branch* of knowledge and of thought must bring some contribution to it. Culture implies understanding, apprecia-

tion, and some power of action. To have a mind wholly unexercised in some important region or regions of knowledge, and therefore wholly incapable of appreciating what may thence be drawn for the general nourishment of thought and advancement of civilization, is to have a culture so far incomplete; and an incomplete culture is, according to our present definition, the negation of culture. It may be that in the case of no human being is our idea of culture fully realized; still, for all that, the idea may be a good one. Manifestly, the aim of culture is to give such perfection to human nature as it is capable of—to develop not one set of faculties only, but all faculties; and so far it is correct to

speak of (realized) culture as "a provisional completeness of human nature."

It may, perhaps, be objected by some that the definition of culture here given is calculated to lend aid and comfort to that spirit of dilettantism which has proved itself so serious an impediment in the past to the progress of true knowledge. Under the pretext, it will be said, of aiming at some kind of completeness of intellectual outfit, many will be found contenting themselves with mere surface knowledge, and shirking all the hard work inseparable from a proper grounding in any one branch of study. To this we can only reply that the requirements of our definition would not really be met by such a course as this, and that nothing would be easier than to expose the charlatan who not only knew nothing well but had no proper measure of his own ignorance. A large part of culture, as we here understand it, consists in having some due appreciation of the extent and importance of those fields of knowledge which we have not been able to make our own. We recognize the man of culture not less by his diffidence in regard to those things he has not mastered, and upon which he does not venture even to have an opinion, than by the confidence and precision with which he moves in subjects that he has more or less made his own. Show us the man who, on the strength of a little general reading, will express opinions right and left, or who argues deductively, with reckless confidence, from a few general principles settled in his own mind, and we shall show you one who has never risen to the conception of culture which we are here endeavouring to set forth. "The fear of the Lord," says an admirable proverb, "is the beginning of wisdom;" and the first lesson in culture

is the correction of that error to which, as Bacon has pointed out, all untutored minds are prone, of supposing in nature a greater simplicity than really exists.

Now, the contribution which science brings to culture is this:

1. It imparts actual knowledge of the condition and constitution of the external world.

2. It trains the observing and reasoning faculties.

3. It imparts a knowledge of its own methods, and by so doing gives the mind a new consciousness of its powers; for the methods of science are simply the labour-saving methods of the mind itself.

We see, therefore, its relation to culture. That wholeness of the mind of which we have spoken is manifestly incompatible with gross ignorance and error in regard to the source whence all sense-impressions flow. It is not culture to be floundering amid hopelessly erroneous hypotheses, nor to see things only with the untrained eye of sense instead of with the inward eye of instructed reason. Culture—intellectual wholeness—requires that we should see the world as those see it who have studied its phenomena and laws; not that we should know all that each specialist knows—a manifest impossibility—but that we should in a general way know what report has been brought from each great field of inquiry. So, in the days of Columbus, culture did not require that each man should visit the new continent for himself; but culture did require that each should know that a new continent had been discovered, and what its general features were, so far as it had been explored. The man of culture to-day should be able to speak of the world as it is now known to be, not as it was supposed to be fifty, or a hundred, or two hundred years ago.

Secondly, science trains the observ-

ing and reasoning faculties. The habit of direct observation of Nature is one of the most important that any human being can acquire. By bringing the observer into direct contact with Nature, it gives a healthy concreteness to his conceptions. He who misses this training in early life will not be likely to make good the deficiency in later years. Many men, who have naturally good reasoning powers, find themselves condemned to more or less of intellectual sterility, simply because what we may call the fact-grasping faculty has never been developed in them. If they had materials to work with, they could do good work; but they have not the materials, and do not seem to know how to gather them. They live in a too attenuated air: like the ancestral ghosts whom Myrtle Hazard saw in her dream, they call for "breath! breath!"—the breath that no living soul need lack who will but go to Nature for a supply. It may be said, indeed, that a logical faculty without a strong sense for the concrete is a source of danger to its possessor, leading him afar on the seas of speculation, with no guide but a few charts and his own dead-reckoning. He who can observe Nature, on the other hand, is like the mariner who can "take the sun," and know his exact position from day to day. Many of the intellectual evils of the present time spring from the too wide-spread use of intellectual faculties untrained by the study of Nature, and therefore unchecked by any due sense of the complexities which the problems of life present. Science teaches caution; it teaches the paramount importance of verification, and creates not only a distrust of, but a certain lack of interest in, conclusions that have not been reached by proper methods, and which do not admit of verification. Scientific men, in general, it will be observed, are not revolu-

tionary in their opinions; they work on patiently, and hate nothing so much as premature production of results. They often have occasion to smile at the confidence with which mere theorists undertake to tell the world what the whole significance of their work is.

The methods of science are, as we have said, the labour-saving devices of the human mind. They are the choicest and most precious results of the travail of the human intellect upon the phenomena of its environment. Not to know something of them is, in a wide sense, one of the worst forms of self-ignorance, for the intellect that has worked out and established these methods is not any individual intellect, but the intellect of the race. We are all entitled to our share in what the race has accomplished. And shall we supinely and ingloriously consent to be ignorant of the intellectual triumphs that the race has won? The man of culture must have a consciousness of his own best self, and must have it in his power to live his best habitually, and not be dependent upon critical occasions to reveal what his capacities are. The function of culture is to redeem us from the sway of chance, and make us fully masters of ourselves. We see, then, what it must be, from the point of view of culture, to know the ways of Science, and to be able to trace her shining footsteps along some of the grander paths of discovery. We see, too, what, from the same point of view, it must be not to know anything of all this, but to live in a world the phenomena of which never reflect back the light of law into the understanding, or convey any clear suggestion of the conquests which the human mind has achieved. To think that, not so long ago, this condition of mind was thought by many, yes, by most, quite compatible with "culture!" Times are

changing, fortunately, and we trust that few men of intelligence are now to be found who would dispute our definition of culture as a certain provisional completeness of the human

mind in the sum and development of its faculties, or who would deny that, to constitute such completeness, a liberal scientific training is wholly indispensable.—*Popular Science Monthly.*

EDITORIAL.

THE GOSPEL ACCORDING TO CARLYLE.

A CONTRIBUTOR to our pages makes some reference to Carlyle's political doctrines, which are seemingly hard to understand, or if understood aright, are difficult to reconcile with Carlyle's sincerity, his manifest desire to do right, and the earnestness with which he denounces all wrong-doing and wrong-thinking. Carlyle was, above all things, a man of convictions; and though unquestionably his influence is ever on the side of righteousness, it is, we confess, not easy to endorse his view of government by an Aristocracy of Intellect with due regard for justice and the largest freedom of the individual. To this extent we are in sympathy with our correspondent, and, with some qualifications, we share his views. But Prophets and Seers are not always to be judged by ordinary canons of criticism. As a writer has pointed out, allowance has to be made for "a certain intolerance of their immediate surroundings, a certain visionariness of speculation, a retrograde and reactionary impulse, a generous weariness as of those born out of due time." But, while we put forward this plea for the great censor of the age, whose voice has been "a cry in the wilderness," we are far from joining in the condemnation of his Hero-Worship; still less do we fail to sympathize with his deification of force, in the sense in which Carlyle

really meant to commend that symbol of power. Even as he is ordinarily interpreted, there is much in Carlyle's political opinions that calls for commendation, and no little virtue in his Hero-Worship. There come times when a Cromwell is necessary, and his work is beneficent. In these days of vacillation and compromise, one cannot help having a lurking sympathy for autocratic governments, for vigorous administration in the individual or in the state, and for the kingly intellect that reduces chaos to order, and sits heavily on anarchy and idleness. With popular suffrage and the gospel that "Jack's as good as his master," we have got rid of reverence and much that was formerly noble in life and living; and with democracy has come demagogism, disbelief and dynamitism. We do not say that the forces that have been let loose in the last quarter of a century will not in time slough off their undue license, and be brought back to conservatism and decency. Good, we believe, will ultimately prevail; and we have hope that the better part of the community will always leaven the worse. Danger is always the more menacing during a time of transition. New enthusiasms are apt to take on a certain sort of fanaticism; and, at present, we have the doctrine preached of the elevation of the many by the leveling of the few. It was in the few that Carlyle had hope, and to the few he looked for all that was beneficent

in intellect and in morals. We say in morals, for it is a mistaken notion that Carlyle's doctrine of "Might is Right" did not have regard to the moral consequences of the acts of those he would fain make the "Real Rulers." On any other view, how could he consistently cry, as he ever and sincerely did, that God's will in all things should be supreme? Might, he saw, was endowed with courage and with purpose; its correlative in his eyes was wholly ignoble. In Carlyle's opinion, as Froude remarks, no remedy lay in political liberty: anarchy alone lay there, and wretchedness and ruin. "The battle," he adds, "is no longer even to the strong, who have at least the one virtue of courage; the battle is to the cunning, in whom there is no virtue at all." Hence Carlyle's apotheosis of Might, for in Might was wisdom, according to his conception of its essence and being. The wisest and the ablest he always associated together. His theory, properly understood, was that Right inherently was mighty, and that Right was the one thing the world wanted, and whether it wanted it or not, Right would prevail. This view is set forth in the 33rd Chapter of the 2nd Volume of Froude's Biography of Carlyle, which we commend to the perusal of all who have any difficulty in regard to Carlyle's political gospel that "Might is Right." Says Mr. Froude:

Carlyle was often taunted—once, I think, by Mr. Lecky—with believing in nothing but the divine right of strength. To me, as I read him, he seems to say, on the contrary, that, as this universe is constructed, it is "Right" only that is strong. He says himself:

"With respect to that poor heresy of Might being the symbol of Right 'to a certain great and venerable author,' I shall have to tell Lecky one day that quite the converse or reverse is the great and venerable author's real opinion, namely, that Right is the eternal symbol of Might: as I hope he, one day, descending miles and leagues beyond

his present philosophy, will, with amazement and real gratification, discover; and that, in fact, he probably never met with a son of Adam more contemptuous of Might except where it rests on the above origin."

ART EDUCATION.

THE Report of the Minister of Education on Art Schools would be satisfactory reading and valuable for reference were it not such a diffuse mass of compilations with some omissions. It naively states that "Art in this country has long been considered as an amusement or a luxury." Educators and others, whose opinions are of weight and value, have thought otherwise, maintaining that an art instruction was the necessary complement of a polite education. It might just as well be said that in this country it has long been considered that a University Education was an amusement or a luxury. The Report immediately affirms that "Art is not the privilege of a class, but is individual and universal, and that there is no department of science, or art, or industry where it is not called into requisition," p. 233. A list of industries benefited by Art Education is given, but its applicability to many of them is not apparent. For instance, screw factories would be benefited by a knowledge of drawing and colour on the part of the employés who run the machinery for turning out screws. The same could have been said of barbers and wig-makers, but these industries have unfortunately been overlooked. A computation is also given that over 150,000 persons are employed in the Dominion to whom drawing and painting and modelling would be highly beneficial. It would have been better to have given the statistics for Ontario.

It is briefly stated that "the Ontario Society of Artists, which formerly had charge of the Ontario School of Art,

resigned its connection with the school last summer, and that it is now entirely conducted under the management of the Educational Department. The Society is deserving of much praise for its efforts in connection with the School of Art." But why the management of their school was relinquished by the Society of Artists is not stated, as it should have been in justice to them and the reasons given for their taking a course which has resulted in an entire disconnection with the school.

A pleasing feature in the Report is the number of teachers who availed themselves of the Summer Classes. Credit is due to those teachers who relinquished so large a portion of their holiday and period for rest; but it is questionable wisdom to work fourteen hours each day in an allotted period set apart for rest and recuperation. "One hundred and two teachers presented themselves, and all passed in Geometry. It is not probable that such a successful examination is known in the history of Art Education, for we find even in Paris, when the examination of teachers for drawing took place, about twelve years ago, on the basis of the South Kensington Training School for teachers, at the first examination out of 171 only 13 passed in Geometry, and at the second examination only 11 out of 90 students passed in this subject," *vide* p. 235. This is not a fair statement or comparison or proof of success, for that depends on the standard of examination. Probably the Parisian students had a very different Board of Examiners; but this must be said, that it is admitted in the Report that "our Canadian students (meaning school teachers) certainly had the advantage of being already familiar with Euclid and theory, and only required the further practical knowledge how to construct these figures," p. 235.

It is a matter for rejoicing that so

many teachers obtained certificates in Freehand, Linear Perspective, Model Drawing and Blackboard Drawing; and, even allowing that the standard of examination was not high, they have acquired an impetus which continued study will amplify into solidity. Their eagerness and self-sacrifice to gain knowledge is a prophecy of advancement in Art. Considering the necessity of rest to a teacher, it would be a wise course to meet him half way, and *pro tem* extend the holidays. Such an extension would be for the public good, and could not with any grace be objected to, for the advantages of drawing would the sooner be within the reach of the pupils of the schools. In the teaching of drawing, the kind of instruction, scope and bearing, should be carefully considered and have a practical and solid form, independently of theoretical notions, which often are the chief reliance of superficial directors, who gain their knowledge from printed reports and hurried visits to schools of art. In short, drawing to be of service must be true teaching, its movement and direction propelled by those who have practical experience and knowledge.

IN THE EDUCATIONAL MONTHLY may be found proofs of limited knowledge. The puerile form of some of the Department examination papers shows what slight attainments pass current. Did we not hope for better things the outlook would be disheartening! The phrase, industrial drawing, is a comprehensive one; it embraces so much, yet the benefit accruing to a learner is dependent on the efficiency of the teacher and on his capability of unfolding and cultivating the natural powers of observation and imitation of the person taught. Among many, one defect in Smith's Manuals is the promise of so much, with such poor results. Pupils who produce pretty geometrical arrange-

ments—which, by-the-by, look so original to those unacquainted with geometrical combinations—little know the slight value they really possess, for in sober reality they are of no value whatever—such pupils, when given some natural form to copy, find themselves incapable, for they cannot as heretofore measure and sub-divide, and their pretty drawings of zig-zag mouldings and others of the like kind have resulted in slight practical benefit, and have rather led them into bondage, putting their higher faculties to sleep. The idea is prevalent that the teaching of industrial drawing in elementary form must be of great advantage to the artizan, but it has been repeatedly pointed out, especially by Mr. Ruskin (*"The Two Paths,"* p. 90), "that all the best decorative design which has hitherto existed has been that of men well trained in the highest forms of drawing, and skilled in delineating the human figure and animal forms of all kinds." He also shows the "utter impossibility of beautiful decorations by men unaccustomed to the sight of beauty, artistic or natural." Mr. Ruskin means that beauty, artistic or natural, must find a responsive echo in the mind to be seen at all, and the Art Education which does this is alone worthy of support, encouragement, or extension. With such a purpose in view, Art Education would look beyond the mere training of the young artisan in simple elementary industrial form and design—it would aim at a general advancement of the public taste by such a course of instruction as would have for its principle the dissemination of art knowledge as a formative power. The artificer in artistic embellishment has to depend on the public taste, and higher or purer taste cannot be secured if the public be too ignorant to appreciate, or be unable to decide on the true merits of the production.

The first step of advance in Art is accurate representation of form, a safe foundation for every kind of super-structure and which, once mastered, will never be lost. By setting a pupil to draw from nature or good models, he is withdrawn from mere lesson learning; and is enabled to find out something for himself, which is an important step in Art Education. It is to be hoped that making drawing a part of the education of the youth of this fair Ontario of ours will be in the direction of good outline drawing and representation of natural forms; the general intelligence must gain greatly from that close accuracy of eye which is the result of careful drawing from Nature. The artist workman would soon get beyond leaves, acorns and ferns, and put some thought into his work, expressing in form and colour the beauty he has seen.

COLERIDGE'S RELIGIOUS PHILOSOPHY.

IN our February number we had something to say of Coleridge's *Ancient Mariner*, and his theory of poetic style, based upon Mr. Traill's brief biography of the author in the "English Men of Letters" series. Since the issue of Mr. Traill's monograph, Principal Tulloch, of St. Andrew's, has published a paper in the *Fortnightly Review*, dealing with "Coleridge as a Spiritual Thinker." In it the Principal pays a high compliment to Mr. Traill as a literary critic, but deems it necessary to supplement his work with a brief article reviewing Coleridge's position and merits as a religious philosopher. "Mr. Traill cannot be said," remarks Principal Tulloch, "to have even attempted any estimate of Coleridge as a spiritual thinker. It may be questioned how far he has recognized that there is a spiritual side to all his thoughts, without which neither his

poetry nor his criticism can be fully understood, cleverly as they may be judged." Mr. Traill has in some measure anticipated the objection of Principal Tulloch, and has explained why he has not dwelt upon this characteristic of Coleridge, though he has not altogether ignored it. The explanation may not be satisfactory to the Reverend Principal, or to those who are more deeply versed than Mr. Traill acknowledges himself to be in metaphysics. Such as it is, it is only justice to Mr. Traill to state it. He admits that no account of Coleridge's life could be complete without some brief glance at the mystic's attempt to "lead the world to true religion by the road of transcendental philosophy." But he adds, that it is difficult for those who have been trained in a wholly different school of thought to do justice to processes of reasoning carried on in terms of the inconceivable; and still more difficult to be sure that you have done justice to it after all has been said! This, of course, is an admission that Mr. Traill feels himself, in the main, unequal to the task of grappling with Coleridge's religious system; but the admission can hardly be to his discredit, for to do the transcendental philosophy justice a writer must be either a disciple of Coleridge or, as Mr. Traill puts it, feign familiarity with the incomprehensible.

Let us look for a little, however, at what Principal Tulloch has to say of Coleridge "as a spiritual thinker." He speaks of him as having raised the mind of the time, and given it new and wide impulses. Ranking him in the category of high spiritual genius with Milton, Hooker, and Jeremy Taylor, he endows him with the possession of "the same elevation of feeling, the same profound grasp of moral and spiritual ideas, the same wide range of vision." He admits that it may seem absurd to speak

thus of Coleridge, as a great spiritual power, or as an eminently healthy writer in the higher regions of thought, in view of the moral failings of the man. But while he deplores the latter, he nevertheless recognizes the fact that Coleridge created a real epoch in Christian thought, and brought to it a new force of religious insight. In proof of this he cites his *Aids to Reflection*, which he affirms did much "to transform and renew the current ideas of his time about religion." This he did by vitalizing Christianity, so as to transform it from a mere creed, or collection of articles, into a living mode of thought, embracing all human activity. "Coleridge's most distinctive work," Principal Tulloch remarks, "was to restore the broken harmony between reason and religion, by enlarging the conception of both, but of the latter especially—by showing how man is essentially a religious being, having a definite spiritual constitution apart from which the very idea of religion becomes impossible."

This is the work which has been so ceaselessly carried on by Christian writers since Coleridge's day. The clamour during this period has ever been for proof, the evidence of Christianity that will satisfy reason and lead men back to God. Science has meantime come in, and by its methods, and often by its hard materialism, has made it difficult to see anything in or about us that reveals the Father, and will take no note of His work in the conscience, or heed His voice in the heart. Beliefs that are not grounded upon physical demonstration and mathematical proof, it will have none of; and the whole vision of faith is in danger of being destroyed or disastrously obscured. To satisfy the arrogant claims of reason in this matter of faith might well fill the earnest, confiding mind with a sense of fear and of failure. But incredulity

in these times is so hostile, and its attitude so little disposed to believe, that no evidence that faith rests upon is likely to make much impression on it, and scepticism for a time, we fear, must prevail. But faith, however it may be derided by the present thought of the age, is not despondent; still less is it disposed to abandon all that cheers and consoles it at the bidding of what may be but a transient wave of hardened disbelief and erring doubt.

Coleridge's philosophy, however mystic at times it is, recognizes as the essence of Christianity the spiritual nature of man, and a self-power, or will, at the root of all his being. "I assume," Coleridge says, "a something the proof of which no man can give to another, yet every man may find for himself." Hence his assumption that Christian philosophy, or theology, in the popular phrase, rests upon three ultimate facts, namely, "the reality of the law of conscience, the existence of a responsible will as the subject of that law, and lastly, the existence of God Himself." The first, he adds, "is a fact of consciousness; the second, a fact of reason necessarily concluded from the first; and the third, a fact of history interpreted by both." These, as Principal Tulloch states, were the radical data of the religious philosophy of Coleridge; and, as he properly points out, "they imply a general conception of religion which was revolutionary for his age." Though there is much in his philosophy of pure Platonism, there is not a little that is intellectually stimulating and spiritually edifying. Much of his thought was wholly speculative, but its speculative character was the living expression of the spiritual consciousness. Though his metaphysical habit obscures much of his thought, it will repay the modern scholar to find out what it really is.

TORONTO NORMAL SCHOOL.

TWO important changes have been made, in the staff of the Toronto Normal School. Dr. Davies, after many years' service, first as Assistant Master, and subsequently as Principal, has given way to Mr. Kirkland, the Science Master of the School; and Mr. Clare, the teacher of writing and book-keeping in the Normal and Model Schools for nearly twenty years, has been dismissed, to make way for a new man. The reasons must surely be weighty, to justify the summary dismissal of two public servants of such long standing as these two gentlemen. We have no desire to become the apologist of Dr. Davies, but the same reasons which justify his dismissal now, had equal cogency ten years ago, and since the Government retained him in its services so long, in spite of all the fault finding there has been, it would only be following well established precedents, to provide him with some position in which his services would still be of use to the country. If the Minister is at a loss for an example, we would remind him of the change that was made in the management of the Brantford Asylum, a few years ago.

Mr. Clare has hitherto been regarded as one of the most efficient and pains-taking teachers in the Normal and Model Schools. Indeed we know of no man who has done better work in the service of the Department, and performed his duty more conscientiously. Why then is he, a faithful and useful public servant, cast adrift without any adequate recognition of his past services? Perhaps, to use Voltaire's phrase, it is done to encourage the others. In no well ordered private establishment, would a man who had given the best years of his life to its service, be so ruthlessly dealt with.

The Minister has the evident desire, in administering the affairs of his de-

partment, to secure as much efficiency as is consistent with economy. We quite approve of this; but let him do it in a manner consistent with his position as the Minister of an important Province, and not as if he were the trustee of a school section.

WE are gratified to know that the result of the case Barrett vs. Telford, at the recent Assizes held in Walkerton, was in favour of the defendant, who is Head Master of the Model School in the town named.

A number of Mr. Telford's pupils engaged in a fight during the "noon spell," but outside of the school

premises. For this, they were punished corporally by the Head Master. Two of the belligerents thus chastised were sons of his honour Judge Barrett, who indignantly repudiated the legal right of Mr. Telford to inflict punishment under such circumstances. It was not claimed that the castigation was excessive, but simply that the fault having been committed outside of the school grounds, the teacher had no authority.

Judge Cameron, who tried the case, ruled otherwise, and it is well for the discipline of schools generally that Mr. Telford has been upheld. We heartily congratulate him upon the result.

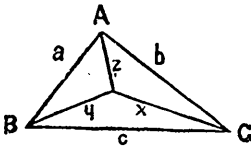
SCHOOL WORK.

MATHEMATICS.

ARCHIBALD MACMURCHY, M.A., TORONTO,
EDITOR.

NOTE ON SOLUTION.

By E. FRISBY, M.A., Prof. Mathematics,
U. S. N. Observatory, Washington.



If three lines are drawn from a point in a triangle making angles 120° with each other we obtain the

three given equations;
 also $(xy + yz + zx) \sin 120^\circ = 2 \Delta$,
 or $9(xy + yz + zx)^2$
 $= 48 \Delta^2 = r^2$, or $xy + yz + zx = \frac{r}{3}$;
 $b^2 + c^2 + a^2 = 2(x^2 + y^2 + z^2) + xy + yz + zx$;
 $\therefore x + y + z = \sqrt{\frac{b^2 + c^2 + a^2 + r}{2}}$;
 $b^2 + c^2 - a^2 = 2x^2 + xy + xz - yz$,
 $b^2 + c^2 - a^2 + \frac{r}{3} = 2x^2 + 2xy + 2xz$
 $= 2x(x + y + z)$;

$$\therefore x = \frac{3(b^2 + c^2 - a^2) + r}{3\sqrt{2(b^2 + c^2 + a^2 + r)}};$$

We might have dispensed with the geometrical figure by forming the equation

$$4a^2b^2 - (a^2 + b^2 - c^2)^2 = 16\Delta^2 = \frac{r^2}{3}$$

$= 3(xy + yz + zx)^2$, this would have been the value, but the solution would have been indirect.

Solution of No. 2 in March does not show that there are necessarily two, and only two solutions that can be done in this way.

$$\left. \begin{aligned} ax + by + c &= 0 \\ bx + cy + a &= 0 \\ cx + ay + b &= 0 \end{aligned} \right\} \text{Eliminate } x \ y \ z$$

$$\begin{aligned} a(bc - a^2) + b(ac - b^2) + c(ab - c^2) &= 0, \\ \text{or } a^3 + b^3 + c^3 - 3abc &= 0, \\ \text{or } (a + b + c)(a^2 + b^2 + c^2 - ab - ac - bc) &= 0, \end{aligned}$$

either of which factors are therefore $= 0$, and these two are the only solutions.

SOLUTIONS.

(See *January No.*)

3. If $p^2 + q^2 + r^2 = 6\{(s-p)(s-q) + (s-q)(s-r) + (s-r)(s-p)\}$
 and $2s = p + q + r$,

then $\sqrt{s-p} \pm \sqrt{s-q} \pm \sqrt{s-r} = 0$.

Put $\left. \begin{aligned} p &= l+m \\ q &= m+n \\ r &= n+l \\ \therefore s &= l+m+n \end{aligned} \right\}$

$\therefore (l+m)^2 + (m+n)^2 + (n+l)^2 = 6(lm+mn+nl)$,
 or $l^2 + m^2 + n^2 = 2(lm+mn+nl)$,
 $\therefore (l+m-n)^2 = 4lm$,
 $\therefore l+m-n = \pm 2\sqrt{lm}$ and $(\sqrt{l} \pm \sqrt{m})^2 = n$,
 $\therefore \sqrt{l} \pm \sqrt{m} \pm \sqrt{n} = 0$,
 and $l = s - q, m = s - r, n = s - p$.

QUESTIONS IN PHYSICS.

By W. J. LOUDON, B.A., Univ. Coll.

13. The letters *ABC* are written in ink on a sheet of paper and an impression is taken from the paper on a sheet of blotting-paper. If this blotting-paper be held before a plane mirror the original letters are seen in their proper order. Explain this fact.

14. Three points on a spherical mirror when joined by three straight lines form an equilateral plane triangle. If a side of this triangle be *A*, and the greatest perpendicular distance from the plane of the triangle to the surface be *B*, then the radius of the surface is $\frac{A^2}{6B} + \frac{B}{2}$.

15. Show that $1 + 2 \left(\frac{7}{24}\right) + \frac{2.5}{1.2} \left(\frac{7}{24}\right)^2 + \frac{2.5.8}{1.2.3} \left(\frac{7}{24}\right)^3 + \dots$ ad. inf. = 4.

16. If $\left. \begin{aligned} Al + Bm + Cn &= 0 \\ lx + my + nz &= 0 \\ Ax + By + Cz &= 0 \\ a^2 Ax + b^2 By + c^2 Cz &= 0 \\ A^2 + B^2 + C^2 &= 1 \\ a^2 A^2 + b^2 B^2 + c^2 C^2 &= R^2 \end{aligned} \right\}$
 then $\frac{l^2}{R^2 - a^2} + \frac{m^2}{R^2 - b^2} + \frac{n^2}{R^2 - c^2} = 0$.

By GEORGE ROSS, B.A., Math. Master, C. I., Galt.

17. *B* is the vertical angle and *C* the right angle of a right angled triangle *ABC*. Produce *AB* to *D*, making *AU* equal to *AC*, and draw *DF* at right angles to *AD*, to meet the bisector of the angle *BAC* in *F*. Then is *DF* equal to *BC*.

18. Assuming the centre of the circle prove (without use of Book III.) that the opposite angles of a quadrilateral inscribed in a circle are equal to two right angles, and hence prove that the angles in the same segment of a circle are equal.

19. Deduce the converse of the first part of 18.

20. If *A* and *B* are two fixed points on a fixed circle whose centre is *C*, and *QCR* any diameter, the circles described around *ACQ* and *BCR* will intersect on the circle which cuts the fixed circle at right angles at *A* and *B*.

21. If the sides *BC, CA, AB* of the triangle *ABC* be divided in *D, E, F*, so that the ratios *BD* to *DC, CE* to *EA*, and *AF* to *FB* are each equal to the ratio of two to one, the triangle formed by the intersections of *AD, BE, CF*, shall be one-seventh of the triangle *ABC*.

UNIVERSITY OF LONDON.

MATRICULATION EXAMINATION, Jan. 1885.

English Language.

Examiners—Henry Craik, Esq., M.A., LL.D., Prof. John W. Hales, M.A.

Not more than ten questions are to be attempted. They must include the exercise in Dictation, and the questions two and thirteen.

1. Write out and punctuate the passage read by the examiner.

2. Name the main sources which have contributed to form modern English, and state the period at which the influence of each has been chiefly felt.

3. In what directions, and through what channels has the Latin language left its impress on English?

4. Show what suffixes have been used to mark the plural in English, and how the number of those in ordinary use has been reduced.

5. Explain the origin of the suffixes in the following words:—*Shadow, hillock, holy, busy, farthing, darling, worship, favour, burgess, ceremony, enemy, homage, terrace.*

6. What is the etymology of the following

words:—*Under, over, every, eleven, twenty, least, near?*

7. Define a sentence, a phrase and a clause, and give instances of each.

8. What traces are there in English of a perfect formed by reduplication? Can you show by what process reduplication has disappeared?

9. What was the early use of the infinitive? When was it first distinguished by the prefix "to"?

10. Explain and parse the following phrases:—*Methinks; woe is me; I was anguished; I had as lief.*

11. Explain the formation of the following auxiliary verbs:—*Shall, must, durst, could, should, ought.*

12. What remains of case inflection are to be found in current English?

13. Give a few simple rules for grammatical analysis, and apply them to the following:—

"The world beheld, with astonishment, two Princes, whose rival pretensions had for so many years distracted Europe with divisions, and deluged it with blood, now suddenly bound together by the closest ties of alliance."

"It little profits that, an idle king,
By this still hearth, among these barren crags,
Matched with an aged wife, I mete and dole
Unequal laws unto a savage race,
That hoard, and sleep, and feed, and know not me."

14. Give the etymology of the following pronouns, and show how their use has varied:—*This, that, what, which, whose.*

15. How do you explain the formation of the suffixes which mark the tense in weak verbs?

English History and Modern Geography.

Not more than *ten* questions to be attempted, of which *two*, and not more than *two*, must be questions in Geography.

History.

1. Sketch the history of this island before its conquest by Low German tribes.
2. Give some account of the arrival and

settlement of the Saxons. How did the country come to be called England?

3. What do you know of Anglo-Saxon manners and customs, laws, institutions?

4. What were the more important results of the Danish invasions? How did they eventually help the national growth?

5. Tell the story of the Norman Conquest.

6. Describe the Feudal System. When did it break up, and why?

7. Write a short life of Sir Thomas More, with dates.

8. Enumerate the causes of the quarrel between England and Spain in the sixteenth century.

9. Give some idea of the social condition of Elizabethan England. What provision was made for the poor?

10. Who were the "Pilgrim Fathers"? Explain fully the terms Puritan, Nonconformist, Covenanter, Presbyterian, Independent.

11. State as exactly as you can the origin of the War between Charles I. and the Parliament.

Geography.

12. Make a map of France, inserting the chief rivers and the chief towns.

13. Where are Dunfermline, Kimbolton, Woodstock, Naseby, Drogheda, Runnymede, Donegal, Barmouth, Youghal, Haverford West?

14. Give as complete a list as you can of our foreign possessions.

15. Name the countries that compose South America.

Arithmetic and Algebra.

Examiners—Prof. A. G. Greenhill, M.A., Prof. Benjamin Williamson, M.A., F.R.S.

1. Express $\frac{3}{8} - \frac{1}{2} - \frac{2}{3}$ as a fractional part of $\frac{3}{8} + \frac{2}{3} - \frac{1}{2}$, and reduce '0'6' of a guinea to a decimal of a pound.

2. The circumference of the earth is 40,000,000 metres, the length of a metre being 39'37079 inches; calculate the diameter of the earth in miles, assuming the

ratio of the circumference of a circle to its diameter to be 355 : 113.

3. If $x = \frac{3'14159}{3600}$ find the value of x^2 and x^3 to six places of decimals.

4. Find the price of 659 bales of cotton, each weighing 1 cwt. 1 qr. 21 lbs., at £2 3s. 1½d. per cwt.

5. Find the square root of $34967\frac{2}{11}$ to four places of decimals.

6. Find the simplest form of the expression
$$\frac{(1-a^2)(1-b^2)(1-c^2) + (a-bc)(b-ac)(c-ab)}{1-abc}$$

7. A. and B. together can perform a piece of work in 24 hours, A. and C. in 30 hours, and B. and C. in 40 hours; in what time will each be able to perform it when working separately?

8. Solve the system of simultaneous equations—

$$2x + 4y + 3z = 0; \quad x - 2y - z = 20; \quad 3x + 2y - z = 32.$$

9. Divide the number 90 into 4 parts, such that if the first be increased by 2, the second diminished by 2, the third multiplied by 2, and the fourth divided by 2, the four qualities thus obtained shall be equal to each other

10. Find the sum of the series :—

- (1) $1 + 2x + 4x^2 + 8x^3 + \dots + 2^n x^n$;
 (2) $1 + 2x + 3x^2 + 4x^3 + \dots + nx^{n-1}$.

Latin Grammar and Composition.

Examiners—Leonard Schmitz, Esq., Ph.D., LL.D., F.R.S.E., Prof. A. S. Wilkins, LL.D., M.A.

1. Decline in both singular and plural *bos ingens, vir locuples, acrior conatus*; and in the singular only *unusquisque, utervis, iusurandum, caro bovina, and genus audax*.

2. Give the comparative and superlative of *locuples, sagax, humilis, iners, inferus, superus, benevolus*.

3. Parse 2nd give the first person of the indicative of *ortus, potiremur, nosti, nactus eris, condet, condat, obliviscerere, eundum*.

4. Write down the first person singular of the perfect active, the supine, and the pre-

sent infinitive of *aufero, decerno lego, frango, domo, audeo, vincio, cado, pingo, solgo*.

5. Mention the prepositions which govern the ablative, and those which govern both the ablative and accusative, and state when they take the one case, and when the other.

6. In what cases is the conjunction *si* followed by the verb in the indicative mood?

7. Give the adverbs of *magnus, continuus, improvisus, meritus, felix, comis*.

8. Mention some instances in which the locative case still exists in Latin.

9. What is understood by the term "ablative absolute"? and under what conditions can it be used?

10. Translate into Latin :—

(N.B.—Great importance is attached to the correct rendering of these sentences.)

(a) It is of great interest to your parents that you should be diligent.

(b) Cicero is said to have been the most eloquent of all Roman orators.

(c) Granting that the cause of the war had been a just one, still the general ought not to have acted as he did without the authority of the senate.

(d) I had hoped to see Pompey before he started from Rome.

(e) Even if I had known his design to murder his opponent, I could not have prevented him.

(f) Although Cæsar was ready to make many concessions, Pompey, trusting to the support of the nobility, refused to listen to any proposal of conciliation.

Greek.

I.

Homer : *Odyssey*, Book IX.

Translate into English: ll. 177-192; ll. 328-340; ll. 480-490.

II.

1. Parse *ᾠσε, ὀλοῖατο, ἐδμέναι, θείω, ἴτην, δέθεντο, ἦδη, ἔβελον*, adding the 1st pers. sing. of the principal tenses of each verb.

2. Distinguish *οἶων, οἶων, οἶων*: ὄρος, ὄρος, ὄρος: *ἀντή, αὐτή, ἀντή*.

3. Write out the declension of *ἦώς, νηῦς, τευ, ἄλσει, ναυτίων*, giving the Attic forms

where these differ from those in use in Homer.

4. Give the following forms:—

(a) 3 plu. 2 aor. ind. middle of τίθημι, and αἰσθάνομαι.

(β) 2 sing. 1 aor. ind. middle of κτάομαι and ἀμφιέννυμι.

(γ) 3 plur. pres. opt. act of τιμάω and ἴημι.

(δ) all infinitives from κτείνω.

5. Give the gen. sing. and dat. plur. of πόλις, γράψ, ὄνιξ, κέρας, κρείς, θρίξ; and the comparative and superlative of φίλος, ταχύς, καλῶς.

6. μετὰ τοῖσιν ἐλέγην. What would an Attic writer have said for this?

7. Show by examples how the force of ἀνά and κατά varies with the cases which follow them.

8. What evidence is there in this book as to the range of Homer's knowledge of geography?

MODERN LANGUAGES.

Editors: { H. I. STRANG, B.A., Goderich.
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EXERCISES ON ENGLISH COMPOSITION AND GRAMMAR.

1. Substitute for the italicized phrases others of different form but the same meaning:—

(a) He acted *like a tyrant*.

(b) I had no opportunity *to see the machine working*.

(c) That is the question *to be considered by us*.

(d) It will give him an excuse *for visiting us again*.

(e) He accepted it *without hesitating for a moment*.

(f) *Hoping to recover it* he ventured too far.

2. Expand the phrases in the following into clauses:—

(a) I have to wait for his return.

(b) The doctor has no hope of his recovery.

(c) He seemed sorry for having taken it.

(d) We have no confidence in his statements.

(e) I know it to be a fact.

(f) She pretended to be afraid.

(g) On my return I found him waiting.

(h) The prisoner denied having taken it.

(i) You cannot succeed without his help.

(j) Who is the man with the white hat?

3. Contract the following complete sentences to simple ones:—

(a) I was not aware that he was absent.

(b) I notified him that we intended to start.

(c) The pipes were more difficult than they usually are.

(d) He claims that he was the first to see it.

(e) He returned to the village in which he had been born.

(f) She sent word that I was to tell you about it.

(g) The nest was built in a spot which could not be reached.

(h) You will oblige me if you will accept it.

(i) They felt an anxiety which cannot be described.

(j) If you do that you will show that you are sincere.

4. Change the following compound sentences to complex ones:—

(a) You asked me a question and I have answered it.

(b) You must do it, or I shall have to punish you.

(c) He was present at the time, and therefore has no excuse.

(d) He would have gone, but the doctor would not let him.

(e) He took the watch and I can prove it.

(f) He was sorry to lose it, and I was equally sorry.

5. Combine the following groups into a simple, a compound and a complex sentence, respectively:—

(a) This little girl has written a letter. It is a long letter. It is to her uncle. He had sent her a present. It was a handsome present. It was for her birthday. She has thanked him for his kindness.

(b) He rose from his knees. He drew his sword. He displayed the royal standard.

He took possession of the island. He did this solemnly. He did it in the name of his sovereign. He gave the island a name. He called it San Salvador.

(c) Columbus had observed flocks of small birds. Those birds were flying towards the south-west. The Portuguese navigators had frequently followed the flight of birds. By so doing they had discovered islands. Columbus knew this fact. He determined to alter his course. He determined to follow that of the birds. This was on the 7th of October.

6. Express the following statements in as many ways as possible:—

- (a) Gold is heavier than iron.
- (b) To preach is easier than to practise.
- (c) Iron is the most useful of all the metals.
- (d) Riches do not always bring happiness.
- (e) Cruelty to animals is cowardly.

7. Supply the ellipses in each of the following:—

- (a) It is colder now than in the morning.
- (b) He looks older than when I saw him last.
- (c) I have more faith in prevention than in cure.
- (d) He looks as if he were going to faint.
- (e) It is not so deep as when we crossed it.

8. Re-write the following in prose, in your own words, as far as possible:—

A crow, who stole a piece of cheese,
 Got nicely perched among the trees,
 His stolen morsel to enjoy,
 Where nothing might his bliss destroy;
 When lo! a fox came prowling by,
 And, underneath the branches high,
 Sir Reynard eyed the crow so sooty,
 And praised him highly for his beauty.
 Quoth he, "I solemnly declare,
 Your form and feathers are so fair,
 Your shape so graceful, and your voice!
 I'm sure to hear it I'd rejoice;
 For if it equal your complexion,
 You must be absolute perfection!"
 The silly crow, so weak and vain,
 Believed the flatterer's artful strain,
 And then, to show his tuneful throat,
 Essayed to warble forth a note!
 But ere he proved his vocal skill,
 The precious cheese dropt from his bill--
 And Reynard got the thing he wanted,
 And showed, as off he laughing sped,
 How fools are flattered, knaves are fed.

9. Fill the blanks with the proper parts of
 (1) *lay* or *lie*; (2) *set* or *sit*.

- (1) (a) The boat was at the dock.
- (b) It looks as if it had there for some time.
- (c) It in a different direction.
- (d) He agreed to let it over till next meeting.
- (e) He in bed longer than usual.
- (2) (a) She was by the window.
- (b) I like to and watch them.
- (c) I do wish that you would still, boys,
- (d) The old hen was on the nest.
- (e) I told you not to it on the stove.

10. Write (a) the plural of *tomato*, *shelf*, *fisherman*, *German*, *painful*, *Mr.*, *chimney*, *brother-in-law*, *mouse-trap*, *oasis*, *patriarch*, *Q*.

(b) The possessive singular and plural of *wife*, *baby*, *mouse*, *negro*, *man-servant*, *Frenchman*, *German*.

(c) The superlative of *big*, *little*, *much*, *lazy*, *beautiful*.

(d) The present and the past participle of *die*, *dye*, *mistake*, *ride*, *deride*, *cut*.

11. Analyze and parse italicized words:—

(a) A French *merchant*, *having* some *money* *due* to him, *set out* *early* one day, *accompanied* by his faithful dog, *for* the purpose of *collecting* it.

(b) Give examples to show what different parts of speech *all*, *little*, *before*, *fast* and *but*, may be.

12. Criticize and correct the following:—

- (a) Where was you when he done it?
- (b) I seen your friend there, he of whom you were telling me yesterday.
- (c) I shall vote for whoever the convention may nominate.
- (d) Nothing but the address can be placed on this side.
- (e) I can show you the book where he got it.
- (f) He was illy equipped for such an undertaking.
- (g) I don't know as it was it was injured any by me using it.
- (h) Neither of them seem to have any intention of giving up their claim.
- (i) He gets a different answer than I do.

(j) I would not have thought it would take that long.

(k) Fitzjames wounded Roderick three times, who soon felt the loss of blood and began to shower blows fiercer than ever, but his rage was no match for the Saxon's skill, who soon forced Roderick's sword from him and brought him to his knees.

13. Punctuate and capitalize the following:—

(a) The president of the united states lives in the white house washington in the district of columbia.

(b) In 1755 lisbon the capital of portugal was visited by a most violent earthquake which destroyed a great part of the city and nearly 60000 of the inhabitants.

(c) The peninsula of nova scotia originally settled by the french and by them called acadia was ceded to great britain at the peace of utrecht 1713 the acadian peasants on the shores of the beautiful bay of fundy were a simple virtuous and prosperous community if wealth was rare among them poverty was unknown for a feeling of brotherhood anticipated the claims of want with remarkable industry they had reclaimed from the sea by dykes many thousands of fertile acres which produced abundant crops of grain and hay.

OUTLINE OF A FRENCH LESSON.

THE following sketch of a lesson on the gender inflections of French adjectives is intended to show that a little philology may be judiciously introduced into the study of French, even with pupils who have made only a beginning in Latin; also, that the best way to study this subject with classes is to refer directly to general principles, and to help the pupils, as far as the subject affords material for it, to go through the mental cycle of observation, analysis, induction and deduction, and thus by a correctly scientific method to strengthen and develop the mind, not to enfeeble it by meaningless rote-work. Studied in such a way French affords, as does any other language, much of the best sort of mental discipline.

Let the teacher write on the blackboard

say twelve adjectives in the feminine, e.g.: *prudente, neuve, heureuse, douce, bonne, complète, flatteuse, antérieure, blanche, turque, belle, jeune.*

Q. Is there any part of the ending in which all agree?

A. Evidently, they all end in *e mute*.

Q. Supposing French to be derived from Latin, name the Latin words apparently corresponding to the French *rose, règle, flamme*; give also the nominative of *bonus*.

A. Latin *rosa, regula, flamma; bonus, a, um.*

Q. Do you observe any change of letter common to all these?

A. Yes: *a* final changes to *e*.

Q. What conclusion may be drawn from these facts?

A. *a* was the sign of the feminine in many Latin adjectives, as we know from *bonus* and adjectives declined like it; the Latin *a* has become French *e* in *rose, règle, flamme*, and a host of other words, as well as in the French *bonne* from the Latin *bona*; hence we have strong grounds for supposing that French has inherited the Latin feminine *a* in the shape of *e*, and we lay down the rule, meantime, that: "Every adjective feminine in French must end in *e*."

Q. Will such adjectives as *jeune, facile*, etc., require to add the *e*?

A. No, the ending is there already, and we may enlarge our rule to: "Every adjective feminine in French must end in *e*: if not ending in *e* already, it must be added."

Let us now test the rule. Form the feminine of a dozen or so of adjectives thus, simply by the rule as learned so far: *heureux(e), neuf(e), doux(e), bon(e), flatteur(e)*, etc. etc. Do these agree entirely with the forms written out above, and which are the ones actually found in books? No, *i.e.*, the *e* is correct. What is then the difficulty? We find that *e* cannot be added simply to any and every adjective and that in adding the *e* to some words the last syllable or the last letter of the word changes.

A list of adjectives must now be drawn up, consisting of the examples from a grammar. Write them in double columns, mascu-

line and feminine. The pupils should be led to analyze the endings, and to find that although they all have the *e* in the feminine, yet the list can be divided into three parts, viz., (1) such as double the final consonant, e.g. *bon(n)(e)*; (2) such as change it, e.g., *heureu(s)(e)*, and (3) such as change the final syllable, e.g. *fi(èr)(e)*. This leads to three modifications of the rule laid down: 1. What consonants double? *s* by itself or *l, n, t*, preceded by *e, ei, o*. The teacher must show that this is an expedient of orthography to preserve the short sound of the vowels. Note: Be careful to write down here the forms *fil, jumel, nouvel, fol, mol, vieil*. The change of *l* to *u* the pupil knows already from *à le = au*. The six adjectives *complet* etc., must be learned as exceptions stating why. Examples: *bas, cruel, pareil, ancien, muet, sol*. 2. What consonants change? *c, q, f, x*. How? *c* to *ch* or *qu*; *g* to *gu*; *f* to *v*; *x* to an *s* sound (*s, ss, c*). Why? The principle involved can be made plain by writing up adjectives with the *e* added without making these changes and by showing that the pronunciation would be affected and the word spoiled, e.g. *public(e), ture(e)*, etc., and that *qu* for *c*; *v* for *f*; *gu* for *g* are orthographical expedients for a similar purpose. Show also *x = s = c*. In fact there is room here for much valuable teaching in phonetics. Examples to be used: *blanc, public, long, vif, heureux, roux, doux*, etc. 3. What adjectives change final syllable? Those in *eur, teur, er, gu*. How? *eur = ant* of present participle makes *euse* (L. *osa*) except the six or seven which have the older *esse* (L. *issa*, Eng. *ess*), e.g., *demandeur, demanderesse*; *teur* (L. *torem*), *trice*, compare Eng. *executrix*; *er* to *èr* caused by change of accent: *gu* to *guè* because if left without the diæresis the pronunciation would be destroyed. Examples: *menteur, accusateur, fier, ambigu*. The pupil will have difficulty in distinguishing the adjectives in *eur* making *eure*. A convenient test to apply is to say that adjectives in *eur* having equivalents in English or Latin in *or*, simply add *e*, e.g., *supérieure* (Eng., superior, etc.)

The above is a mere sketch of what may

be done in teaching French grammar. The method applies equally to the whole study of the grammar of a foreign tongue; to be useful, such study must be based on observation, and the pupil must learn to analyze and generalize. Otherwise grammar degenerates into mere memory-work, useless for mental discipline.

The teacher should consult Brachet's "Public School French Grammar," from which the facts of the above are mainly drawn; it is a book which should be in the hands of every teacher of French.

NATURAL SCIENCE.

H. B. SPOTTON, M.A., Barric, Editor.

THE extraordinary earthquakes which have lately devastated so large a district in Spain have awakened a lively interest in this class of phenomena, and led to the discussion of various theories to account for them. The most plausible appears to be one enunciated long ago: namely, that the cooling process, which geologists assume to be still going on in the interior of the earth, causes contractions, and consequently fissures and foldings, in the solid crust. It is almost impossible to account for the vast mountain ridges which intersect the earth's surface in all directions on any other hypothesis. As there is the clearest evidence of upheavals and convulsions in past ages which seem to be due to the contraction which results from cooling, it seems reasonable to suppose that the convulsions of our own time, similar in character, are due to the same cause. Another theory, however, is worthy of notice, and that is, that vast subterranean caverns are formed by the solvent action of water upon salt and other soluble substances beneath the surface, eventually causing a collapse of the crust.

The Department of Marine has issued a neat map showing the route of the *Neptune* in the Hudson's Bay Expedition of 1884. This expedition (in charge of Lieutenant Gordon, of the Meteorological Office, Toronto) was undertaken for the purpose of

establishing stations along Hudson's Strait, in order to collect trustworthy information in regard to the period of the year during which the Strait is navigable. Six stations were thus established, and the observers will probably remain there for two or three years. The *Neptune* made her first passage through the Strait in the latter part of August, and even then was delayed by the ice, four other vessels being observed in the same predicament. From observations made for many years at Fort Churchill, on the western shore of Hudson's Bay, navigation would seem to be possible only between the middle of June and the middle of November. The Bay itself never freezes so far out, but that clear water can be seen from the Fort. If this route should be found to be practicable it would form the most convenient outlet for the grain of the North-West, the distance to Liverpool being several hundred miles shorter than by way of Montreal

THE CLASS-ROOM.

DAVID BOVLER, Editor, Toronto.

ARITHMETICAL PROBLEMS.

BY LEO. B. DAVIDSON, Head Master,
Goodwood Public School.

1. A tobacconist buys a quantity of cigars @ 30 cents per doz. He marks them at an advance of $\frac{1}{3}$ of cost; but in selling them he throws one in free for every 5 cigars sold, thus clearing on his whole stock \$10. How many did he buy?

Ans. 100 doz.

2. Four boys, who go 2 ft., 2 ft. 8 in., 3 ft., and 2 ft. 6 in. respectively, at each step, begin walking together. Upon completing this journey they find that the first two have stepped together 308 times more than the other two. Find the length of the journey.

Ans. 1 mile.

3. A hotel-keeper buys wine @ \$4 per gal., and forms from it a mixture of wine and water in the ratio of 7 : 4. Upon being asked what his outlay was, he replies that if he were to add 15 gals. more of water he would obtain a mixture consisting of equal

quantities of water and wine. Find his outlay.

Ans. \$140.

4. The head of a fish is $1\frac{1}{2}$ inches long, the tail is as long as the head and half the body, and the body is as long as the head and tail together. Find the length of the fish.

Ans. 1 ft.

5. A father divides a certain amount of money among his 3 sons, giving the youngest as many twenty-five cent pieces as the second twenty-cent pieces, and the third, ten-cent pieces. After the division, the oldest has \$300 less than the youngest. How much has the oldest less than the second son?

Ans. \$200.

6. John owes James just $\frac{1}{2}$ as much as James owes Henry. They meet to settle their accounts, but James, being in a hurry, hands John a bank note of \$1 and requests him to square up the debts. In doing so John finds after he has paid James' debt to Henry he is out of pocket 4 cents. How much did John owe James?

Ans. \$5.20.

7. A railway company order that all trains in crossing bridges shall draw up to half their regular rate while the engine is on the bridge. On this company's line it takes a train 400 yards long, 45 seconds to cross a bridge 262 yards long. Find the regular rate of trains on this line.

Ans. 42 miles.

8. In the third hour of the afternoon a pupil asked his teacher what time it was. The teacher replied that 2 $\frac{1}{4}$ minutes ago the hands were at right angles to each other. What time was it?

Ans. 2.30 p.m.

9. A square cistern is full of water. A person observes that in draining off a ton of water, that in the cistern sinks 6 inches. Find the dimensions of the surface of the water, 1 cubic ft. water = 1,000 oz.

Ans. 8ft. x 8ft.

10. The height of a room is $10\frac{1}{2}$ ft., and the width is $\frac{2}{3}$ of the length. It costs \$25 20 to cover its walls with paper 22in. wide @ 20 cents per yard. Find the number of cubic yards of air the room contains.

Ans. 105 cubic yards.

(CONTRIBUTED.)

1. A cone, whose slant height is 18 inches, and the circumference of whose base is 30 inches, is divided into two equal parts by a plane parallel to the base; find the height of the frustum.

2. A farm is let for £98, and the value of a certain number of quarters of wheat. When wheat is 38 shillings a quarter, the whole rent is 15 per cent. lower than when it is 56 shillings a quarter. Find the number of quarters of wheat which are paid as part of the rent.

3. Two sides of a triangle are 8 and $12\frac{1}{2}$ respectively, and the line bisecting the angle they contain is 6. Find the third side.

4. A farmer borrows \$5,000 from a Loan Company at the nominal rate of 8 per cent. He repays the sum in 5 equal annual instalments of \$1,400 each. Given money to be worth 10 per cent., find the actual rate the company charges.

ENTRANCE TO HIGH SCHOOLS.

ENGLISH HISTORY.

1. Name, and describe, with dates, two great acts by which English liberty was secured.

2. Tell how England was ruled by the Saxons.

3. Mention the principal events of the reign of Queen Elizabeth.

4. Why did most of the American Colonies separate from Great Britain?

5. Write notes on the Abolition of Slavery, Ship-Money, Gunpowder Plot, the Reform Bill.

A TEACHER sends the following for correction:—

1. "The trade of Marseilles vastly increased since the French have had Algiers."

2. "Twas Love's mistake, who fancied what it feared."

3. "They were planned by a clever servant, who to say all that can be said in his praise. is, that he is worthy of such a master as he has."

4. "He always begins by drawing down his shaggy eyebrows, making a face extremely

like his uncle, wagging his head and saying," etc.

5. What is the difference in meaning between "He was the first that came," and "He was the first who came"?

CORRECTIONS.

1. "Increased" should be "has increased," to correspond in tense with "have had."

2. From the form of the expression it is evident that Love is personified and consequently "it" should be "he."

3. As the sentence stands "who" has no grammatical relation, and "is" has no subject. Change to "of whom all that can be said in praise is," or "in whose praise all that can be said is."

4. "Uncle" should be "uncle's" or "that of his uncle."

5. A good usage requires "that" instead of "who" or "which" after superlative forms (including first), the second expression can be justified only by putting a comma after "first" and making "who" refer to "he."

COUNTY OF VICTORIA PROMOTION EXAMINATIONS.

DECEMBER, 1884.

Third Class Intermediate.

GRAMMAR AND COMPOSITION.

1. Parse:—This one act made that young man's fortune.

2. Define superlative degree, relative pronoun, number, adjective.

3. Write in the possessive plural:—A woman's hat, a calf's head, a gentleman's cane, an ox's head.

4. Write the feminine of baron, marquis, negro, hero, count.

5. Divide into subject and predicate:—
(a) From the summit of Vesuvius there shot a pale light.

(b) No more shall he hear thy voice.

(c) So ended John's first day at school.

(d) My stockings there I often knit.

6. Correct—

(a) John had went when Tom got there.

(b) He don't know no better.

(c) Where does his parents live?

7. Write three sentences, each containing an adverb:—

- (a) Modifying a verb.
- (b) Modifying an adjective.
- (c) Modifying another adverb.

Fourth Class Junior.

GRAMMAR AND COMPOSITION.

1. Analyze:—"After a desperate combat with the Spaniards he took and plundered Panama, which then consisted of about seven thousand houses."

2. Parse:—"He proved an efficient officer, and gave no quarter to the buccancers."

3. Give an example of each class of pronoun.

4. Write the comparative and superlative forms of late, near, old, dry and gay.

5. Change to the active voice, "He was made deputy-governor of the island by Charles the Second, by whom he was also knighted."

6. Make three sentences containing the verb "to write," using (a) the progressive form, (b) the emphatic form, and (c) the interrogative form.

7. Write a letter to a friend, asking him to lend you a certain book.

Junior Third.

ARITHMETIC.

Time $1\frac{1}{2}$ hours. Value, 10 marks each.

1. Add the following: \$526.19; \$109.17; \$256.16; \$599.88; \$897.02; \$347.97.

2. The divisor is 13084; the quotient is 27089; and the remainder 897; find the dividend.

3. Multiply 97538642 by 96070.

4. What is the least number which must be added to 3643891 that the sum may exactly contain 187?

5. Reduce 21 tons, 14 cwt., 22 lbs., to oz.

6. Find the cost of

24 yds. of Cloth at \$1.13 per yd.

36 " " 96 "

65 " Flannel 45 "

Third Class Intermediate.

ARITHMETIC.

1. In 5 miles, 26 rods, 15 ft., how many inches?

2. Reduce 4729334 square feet to acres, rods, etc.

3. How many barrels of flour at \$5 a barrel can I receive for 42600 lbs. of wheat at 85 cents a bus., and 5100 lbs. of beef at 9 cents a pound?

4. The quotient is 17, the divisor 524, and the remainder 373. Find the dividend.

5. Find the total cost of 312 lbs. of Butter at 19 cents per lb.; 12 gals., 3 qts. Vinegar at 7 cents per pint; 1026 Eggs at 14 cents per doz.; 13 bus. Apples at 19 cents per peck.

6. A bought peaches at 3 cents each; B bought the same number at $5\frac{1}{2}$ cents each, paying \$2.40 more than A. How many peaches did each buy?

CONTEMPORARY LITERATURE.

D. Appleton & Co., New York.
AN HISTORICAL READER. By Henry E. Shepherd, M.A., LL.D.

OUR readers will perhaps recollect a review in these pages of the "Standard Author English History," which, as we remarked at the time, was a practical protest against the dry and uninteresting method of teaching history by abridgments and compendiums. The present volume is a still more emphatic

protest against the same thing, from our American neighbours. Selections are given from such authors as Macaulay, Froude, Irving, Guizot, Carlyle, Prescott, Gibbon, Grote, Burnet, Hume, Robertson, and Green. It is unnecessary to add that the book contains much valuable reading. We hope it will be largely used in the schools of the United States and aid in cultivating that taste for good reading, which is one of the

most precious possessions of an educated man or woman. The editor, Mr. Shepherd, is President of Charleston College, South Carolina, and was formerly Superintendent of Public Education in Baltimore.

A GEOGRAPHICAL READER. By James Johnnot.

INTENDED as a Supplementary Reader in the upper classes of the Public Schools, this book ought to make Geography a still more interesting study to those children who are fortunate enough to possess it. It is divided into twenty parts, bearing such titles as "Natural Curiosities," "Winds and Storms," "Islands," "Remarkable Ancient Works," "Remarkable Modern Works," "National Characteristics," etc. The material is drawn from the works of Bayard Taylor, Mrs. Brassey, Professor Tyndall, Oliver Goldsmith, David Livingstone, and many others, and in not a few cases from the pages of the *North British Review*, *The Atlantic Monthly*, and *Harper's Monthly*. We think that teachers would find it useful as a book of reference.

A NATURAL HISTORY READER. By James Johnnot.

LIKE the Readers above mentioned, this volume is attractive and complete in every respect. In common with the Geographical Reader, it contains illustrations which are always appropriate and often beautiful. Not many children are altogether without a fondness for birds and animals, and this fact alone is a kind of *raison d'être* for a Natural History Reader. Some of the articles and stories have been written by distinguished naturalists or well-known travellers, while many of them are taken from such magazines as the *Popular Science Monthly*, *Chambers's Journal*, and the *Atlantic*. Few story books can vie in real, healthy interest with the stories in these Readers, and their very appearance is a cheering sign, because it means that among the children of the present generation, of whose conceit, forwardness and folly one hears so much, there must be some, at least, for whom such books as these are written and who will appreciate them.

If space allowed we should like to have quoted one or two anecdotes from Part VIII., "Our Forest Choristers," or from Part XI., "Our Fourfooted Companions."

ENGLISH HISTORY IN RHYME. By Mary Russell Gardner, Principal of School for Young Ladies, Fifth Avenue, New York. New Haven: The Stafford Printing Co.

IN some 450 lines of rhyming verse, many of the principal events of English History are mentioned, often with their dates. It is stated in the author's preface that the book has been found a success in the class-room. Genealogical tables of the different royal houses, remarkably well arranged, are appended; also a separate list of the children of each sovereign, down to Her Majesty Queen Victoria—even to the half-dozen names of the Prince of Wales and all the members of the Royal family. We do not remember seeing this detailed information in such a convenient form, in any School History published in England. Only one inaccuracy occurs, as far as we have noticed (leaving out of sight two or three unimportant typographical errors), viz., the statement that the Mutiny of the Sepoys broke out in 1859. The first outbreak, as our readers will remember, was at Meerut, in May, 1857. We quote the concluding couplet as a fair specimen:—

"In sixty-one Prince Albert died, but still
Victoria reigns,
And holds a wise, impartial sway, o'er all
her wide domains."

MEMOIRS OF THE REV. DAVID BRAINERD.
Edited by J. M. Sherwood. Funk & Wagnalls, New York and London, 1885;
Toronto: William Briggs.

THE Life of the great missionary to the Indians is interesting from a historical point of view, even as the story of one of the pioneers of Western Civilization; but more so as that of a leader in the missionary march of the nineteenth century. The present volume is based on the Life of Brainerd (prepared by Jonathan Edwards, and afterwards revised and enlarged by his great-grandson, Sereno E. Dwight, D.D.), the materials for

which were drawn from his own diary, written in the wild solitudes where he laboured among the red-men. This biography has always been a favourite, and probably has had a widespread influence for good; it is said that Henry Martyn, on reading it, decided to become a missionary. The volume

is appropriately prefaced by an essay on "God's Hand in Missions," by Dr. Arthur T. Peirson, and the closing pages contain the funeral sermon, preached by Jonathan Edwards on the death of this faithful missionary to the Indians, who could say in life's closing hours, "My work is done."

NOTES.

MEDALS are this year offered by the Education Department of Ontario for competition among the students of Art Schools and Mechanics' Institutes.

AN astronomical chart, "The Stars and Constellations," intended for use in schools, academies and colleges, is shortly to be issued by Messrs. Funk and Wagnalls, of New York.

TEACHERS and others engaged in literary work know well the value of a good Cyclopædia, such as that lately published by A. J. Johnson & Co., of New York. Testimonials from the highest authorities are a guarantee for its excellence.

EDINBURGH students from this side of the "sea," have formed a club to be known as the trans-Atlantic club. At their rooms, 37 Chambers Street, Edinburgh, they offer lonely student lads an opportunity to read home papers and journals and enjoy the society of fellow-exiles.

THE *Pennsylvania Teacher*, now in its tenth volume, has lately appeared in an improved form. The contents are varied—original articles of a high order (e.g., "Poverty of Ideas among the Older Scholars" in the February number), selected articles and short poems. We wish the *Teacher* good speed.

THE *Canadian Science Monthly*, of Wolfville, Nova Scotia, is issued in connection with the Canadian Postal College of the Natural Sciences and for the purpose of carrying out the course of study prescribed

by that college. It contains a good deal of scientific information in a concise and modest form.

ANOTHER volume of the Teachers' Handy Library has just been issued by The New England Publishing Company of Boston. "School Keeping, How to Do It," by Dr. Frank Orcutt, author of "Gleanings: from School Life Experience." It is dedicated to the teachers of New England, and bids fair to add to the reputation of its author.

A DICTIONARY of national biography in fifty volumes is to be brought out in London by Smith, Elder & Co., and in New York by Macraillan & Co. The *British Quarterly Review*, in a recent number, speaks of it as a great national enterprise, and mentions Bishop Abbott, Queen Anne and Prince Albert as among the biographical subjects in Vol. I. which has just been issued. Mr. Leslie Stephen is the editor.

THE fiction of the March *Lippincott* is above the average, the chief attraction being Mr. Baylor's "On This Side." The short stories are good, and the paper on Mexico, by John Heard, Jr., is instructive. Among the solid articles is one on the New Orleans Exposition. The author seems to join in the impression that the scheme is unwieldy and unpromising. *Lippincott* holds its own well among the first magazines.

THE high reputation of *Littell's Living Age* is not likely to depart from it, even in the midst of the keen competition in its own province. In the number for the week end-

ing on the 28th ultimo, instalments are given of two stories, from *Good Words* and *Chambers's Journal* respectively. The *Fortnightly*, *Blackwood's*, and the *Edinburgh* are also laid under contribution, while "Lines on an Old Song" from *Macmillan's*, and a shorter poem from the *Spectator* help to make up a valuable number.

It is no inconsiderable evidence of the immortality of Shakespeare's writings, that in the year 1883, *Shakesperiana* should have been inaugurated. It is a bi-monthly, published in London by Trübner & Co., and in Philadelphia by the Leonard Scott Publishing Co. Articles on "Shakespearian Criticism on the Continent," "Shakespeare's and Greek Tragedy," "The Bible and the Elizabethan Poets," are features of the February number, while a "Contributors' Table," "Notes and Queries," "The Drama," and "Shakespearian Societies," are a pleasant contrast to these.

THE attention of our readers is directed to the letter which appears in the March number of the Magazine, from "Head Master, Ontario." What is therein so briefly described has been carried out by him in the school room for years without a note of disapproval, and surely to the highest gain of the scholars. The recital of his work and success gave us pleasure last summer, and now, at our request, he has written a brief and plain narrative of his mode of work in this part of school duty for the encouragement and imitation of fellow-workers.

AMONG our professional contemporaries none holds a higher place than the *Educational Times* and the *Schoolmaster* (London, England). The Mathematical Department of the former is an important one, but not more so than the Reports of the Lectures, Essays and Discussions of the College of Preceptors, which are of the greatest value, and from which our readers will remember seeing selections in these pages. Independent, outspoken and practical, the latter, being the organ of the National Union of Ele-

mentary Teachers, is in the very front rank of educational publications of its class.

THE *Current* of March 7 is an excellent issue, containing contributions to suit any taste. This weekly is conducted with great energy and is always readable. In the present issue is a pathetic Scotch story entitled "The Two Sisters." It tells of two old Scotch women, who, though occupying to the end the same room, for twenty years never spoke to one another, having disagreed on a theological question growing out of so trivial matter as the kicking of a cat. Their ultimate reconciliation is brought about at last under circumstances of a most tragic nature. The picture drawn by the writer is remarkably perfect as a delineation of character.

HIGHER EDUCATION FOR WOMEN.—The Corporation of McGill University has received a further benefaction from the Hon. D. A. Smith, for the purpose of providing for separate classes for women, in the special course in the Faculty of Arts, up to the final examinations. The effect of this additional donation will be to raise the entire endowment to \$120,000, which will bear the name of the "Donald Smith" endowment. It was decided to make known the general nature of the arrangements proposed in the forthcoming calendar, for the information of intending student. The British Association gold Medal will be offered for competition in the graduating class in mining engineering for the present session.

AFROPOS of the enquiries by a Hamilton correspondent, referred to elsewhere, we take the opportunity of announcing that it is the intention of the Management to insert sketches from time to time of those authors whose works are specially prescribed for study in connection with the subject of English literature, by the Education Department or the Senate of the University of Toronto. One of these papers is already in the hands of our readers, and one on "Macaulay," by an eminent Canadian literary man, will shortly appear.

A CORRESPONDENT who is in one of our High Schools criticizes the High School Bill. We again express the hope that the Minister will allow the Schools Bills, especially the High School Bill, to remain till next session of the Legislature in order that educationists may give the country the benefit of their experience and views. The Rev. Septimus Jones states a truth very often lost sight of when he says:—"Almost any system of tolerable merit, steadily adhered to, is incomparably better than a quick succession of changes which, however excellent in themselves, are costly and perplexing to the public and distracting to the teacher."

Thus we wrote last month in the expectation that the Government, having obtained all the information which the members of the Legislature could give, would delay the final reading of the School Bills until next session, thereby giving an opportunity to those practically acquainted with school affairs to consider the proposed changes and advise accordingly the Minister of Education. That the Government has so acted towards the teachers of the country disappoints us much, nor can we assign any adequate reason for such treatment of the educators of Ontario.

THE Public and High School Bills, as finally passed, contain several provisions of interest to our readers. The Superannuation Fund is now limited to those who are at present contributors to it. Contributions are to be at the same rate, four dollars per annum. All arrears must be paid in by those who wish to reap the full benefit from the Fund before July, 1886. Teachers holding First Class County Board Certificates are put on the same footing as those holding Provincial Certificates in being allowed seven dollars per annum instead of six for the time they have held such certificates, when they are superannuated. Any teacher who wishes to withdraw from contributing to the Fund will receive back one-half of what he has paid in, or he may let it remain and reap the benefit from it in proportionate allowance upon the usual conditions when he is superannuated. City, town, incorporated village and town-

ship Boards, are given the option of having the election of School Trustees by ballot, provided they have it at the same time and place as the municipal election. The school age is fixed definitely at five to twenty-one years. It is made compulsory on County Councils to establish at least one Model School in each county, and to contribute for its support one hundred and fifty dollars per year. The Government will in future allow only twenty-five dollars instead of fifty per year to Teachers' Institutes; but the President of each Institute is empowered to draw upon the County or City Council for the other twenty-five. In rural sections the summer holidays are to extend from the first Friday in July till the third Monday in August; the Christmas holidays from the twenty-third of December till the third of January, and the Easter holidays will be only Good Friday and Easter Monday. The power which trustees have had to curtail the summer holidays is withdrawn. In cities, towns and villages the holidays are to be the same as those for the High Schools. Third Class Certificates are not limited to counties as was at first proposed, but are made Provincial. Any teacher employed for not less than three months shall be entitled to be paid his salary according to the ratio which the number of days he has taught bears to the whole number of teaching days in the year. High School Boards, in places where there are Separate Schools, must have one trustee, who shall be elected by the Board of such Separate School. High School Boards are empowered to expel any pupil on the report of the Head Master. The remuneration to examiners at the Entrance Examinations is fixed at four dollars a day, and in addition not less than seventy-five cents for every pupil presenting himself for examination. The summer holidays are to begin on the first Friday of July and end on the last Monday in August; the Christmas holidays are to extend from the twenty-second of December to the seventh of January, and the Easter holidays are to be only Good Friday and Easter Monday. Provision is made for the teaching of preparatory classes, but they are not to participate in the Legislative Grant, nor are they to be taught by any member of the regular staff. Payment of results receives its quietus, as the Legislative Grant is now to be apportioned on the basis of the salaries paid, the character of the school buildings, etc., and on the average attendance.