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# THE QUARTERLY ;

A Periodical in connection with the Collegiate Institute  
Literary Society.

*Nous travaillerons dans l'espérance.*

VOL. V.]

HAMILTON, APRIL, 1879.

[No. I.

A STUDY OF DICKENS. *By A*

THE present is an age of diffusion of knowledge, of busy enquiry, of sharp and destructive criticism, of enlargement of thought; consequently the two departments of literature of widest influence and most characteristic of the age are the novel and the periodical. Of the latter, the Quarterlies and the Dailies stand at the extreme as regards time and matter, while perhaps the Monthlies have the greatest influence, being equally renowned from the ponderous thought of the Quarterlies and the rapid execution of the Dailies.

A literary or æsthetic production consists of two parts: substance and form, these mutually depend on each other; but the mind in its creative act can bend its attention to the spiritual substance, *i. e.* the thought and feeling; or to the form the product is to assume. Hence there are two kinds of writers noticed in literature: the first thoroughly creative, the second carefully critical. In the first the impulse is from within, and the idea modifies the form; in the second the impulse is from without, and the form of the expression modifies the idea. The one has substantial merit; the other artistic merit. The former is great in every sense; the latter has only cold security, a monotonous neatness of movement. The first includes Shakspere, Spenser, Milton, Addison, Rich-

ardson and Irving; the second such as Pope, Dryden, Fielding, Waller and Denham. Dickens resembles and belongs to the first, Thackeray imitates the second.

Thus we see in a comparison between Dickens and his great rival, Thackeray, that the latter belongs to the critical class, a class that, unable to rival greater writers, either imitate or become pupils and enquire into methods, investigate rules, criticize, and if actuated by dislike, satirize; if by like, wildly panegyricize; if possessing culture and acquainted with the gaiety of polite society, they may show considerable brilliancy and wit; but they will not produce anything that will be handed down to posterity. A writer is often judged by the model he sets before himself and we may form an idea of Thackeray's ideal by the estimation he formed of Pope, in whom the critical function was uppermost, correctness the test of superiority. Thackeray attracted by artificial neatness, was apt to be led to overlook the genuine spirit. He says of Pope, "He is the greatest artist England ever saw," and again about a passage in the Dunciad, "In these astonishing lines, Pope has reached the very greatest height which his sublime art has attained." The passage does not support this criticism which places him above Milton

*Regulation*

and Shakspeare. This criticism by Thackeray would show that he is apt to place too much stress on mere outward form of expression, in other words that his literary tastes and tendencies are of the inferior critical class. The peculiarities of their respective types, show themselves in the two men, as satirists. Thackeray pleases only a cynical class who look with contempt on those aping the manners of those above them. He satirizes the humbug and hypocrisy of London Clubs and drawing rooms, the shabby genteel, the vulgar rich, people whose characteristics are produced by the peculiar circumstances under which they live, but are not of a general nature. Dickens, larger in sympathy, more genial in disposition, and more observant of human nature, laid hold on those broad deep principles that are everywhere present; he does not satirize human life to degrade it; he does not attempt to pull down what is high; he satirizes only the selfish, the hard-hearted and the cruel.

Thackeray makes us laugh at the absurdities of those striving to get higher without merit. Dickens makes us sympathize with the oddities and virtues of the unfortunate. Thackeray is more scholarly, and more dramatic and terse in style. Dickens is more diffuse, more luxuriant and passionate; has a higher flight and a wilder song. The first is more penetrating and reflective, the second is more excursive and intuitive. The first exhibits biting satire and scathing irony, the second genial humor, touching pathos and ready wit. The one laughs contemptuously with a cold heartless sneer at his victims, the other has a genial, hearty laugh with his fellow beings whom he intends to aid. Thackeray was read and applauded by a select few, but he never touched the hearts of the people. His novels being mere social satires, will sink into oblivion as the conditions of society change. Dickens' works have become household words; like those of Shakspeare, they are mingled with the proverbs of the people. Thackeray is a subjective

writer, and shows himself in every line of his work. Dickens is as objective as Shakspeare. In Thackeray we admire the artist, in Dickens we forget the artist in our pity for the poor or our hatred for the oppressor. Thackeray uniformly shows himself to be great intellectually. Everywhere we see sound legitimate art. His pathos is exquisite, but not so deep or natural as that of Dickens. Writing for polite society, he is ashamed to be caught exhibiting any emotion. His men are often stereotyped second editions of himself with grotesque peculiarities tacked on. His women, when good, have virtue without intellect; their only faculty is the faculty of tears; when bad, they have intellect instead of virtue.

These two writers give us a two-fold picture of the evils of an artificial society on human life. The one turns his caustic satire and ironical laughter on those who bring trouble, disgrace and misery on themselves by too great eagerness for the appearance of respectability, the other makes our heart bleed for the genuine griefs of those whose only respectability is that of heart and mind.

These qualities are gathered chiefly from their novels; for it is on their merits as novelists that the relative positions of these writers will be assigned to them. The novel is the most powerful literary agent at work at present. It is also the most artistic prose production and requires a keen criticism, an enquiring eye and a sound judgment. In the creative faculties are uppermost. Primarily and immediately the novel deals with the emotions. No species of composition can search the human heart more deeply or analyze more fully its passions and impulses, or trace more fully its types of character. Criticism, theory and observation of every sort can be woven into the narrative, making its progress instructive and brilliant. The author, besides talking through his characters, is also present himself and chats familiarly with his reader; he may utter the thought that is uppermost at any moment. This personality

every line of the author is one of the charms of a hakespeare novel. He is a link of sympathy between the reader and characters. in our pity All works of fiction are not novels of l for the character; some lack the element of mly shows truthfulness and depend on the incidents ellectually for the interest. These are romances, timate art and are often vicious, as in the sensa- ot so deep tional novel where we have fictitious

Writing sentiment, excessive coloring, unnatural med to be obstacles overcome by equally unnatural ion. His power or prowess, unreality, giddy show, d second easy victory—all enervating to the mor- sque pecu- al nature. There is a worse variety nen, when still, of which the dime novel may be lect; their a type, of these the prevailing qualities ars: when have been characterized as follows:— l of virtue (1) physical strength either in English a two-fold brutalists of fist and club or the Ameri- artificial can of knife and revolver; (2) money one turn taken from parsimonious fathers by the l laughter son; (3) home-life stupid and dull, and , disgrac the boy joins the vagabond and swell too great mob; (4) transgression of law a manly of respect and noble deed, the hero always escapes eart bleed by some sharp lawyer.

Novels proper are not open to any of of hear these objections. The very essence of works like those of Dickens is the ed chiefly truthful and careful fidelity to nature ; on their and morality.

utive pos- : Novels are of two kinds, pictorial and : assigne- ethical.

st power- I. Pictorial are

1. Historical,
2. Descriptive,
3. Social,
4. Professional.

II. Ethical are either reformatory or he now creative. A novel may possess more species than one characteristic but they are nan hear classified by predominant features, for : fully it most works of fiction are constructed with nore full some aim in view, and that will decide n, theory the tendency.

t can be The ethical is the highest type of king its novel. It aims at giving more than nt. The historical truth or real life; it philoso- ough high- izes on facts to solve problems of life itself and theories or ideals of society. If der; his is done for some definite phase of s upper progress, it is the reformatory novel, of rsonality his nature are many of Dickens' novels.

The creative novel of character is the highest of all. It is a study of human life not for any one reform but profoundly in view of its many issues. It must have a decidedly moral flavor. Character in all its varieties is the test of a novelist's power, and this power we see in all Dickens' works. In fact he combines and alternates every sort of interest in his novels.

Let us now take a rapid glance at some of Dickens' novels. His earliest productions of any note were the celebrated sketches by Boz, which at once gave him a stand among the best writers of the day. Their wonderful humour and truthfulness attracted universal attention. Their striking characteristics were those that are seen in his novels, overflowing fun and humor, unequalled sensibility to peculiarities of character, of speech, of manners and of appearance, ease of personification, astonishing quantity of grotesque names. Every one wondered who the author could be. In reference to this the following epigram was current:

"Who the dickens Boz could be,  
Puzzled many a learned elf;  
But time unveiled the mystery,  
And Boz appeared as Dickens' self."

His next attempt was the famous Pickwick Papers, beginning as a series of sketches, but afterwards assuming the form and pretensions of a novel of character. Its success was immense. He was at once recognized as a genius of the first rank. At the conclusion of the series he received \$17,000 as his share of the profits, while the publishers cleared over \$100,000. This remarkable success was achieved in the face of the keenest competition from such novelists as Ainsworth, Bulwer, Disraeli, Hood, Lover, Miss Mitford, Mrs. Trollope and Thackeray; the latter then writing for mere bread in Fraser's Magazine.

One of the remarkable features of his writings was the field he had chosen to display his power of delineating character. Guided by his genial and sociable instincts, he chose to devote his literary labours to the welfare of the

ignorant and despised classes of society, and the elevation of the masses. Such characters are not interesting in a novel, and it is one of Dickens' greatest achievements, that in the laudable endeavor to touch our hearts with compassion for the lowly, he has succeeded in making them so interesting that we share their sorrows. Yet their introduction brought on him a host of detractors, among priggish journalists and magazines. Written for the more enlightened few, many of these periodicals treated him to contemptuous and disparaging criticism, and bespoke an ephemeral popularity; but that popularity has already outlived even the names of his detractors. Dickens next undertook the editorship of "Bentley's Miscellany," in which appeared his second great novel, "Oliver Twist, or the Parish Boy's Progress." This story is the very opposite of Pickwick. Critics had admitted that he was a master of humor, but this story was a second revelation of unexpected power—that of pathos—two qualities not usually associated together yet possessed by Dickens in the highest degree. Pickwick, in spite of the carping of critics, set all the world laughing, while Oliver Twist melted them to tears. Dickens, in these stories, shows himself a complete master of three of the strongest elements of humanity—humor, sympathy and horror. All his characters are drawn with a master's hand and are strikingly contrasted, while many of his scenes are depicted with a frightful reality; such are the death of the pauper mother, the sufferings of poor Oliver, the infamies of London criminals, the brutality of Bumble, Sikes and Fang. After this story many of his critics took a more favorable view of the young author.

His next story, *Nicholas Nickleby*, was equally great and popular, and had likewise a benevolent motive. Pickwick exposed the gross absurdity and injustice of the criminal law and courts, Oliver Twist made the world shudder at the horrors of the workhouse system,

and Nicholas Nickleby raised such a storm against the vicious cheap private schools of Yorkshire that they soon became a thing of the past. Here we have another batch of wonderful characters. Nicholas the tutor, and his uncle the miserly Ralph, Squeers the one-eyed pedagogue, poor Smike, the benevolent Cheeryble brothers, Newman Noggs, the eccentric law clerk, and honest John Browdie. He next started a series of tales called *Master Humphrey's Clock*, but after one or two sketches he extended one to the dimensions of a novel called the *Old Curiosity Shop*, a story remarkable for its pathos. The characters are not so varied, but little Nell is the sweetest and most loving little child ever painted. Her childish innocence, her loving heart, her fidelity, self-sacrifice and sufferings have caused many a tear to flow, for they are true to life. It is the most affecting piece of pathos in all the range of literature; and yet there is no attempt at harrowing the feelings by unnecessary exclamations, but it is a simple tale told in simple language, for that is the true language of feeling. How many mothers have wept over the simple tale of Little Nell and have cherished their own darlings more fervently? How many sterner fathers have felt their eyes suffused with tears at the recital of her sufferings? and who can read the story and not feel his heart throb with sympathy and benevolence for the lowly?

*Barnaby Rudge* was his next—in an entirely new field, that of the historical novel—written against religious bigotry. It represents the horrors of the no-popery riots, and shows the folly of attempting a moral reform by bigotry and intolerance; for those who most readily take up a religious cry are most devoid of true religion. Excessive capital punishment was also portrayed in all its horror. This was his most studied and carefully wrought novel.

*Martin Chuzzlewit* very appropriately dedicated to Miss Burdett Coutts the pattern of unselfish benevolence, exposes various phases of selfishness. The

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characters here are powerfully drawn. Chuzzlewit, naturally excessively selfish, but striving to restrain this weakness. Mark Tapley, his moral contrast, has a moral nature, and is a lesson of christian resignation and fortitude. Pecksniff, an immoral nature which he does not restrain, and yet hypocritically lays claim to moral sanctity, and is the very incarnation of falsity, conceit and selfishness. Jonas Chuzzlewit has no morality and wants none; he is the chief villain whose character and life are unsurpassed in fiction; the sayings and doings of Sairey Gamp and Betsy Prig, are known to everybody.

*Dombey & Son*, a character novel of high life, was his next novel. It is finished, and natural, and shows a wonderful delineation of character; every one of which has a separate individuality; the characters and story are made to teach a definite moral lesson. Dombey is the impersonation of stern and cruel pride. We feel the poetic justice of his misery. On the other hand we have the self-forgetful love of Florence, of Captain Cuttle, and of Mr. Toots; while the terrible Mrs. Macstinger and Susan Nipper, keep up the humor. Paul is equalled only by Little Nell, in appealing to our compassion, and yet there is a wonderful difference between the two children.

*David Copperfield* came next, and is one of his best. It is noted for its wonderful descriptive passages, and as being partly autobiographical. The chief character, Wilkins Micawber, always waiting for something to turn up, is quoted everywhere, and "Barkis is willing" is now a proverb.

But we need go no farther. The character of these novels is sufficient to justify the great popularity of Dickens as a novelist.

Dickens has been blamed for taking his characters from low life; but he believed in the true greatness of those he painted. He could say with Whittier,

"They are noble, they who labor,  
Whether with the hand or pen,  
If their hearts beat true and kindly  
For their suffering fellow-men."

But apart from the motive he had for taking such characters, this field gave him greater variety of character. Emotion and not intellect is the province of a novel, and away from the trammels of society, which tend to make all alike, each individual follows the bent of his own inclination. Hence the immense variety of his characters, equalled only by those of Shakespeare, and like Shakespeare's they are drawn so close to nature that they are constantly referred to as types of a class. A person listlessly waiting for something to turn up, will always be a Micawber. A hateful, selfish, tyrannical and ignorant pedagogue is a Squeers. A cunning, treacherous lawyer is a Meek. A sanctimonious, starched hypocrite is a Pecksniff. A "Pickwickian sense" is as well known as a Parliamentary sense. All this is owing to the fact that they are true to nature, and vividly described, or rather exhibited, for we would actually recognize them on the street. They are all outlined with a few bold strokes, and united to our sympathies by the abounding humor of the author. Thackeray's characters are more carefully delineated, but less familiar and less liked.

Let us now take a summary of the results so far.

Thackeray is more scholarly, neat and terse; Dickens, more dialectic, and has an easier flowing style; the style of the first is a sparkling brook, sweetly gurgling over rocks, ever assuming new forms and beauty; the style of Dickens is a meandering stream, winding through meadows and flowers, which it nourishes and beautifies. Thackeray as a satirist is a cold sneering cynic, who had eyes only for the vanities and defects of human nature; Dickens was the genial friend who pointed out the faults only to correct them. Thackeray, a critic of formal art, we admire as an artist; Dickens, a writer of creative invention, we wonder at as a genius. Thackeray's characters are more minutely delineated and his story more carefully constructed; Dickens' characters are of greater variety

and he includes a wider range of human species, and a deeper insight into the human heart. Thackeray confines himself to a limited view of human nature, and cannot get free from his own self, in other words is subjective; Dickens views the broad features of human nature, and is so objective that from all his many characters we could learn nothing of the author's disposition.

Finally as a novelist, Thackeray may continue to be read by the curious for his skill and brilliancy; but Dickens will live in the memories of the great mass of readers, to whom his creations are and will be familiar as household words. Perhaps the greatest demand Dickens makes on our gratitude is on account of the great social and moral influence his writings have had. We have seen that many an absurd practice and ancient prejudice in society, law, politics and religion, has trembled and succumbed before his biting sarcasm; schools, jails, and workhouses, were full of moral leprosy, the more flagrant of which he removed, and drew attention to others. It would be amiss to close without alluding to the high moral tone of his writings. Pickwick, Paul, Florence, Little Nell, will never die, many a heart has been made better,

many a head wiser by the perusal of his works. They would incite a demand for higher class of literature, instead of ministering to that prurient taste for the obscene, or that morbid passion for sensation so detrimental and weakening to the mind.

Dickens was always a friend of education, and has himself provided works of first-class merit, of such a nature that they will be read by the people; and it is an additional point in his favor that he could make the lower class interesting to the more fortunate. One of the people himself he sympathized largely in their wretchedness, and by the vigor of his genius forced the wail of the unfortunate upon the ears of the cold, careless and hard-hearted world. How much greater tribute this than that of tickling their vanity or pleasing their imagination! but he never learned

"The struggling pangs of conscious truth to hide,  
To quench the blushes of ingenuous shame,  
Or heap the shrine of infamy and pride  
With incense kindled at the muses' flame."

He chose rather, by awakening our pity and compassion, to quicken our sympathy and to teach us that beneath the roughest exterior there may be a noble intellect and a heart beating with pity and tender love for mankind.

## FIRE WORSHIP.

[WRITTEN FOR THE QUARTERLY.]

Oh stars of night! Oh stars of night!  
Ye bring back childhood's days to me,  
With many a dream of dear delight.  
By murmuring wave and moonlit sea.  
Oh! green the graves on yonder shore,  
Whose waves reflect your nightly sheen;  
And dear the dead who mourn no more  
The gulf that lay our fates between.

O stars of night! how dear were ye  
When by your tender light we roved  
Through flowery paths, where joyously  
We lingered loving and beloved?  
How oft we turned with yearnings blind,  
With hungerings we no more may know,  
Instinctive to those skies to find,  
The something lacking still below?

Pale, patient stars! whose pitying eyes  
Looked down through many a twilight grey  
And saw, with silent, sad surprise,  
How different our life's pathway  
From all we hoped and dreamt 'twould be,  
How weakly with the stream we've sailed,  
Till scarce is left the strength to see  
How sadly self hath still prevailed.

Oh stars of night! to other eyes  
Ye may be worlds whose names are told  
By learned lips, and words precise  
Your routes through space may calm unfold;  
But ah! to me, how'er ye roll,  
Ye are the stars, the magnets pure,  
That upward draw my sinking soul  
To One whose mercies aye endure.

J. L.



## INFLUENCE.

SECOND PRIZE ESSAY—WRITTEN BY A. LAWSON.

Influence is the effect produced on the mind of man by the actions and expressed thoughts of his fellows. From the first to the last moment of his existence, every man's career is swayed to a great extent by his surroundings; every person with whom he comes in contact leaves an impression on his mind; it may be slight, affecting him apparently for the moment only, or it may be clear and well defined, marking in distinct characters a turning point in the course of his life; it may be for good or for evil, still the impression is there, indelibly stamped on the lithographic stone of the mind. This impression is in turn received by others, who again transmit it, each to some one else, and so on, the circle ever widening, circle crosses circle, till they become woven together, forming one vast net from which no one escapes.

Again, if a spray of mignonette be placed in an apartment, it will immediately and continuously send forth millions of atoms of aroma, which pervade the surrounding atmosphere with its own peculiar fragrance, yet the scent of the flowers remains undiminished and unimpaired. So is it with man's life. There is no thought he utters, no action he performs but affects some one; all combining as factors, of more or less value, to form the great motive power of that wonderfully complicated piece of machinery—society. In our every-day life, or in the most critical periods of our existence, whether we are civilized or savage, king or peasant, we are never free from the influence of our fellow beings; it is ever with us, at one time urging us to the right, at another to the left of the broad road of life; now driving us over stones and thorns under the burning sun of ambition, and again leading us along

some mossy path in the cool shade of contentment, delightful by its many fountains of happiness.

But, as influence assumes different aspects, for the better comprehension of the subject, it may be divided into two leading classes, direct or individual influence and indirect or collective influence; with reference to man's life, the former may again be divided into the influences of youth, and those of maturity.

As a general rule, the impressions of early youth are the purest and most forcible of any. The home of our birth is ever dear to us. Its remembrance may cast a shade of thought over our features, as we wonder why our infant days were not so happy as they might have been; or, as is too often the case, after losing ourselves in a reverie, in which the imagination drinks in those happy scenes of the past, we awake with a sigh that we were children once more, that we might throw off the yoke of an overbearing world, and be at liberty to partake again of those simple pleasures, upon which the imagination alone is allowed to feast. However it may be, we always think tenderly of that home where we first experienced that most potent of all human influences, a mother's love. And well it is for man, that the first influence brought to bear upon his young life, is also the most devoted to his welfare. The influence of a father's life is very great, but it is a passive influence and is never so strong as that of a mother's active, never-dying devotion to her child. In the luxuriant sunshine of that tender influence, the germ of intellect becomes a promising bud, and by the same genial warmth the bud expands into the perfect flower, which blooms throughout the

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summer of life; and as we glance over the scroll of fame, and read the lives of St. Augustine, Alfred, Goethe, Cowper, and a host of others, we imagine that more than one of them in his young school-days, might have very appropriately said to his mother in the words of Ovid:

"Ingenium vultu statque caditque tuo."

Outside the home circle, the chief influences which are brought to bear upon man's early life are those of teachers. All civilized communities, as we know, have some system of education to which, for a certain number of years, their children are consigned for the purpose of gaining such information as their parents may think necessary to enable them, at the proper age, to discharge the duties of life as intelligent citizens. And inasmuch as it is the duty of teachers to impart this information to these children, the future citizens and rulers of their country, their position is one which, for responsibility and possession of influence, has no equal. Their duty is the moulding and building up of the intellectual character of the nation; and just in proportion as they are qualified for that duty, so does that nation rise in the scale of true civilization. We might take as examples of this the countries of Belgium and Scotland. Belgium is apparently a civilized nation; it has great manufactures, extensive commerce and populous cities, but as its children are educated, if I may use that word, by a narrow-minded priesthood, so its people are ignorant of the true meaning of liberty, they enjoy neither freedom of speech nor are they permitted by their clergy to vote as they would desire. While, on the other hand, every parish school in Scotland, those living monuments of the wisdom of John Knox, is taught by a broad-viewed, liberal-minded university graduate, and we know the result. There is no nation on the face of the earth whose people have done more for the cause of freedom, or who

themselves have enjoyed it longer.

Teachers, in training the minds of their pupils, wield a great influence over their lives, but the moral influence, the influence which they have over their hearts, is, in the great majority of cases, very small. This is the great defect in almost every modern system for the education of children, there is too much system; too much routine, where the welfare and happiness of the children are sacrificed to rigid economic plans; the teacher cannot come into sufficiently close contact with the pupil for him to be influenced, without coercion, to the first steps in the path of virtue. And only when our present systems are superseded by one, of which the Kinder-Garten is but the embryo, then shall the full influence of the teacher's profession be felt, and be recognized in its true light, as the greatest agent in building up and maintaining a nation's happiness and prosperity.

As to the influences of a maturer age, the chief are those of the *Press* and the *Pulpit*; and, in considering these two great superintendents of modern thought, the fact becomes evident that in them lies the leading principle of modern civilization, namely, the endeavor to control evil, and give a proper direction to good influences. The Greeks had their Olympiads, and the Romans their Forum, but neither of them, in the height of their grandeur, had anything which can be compared to the press or the pulpit, as a means of swaying the opinion of the masses. The one is everywhere at all times. In the business office and at the fireside, Saturday and Sunday, year in and year out, the newspaper is always at hand, informing us of the world's daily history, and teeming with practical wisdom and discussions on all public questions. It possesses a power which is the terror of oppressors and the champion of the oppressed, a power which, by its increasing activity, has become the regulator of society, the

crusher of abuses and the propagator of reforms. But not only is this power of the press, before the advance of which tyranny and misrule are disappearing as snow beneath an April sun, effective for this alone, but its influence is felt in our every day actions; it is the world's memorandum where many write and everybody reads, it has become a necessity to all business men, and is *the* condition to the existence of modern society.

Co-operating with that of the Press, though acting in a somewhat different manner, the influence of the Pulpit is of a nature to awaken in a man all the noble dictates of his being, as its aim is higher and more decided, so is its influence deeper and individuality more effective than that of the Press. The influence of the newspaper affects the mind of man in his laborious life-long search for earthly happiness, but that of the Minister affects his soul, pointing out to him the path not only to true happiness in this life, but also to the enjoyment of perfect happiness in the deathless life of eternity. This influence is especially felt in the various relations which exist among men and in their unavoidable daily intercourse with one another.

By inducing man to overcome, or suppress the more selfish and baser instincts of his nature, it teaches him to think not only of the rights, but also of the welfare and comfort of all those with whom he comes in contact. Thus it is as it were, the lubricator of all the multiform workings of society, the agency by which all social friction is being gradually but slowly overcome, and as it goes on extending, year after year, infolding new millions of human beings in its glad embrace, and uniting men in the bonds of friendship and love, we may safely believe that it is carrying us on to that time, of which Burns, with all the inborn religion of his soul speaks, when he says :

"It's comin' yet for a' that,  
That man to man, the world o'er,  
Shall brothers be for a' that!"

But besides these influences peculiar to youth and maturity, which I have attempted to specify, there is another great influence which is common to all age, namely, that of the particular persons with whom we most closely associate. As the spirit of Diogenes is rather scarce among men, at this stage of the world's history; and as the prevailing feature of our age is sociability, we may assume that every one, from among the various classes of individuals by whom he is surrounded, each having a character peculiarly his own, has found some few with whom he desired to associate, and some particular one or two whom he thought he could trust, and upon whom he might expend that mysterious fund of desire to love and be loved, which, to a greater or less degree is the property of all. On first thoughts, the influence of companions would appear to be the same in a less powerful degree, as the mutual influence of friendship. But this is not so. For friendship is the mutual interchange of confidence and can exist only between persons of equal mental capacity,—and with regard to this it is hardly necessary to state that the terms learned and unlearned do not imply a difference of intellectual vigor—and like the attraction to each other of the opposite magnetic poles, the truest friendships are between persons of entirely different and even opposite dispositions, while, on the contrary, companionship is a relation caused by persons of weaker abilities being drawn, moth fashion, by some sort of admiration or fascination into the society of those whose characters resemble their own but are of a stronger and more energetic cast; while the influence of friendship is both objective and subjective, and never otherwise than beneficial and elevating, that of companionship is always objective and may affect its recipient either for good or evil. With regard to the in-

fluence of that kind of companionship, in which there is only "room for two," since that is a subject, the treatment of which would be a task of no mean dimensions, even for the judges in this essay competition, with all their literary ability and practical experience of its effect, the writer of this one would simply refer his readers to the most flourishing department of the nearest circulating library for a most accurately detailed account, with variations, of all its innumerable phases. Having thus far treated of the influences to which individuals are subject, let us now consider the influence which different classes of men exert over the thoughts and actions of their fellows. We know that all the actors on the world's stage do not produce the same effect. There are men who go through life, much the same as a laborer digging a trench in dry sand, they work hard, but when they turn to review their life work, they see that the sand has fallen in, leaving but a very faint outline of where they have been toiling. These, while they form the great body of the human race, are the clogs on the ever increasing spirit of advancement. They do nothing for themselves and desire nothing better than to be left alone; there is in them such an insipid inactivity of brain power, such a total want of energy and seeming contentment with all misfortunes of life, without an endeavor to enjoy its truest pleasures, as would lead us to think that the idea of bettering themselves to say nothing of their fellow men, had never entered their heads. And since they appear to avoid all invigorating influences and cling to those of a standstill or downward tendency, necessarily the influence which they have upon others is of a most pernicious nature. Then we have the never defeated, active men of every day life, by whose energy and unflagging industry, the world is kept moving, slowly it may be and with many stoppages, but still moving up the incline to universal civilization. These are the life-blood

of the world. Their invigorating influence is felt wherever the principles of modern civilization extend, whether it be among the lonely isles of the broad Pacific, where the first dawning rays of enlightenment have dispelled the dense mists which for ages have enveloped them, or in the metropolis of the world, with its monuments of greatness, its wisdom, and its refinement.

Again, standing out in bold relief from these two great classes, we behold the great men of the world, each generation producing its few, the mighty productions of whose intellects never perish, never diminish but rather become greater with increasing years. These might be termed the intellect of the world. They are men whose every action has been fraught with the greatest benefit or evil to the human race, men who knew that in man there is such a thing as mental faculty, who knew its power, and possessed the will to use it; a steady, persistent, unconquerable will to attain the object of their life. I say the object of their life, for from Moses to Julius Cæsar, and from Cæsar to Disraeli the world has never yet produced a great man, who did not mark out for himself a path in life from which he never swerved, the road to some, to other men unattainable goal. And strange as it may seem, these men who have swayed the destinies of nations, who are so prominent on the pages of the world's history, and who have moulded the society in which they moved, are the very men who were least affected by the actions of others. We see this alike in the careers of Puritan Cromwell as the vindicator of British liberty, and of fatalist Napoleon the would-be tyrant of Europe. This might be explained by the fact that they have in themselves such an overflowing reservoir of energy and mental power, that they are almost entirely unaffected by the unceasing shower of the influences of other men, which sweeps the world before it.

As no two men have ever been born exactly alike in all the innumerable traits which form their character, it is natural that the careers of great men should often have been widely different, and their influence of a correspondingly diverse nature. But notwithstanding this, there are but two classes of them, namely, those who, by giving to the world the result of their labor and study, have influenced more particularly the thoughts and private life of men; and those who have directed their attention to things, which affect their external or social affairs. In the first of these classes would be included the world's greatest speakers and writers, of whom, for an example, we might take Luther. Martin Luther figures in European history as a pebble dropt in a pool of still water. From that quiet monastery in Germany a commotion was made on the placid surface of European thought; for three centuries the influence of that earnest, fearless man's life has been undulating through the minds of men, to-day it is affecting us, to-morrow, with widening sweep, it will agitate the minds of the next generation. In the second class would be included the soldiers and statesmen who have built up or overthrown nations, and of these we have a good example in Alfred the Great, who in the midst of unparalleled hardships, and in an almost barbarous age, redeemed his country from its threatened dangers, and established the rudiments of a constitution, which has become a model for all nations and governments.

But beside these kinds which have been enumerated, influence has a still

wider range. As the 'ages roll on' and we behold how generation after generation have entered the battle of life; as we see, in the vision of the mind, how those mighty battalions, each greater than its predecessor, have been swallowed up in the great struggle, how they have fought and been overcome, and how they have been trampled under foot, as the next and more powerful battalion sweeps on to the contest; as we see all these, we wonder why it is that they must struggle in vain, and notwithstanding their exertions they accomplish nothing. But look again! see if there is not something which they do accomplish; something which shows that the struggle is not all in vain. Yes! We see. They make the struggle easier for those who follow. The fight is for them, but its results for their successors. The generations may perish, but the influence of their actions still remain and will continue for ever. *That* is the great medium between past and present, and between present and future. And as the world keeps moving, hurrying on to that unknown goal, hidden in the mists of futurity; as with lightning speed it rushes on, leaving us to-day, as it has left the bewildered generations of the past, buried in its track; it is for us to remember, that, as every movement that takes place on this earth, from a wave of the hand, to the upheaval of a mountain, reverberates throughout the whole universe, through the infinity of time; so it is with the influence of our actions, its effect is incalculable, its duration eternal.

## THE VICTORS.

[WRITTEN FOR THE QUARTERLY.]

Are there no victors then save those  
Whose brows are bound with bays?  
Around whose names a halo glows,  
Their deeds a nation's praise.  
Are there no hero hearts who sleep  
In many a nameless grave?  
Who gave their lives the pass to keep,  
Their country's name to save.

Nay! are there not, who day by day  
In silence mid life's din,  
Still bravely fight and watch and pray,  
O'ercoming self and sin?  
Unknown, unmarked by outward show,  
To God alone disclosed,  
Along our streets these warriors go,  
In mail with vizors closed.

The youthful braves, whose souls aspire  
To scale the heights of Heaven,  
May perish, and their heart's desire  
On earth be rarely given.  
But better far upon these heights  
To die with toil outworn,  
Than live 'mid aimless low delights,  
To Faith and Hope forsworn.

As great a hero he who falls,  
His life-blood poured in vain,  
As he who in his country's halls  
Is welcomed back again.

J. L.

## CONVERSATION.

Man is essentially a social being. In the very beginning God saw that he needed society, and gave him a companion 'like unto himself.' It is very wise certainly to train our own minds to be our best companions; to store them with useful knowledge, with interesting information; to cultivate the imagination, still it can play the magician for our amusement—lead us into other lands, or recall past visions of beauty; to cultivate a taste for the beautiful and the grand in nature, that every hill and valley, every lake and stream, the blue vault of heaven sunlit or starlit, may each yield us delightful companionship; to train our taste for good literature, that we may converse with the noblest and best minds in the solitude of our own study, and have for our companions many wise and good men and women who have long since crumbled into dust.

One who has so prepared himself has put on the best armor against the shafts of loneliness in solitude; but even he is only partially protected. There will come times even to him, when his heart will feel overcharged with its own imaginations, and he will long for some kind sympathizing friend to whom he can speak freely, merely for the relief of speaking. And there are places and times—happy, indeed, he who has never known them—when this blessing of conversation is denied. But not often. Most people enjoy it so freely and fully, that they are apt to forget they are enjoying a privilege till they have been "instructed by the chastisement of its withdrawal." Conversation, like all other good things, is most enjoyed when it is enjoyed in moderation. St. Thomas a Kempis says, "No man can safely speak but one who loves to be silent"; for such a man will never say anything till he is impelled to its utterance by a conviction of its necessity, and consequently will never

regret, as at times we all have occasion for doing, having spoken unguardedly and said something it were better to have left unsaid. Of course it is not always possible to limit our conversation to that which is barely necessary, nor is it advisable. As has been already remarked, it seems to be a want of our nature to pour out our thoughts freely at times merely for the relief of doing so. It is also a great source of benefit to us to listen to the conversation of those who are wiser than we; and it is no small benefit to us to put into words our own native or adopted opinions. It is a great help towards strengthening the memory and inculcating habits of accuracy.

We should all try to make ourselves good talkers; for people may sneer as they like about long tongues—a really good talker—one who can converse readily and intelligently on any ordinary subject is a boon to society.

Conversation is an art which can be studied, and it is one moreover which merits a great deal of attention, for it is a most powerful means of gaining friends or making enemies.

We can make ourselves interesting, pleasant companions to others in the same way that we become companionable to ourselves, by a thorough, good education. It is they who are most independent of society that can be least spared from society.

When our education has provided us with abundant material for conversation, very often the next thing we have to do is to uproot diffidence—to learn to say what we know without blushing and looking confused. Sometimes, indeed, it is the opposite quality, overforwardness, that we need to guard against, but not often when the first condition has been complied with—"the more we learn, the less we know." A readiness and accuracy in descrip-

tion, and pure, correct, simple language, are also necessary to perfection in the art.

It was said of an illustrious lady who lived in the sixteenth century, that the only use she made of speech was to hide her real thoughts. This habit of speaking in an involved and mysterious manner of one's affairs is by no means an uncommon one; and yet is a fault we cannot too sedulously guard against. Of course we are not obliged to place our confidence in everyone—nor indeed in anyone; but we ought to oblige ourselves either to speak in a straightforward manner on a subject, or else not to speak on it at all.

When we are able to speak intelligently on subjects of general interest, we have less relish for conversation which has no higher aim than to publish or dilate on the faults of the absent. Having something better to say, we leave those things to those who have not.

If we would make our conversation pleasing to our listeners, we should not make ourselves too conspicuously the subject of it. It is even better for our good qualities to remain unknown than for us to publish them ourselves.

We should moreover be careful not to let ourselves be betrayed into making confidantes of too many, or we will certainly find reason for regretting it. There is good advice as well as good poetry in the following lines :

“ Trust not the secret of thy soul to those  
Who hold their treasures with a reckless hand ;  
Nor to each ready ear thy tale disclose,  
Nor to each smiling face thy heart expand.

Pearls from the ocean's depths too priceful are  
To be strewn headlong at the common feet ;  
Shew not to curious eyes the hidden scar,  
Nor to the winds thy sacred words repeat.

Else under trampling hoofs thy gold shall lie,  
The holy gold of thy interior self ;  
Crushed the rich pearls by every passer-by,  
Or passed from hand to hand as vulgar pelf.

All lives may know thy gentleness and grace ;  
All hearts thy loving power may evidence,  
But on few hands—oft only one dare place  
The priceless gift of perfect confidence.”

Not inferior in value to the good talker  
is the good listener, It does not consti-

tute a good listener simply to be willing to keep silent while others are talking. It is necessary to cultivate a habit, first of being interested in listening, and next of showing your interest. Make a little remark now and then—show yourself attentive. Encourage the speaker in this way, and be assured you will win a friend. And then, since we cannot be sure that our own conversation does not sometimes grow tiresome with all our precautions, we should include in the character of good listener the faculty of being indulgent to prosiness occasionally in others, and not interrupt, though perhaps we could say something more to the point ourselves. It is said that the truly polite man who knows all about a subject will listen to an explanation from one who knows nothing about it.

If everyone were thus prepared and willing to play the part in turns of talker and listener, how unjarringly would conversation run on, and how delightful society would soon grow to be.

#### T I R E D.

[WRITTEN FOR THE QUARTERLY.]

I am tired, so tired of all to-night ;  
Tired of the toil and din,  
Tired of a life so little bright ;  
Tired of a world of sin.

So tired of the empty vision  
That comes with the opening day ;  
Tired of the waiting fruition  
Of hopes that fade away.

Give me a rest unending,  
A calm so sure and sweet ;  
Joy and sadness blending,  
And rest for the weary feet.

Give me the breeze of the ocean shore,  
A barque that is swift and light,  
That will bear me on for evermore  
O'er blue waves dancing bright.

No storms to cloud my sun-lit sky,  
No glimpse of friends untrue,  
No weary watchings, and heartfelt cry  
From trials, sad and new.

Life is a long dark journey,  
A fitful dream at best ;  
Oh ! to be over its troubles  
On the broad calm sea of rest.



## WORK.

On looking upon the universe around us, one cannot fail to notice the ceaseless activity which is everywhere manifested. With this tendency to action, God has endowed every part of his creation, and each part displays it under a different form. Go where you will over the face of nature, and there is work constantly being carried on, action being put forth towards the accomplishment of some end or object.

From the beginning of time until now, the material world has been characterized by incessant motion, change and progression. Geologists tell us that for ages the earth has been passing through various stages of formation, and even at the present day there is no standing still, but, on the contrary, a continual decaying and renewal, breaking up, combining and assimilating into new and varied forms of the elements which compose the globe upon which we live.

One of our poets has described the universe as "An immeasurable wheel, turning for ever more in the rapid and rushing river of time."

Passing from inanimate nature to the lower forms of animal life, we see this disposition to action strikingly set forth. Take for instance the coral insect, the bee, the bird, their short lives are eminently active ones. This love of activity, though a universal law, finds its highest form in man. It is an essential part of his being, having its origin in his nature. At the creation man was put in possession of various physical, mental and moral powers. It was not designed that these should lie dormant, but that they should be exercised for their own development and the general good. Work is not as some suppose a result of the fall. It is a part of the good preceding it, which we are still allowed to possess and maintain. However the attendant circumstances under which work is car-

ried on have greatly changed. The element of toil has now mingled with it, and the sentence has gone forth, "In the sweat of thy brow shalt thou eat bread." Previous to this time work was only a delightful recreation, now it must often be a wearisome task, carried on till the energies of our nature are well nigh exhausted, and the very powers of our being seem to be paralyzed.

Work may be divided into three great classes. First, moral work, or the exercising of our moral faculties; secondly, intellectual work, or the exercise of the powers of the mind; and thirdly, physical, or as it is oftenest called, manual work, or labor. With each of these departments every one should have some acquaintance, in order to the even development of the powers which he possesses. Each department of work includes to some extent the exercise of the other, so that should our life be spent in manual labor, that does not necessarily set aside the cultivation of the moral and intellectual powers. No work can be performed without the exercise of judgment and reason, and the moral faculty enters into all kinds of work whatsoever.

It is difficult for us to determine which of these departments of work is of the greatest importance. Each one occupies a high place in the economy of life. "In all labor there is profit." Then it is not only the man who spends his time in intellectual pursuits that is profiting himself and his fellowmen, but likewise he who is engaged in physical work.

There is a tendency at the present time to undervalue manual labour. The professional man is considered as being raised a step above those whose lives are spent in some useful trade or occupation, and the result of this is, that nearly all classes of society are endeavoring to swell the ranks of literary men, and aspiring to offices for which

many of them have not the necessary qualifications. Perhaps nature has fitted one man to be an excellent mechanic, but he could not think of lowering himself by joining the list of working men, so concludes that he will follow the profession of law. In this, of course, he fails, or at least never rises above mediocrity, while if he had followed the pursuit for which he was naturally fitted, he would have made a first-class workman. Better to be a first-class carpenter than a third rate lawyer. And besides, the world could no more progress without faithful workers in the several branches of industry, than it could without the labors of the most learned men that have ever assisted mankind by their discoveries in philosophy, science and literature.

Of the benefits which work bestows upon society no one can be ignorant. That it is one of the greatest blessings enjoyed by man in his present condition there is not the least doubt. It is the great antidote to discontent, the way to true independence, and the preventative of evil in all its forms. Trace all the crimes in the country to their fountain-head, and it will generally be found in the lack of employment. Idleness is the mother of all vice, and misery and crime surely follow in its train.

Another way to estimate the value of work is by the great results which it accomplishes. Everything by which we are surrounded, not only what is necessary for our actual existence, but for our happiness and convenience, every convenience of modern improvement as well as the marvellous productions of science and the beauties of art are the fruits of labor either intellectual or physical, or both combined.

It was the design of the Creator that our lives should be those of activity. Of this we have sufficient proof from the fact that when man was placed by Him in Eden, one of the first things done was to allot to him some occupation, viz: "To till the garden and to dress it," thus investing manual labor with a dig-

nity of which even the prejudices of an aspiring world cannot deprive it.

The obligation to work in some sphere or other is binding upon all men. Wealth or position has no power to annul it. The king who is at the head of the realm has no more right to live a life of indolence than the poorest beggar who passes his gate. He then who is not employed in some useful work is missing the great object of life. Each one of us has some work to perform in the world. Part of this, and a very important part, lies within ourselves. It is the cultivation of the faculties and powers with which we have been endowed, it is the building up of our character, the uprooting of all that is wrong, the repressing of all that is weak, and the encouragement of all that is right, noble and good. Besides this we have the work belonging to the particular sphere of life in which we are placed. The place in which we find ourselves is the place for our work. Many forgetting this spend half their lives in trying to find out their real work, while all the time they have been in the midst of it, although utterly unconscious of the fact.

It is not for the extent of the work which we accomplish, but for the manner and spirit with which it is done that the rewards of labor are bestowed. There are hundreds of people in the world who live and do a glorious work in the quiet of their own homes, and are under the false impression that they have achieved nothing worth living for. Yet it is often here that we find work performed that is truly noble, because it is done from a right principle and not for the love of fame and the approbation of the world. Every person then who cheerfully and to the best of his ability performs that which has been allotted to him in the sphere of life in which he is placed, will feel in his own consciousness and in the good which he has accomplished in the world, the abundant rewards of honest labor.

I. S.

## EDUCATION OF WOMEN.

The dawn is breaking, but the day is not yet. Time has been when woman was considered but little better in the eyes of her liege lord than his hounds or horses, in some cases, perhaps not so much. But why was this? Because from the dark ages when mankind was but little above the brute creation; girls from seeing their mothers slaves came to look on that slavery as a woman's fate and boys from seeing their fathers tyrants, came to look upon that as man's estate. What though the work was long and gradual, the end of such thralldom must come, all the rights of humanity, of religion, of civilization demanded it, even as in our later day when slavery of a people on grounds of difference in color from us, came to be abolished as a necessary result of progress. How hard must it have been for those women pioneers, stirred with the spirit of liberty, goaded on by a feeling of degrading wrongs, to go forward, regardless of all murmurs of disapproval (and be assured there were murmurs long and deep from the habituated masters and slaves) and stand as beaconlights for their suffering sisterhood. By a gradual assumption of their rights, and the improvements that time brings—woman's position came to be what it is to day.

Where is there one solid, sensible argument which can deny the perfect right and positive need of female education equal to that of man?

Reason demands it, justice demands it, and nature demands it. Everything can be urged in its favor. Take any girl in any position, from the poorest to the wealthiest, and all have the same road open before them—to grow to girlhood, become wives, mothers or to remain single. In the former case

where more urgent need of a sound education of all the faculties of body and mind? She who is to mould and mature the souls and minds of the next generation, who holds the destinies of empires in her hands, who is "to make or mar our shroud of sentient clay." Where is more discernment needed than to devise what is good and what detrimental to a child's welfare? Where more tact, and is not tact born of talent and talent reared by education? Where a greater knowledge of the world past and present than to one who is to teach others how to live?

Nay, it may be claimed to be more essential to woman than to man, for man's great use of it is to procure gold, while her's is a grander, nobler aim—the building of a human life. Be he who he may, there is not one who can in good faith avouch that at some time in his existence, the remembrance of mother, whether living or dead has not kept him from yielding to temptation, if that mother were all she should be—a woman conscious of her trust. Before she reaches this stage of existence, while yet in her happy girlhood, is she to sit patiently down and wait and say "yes" to the first man who asks her to be his helper? It would be a pitiable state of affairs truly, and in this may be traced the cause of so many ill-assorted marriages, girls who seeing no life but one before them—that of married life—take the first offer of a seeming home rather than live on the tender charities of her relatives, who, with, perhaps, unmeant unkindness—continually wound her by inuendos "it might have been." In whatever sphere of life it has pleased God to place them—one and all should be provided with a thorough

education. What if she be wealthy, wealth may not always last, and the time may come when she will have to battle with the world single handed, then would education be the "open sesame" to a successful life. So that it is as much a matter of necessity as of taste which should bring her to appreciate the value of education. If she possesses one talent and only one, if she have one grain of ambition, then there is a longing to do or to be something in the world's great drama. To those of the great "*vulgus populi*" education is the only ladder by which they may climb to fame. It is true that a fair education may be obtained by nearly all, but this is not impressed on their minds as an essential part of their proper being—they enter more as a rule than an exception on the road to womanhood with a smattering of general subjects, and this is why we so seldom hear of women distinguishing themselves in the literary arena. How different it would be if women were allowed equal chances of learning with man—then she might show to the world her capabilities of attainment, and through the good which would arise from this, what a benefit would be secured to all. But man has said "thus far and no farther" to woman, and she is restrained in the great field of culture. A great branch of education, and one that is agitating the learned fraternity at the present day—rises to view—that much used, much abused profession, medicine. Whatever Canadians may be as a loyal people, they are slow to break old customs—even though they inwardly believe those old customs to be pernicious. And Canadian women are still denied equal chances of education. Our universities are not open to her for the simple reason that she is a woman.

In 1849 the movement for female medical education was commenced by Elizabeth Blackwell, who graduated at the Medical College, Geneva, N. Y. After this, about half-a-dozen others

obtained their degrees at different "men's colleges." But when other women emboldened by these pioneers, came forward to follow in their steps, men began to be alarmed and closed the doors of their colleges once more to women. Dr. Eliz. Blackwell having been refused the position of physician in a N. Y. dispensary in 1853, started a dispensary of her own. Although the Medical Universities were again open to a certain extent to women, her education was but one of theory, as they were not allowed the limits of the men. Dr. E. Blackwell felt this need in their education and opened her dispensary, which soon became a hospital to them. This was the nucleus of a woman's Medical College, and in 1870 and the seven succeeding years there were 46 women who graduated there. Dr. Blackwell says "that woman's thorough education in the medical profession is desirable, and that she can abundantly support herself in the profession, there is not to-day the least doubt."

Miss Jen. Blake was the one to lead the van in Scotland by entering the University of Edinburgh, much against public opinion and contending against no end of difficulties, but yet winning her way through all. During the stormy contest for the electing of a committee favorable to ladies entering Edinburgh Hospital, Prof. Masson and Rev. Dr. Guthrie were the main supporters. Dr. Guthrie said "he believed there were tens of thousands of women in the country who would hail the day when ladies passed as qualified physicians as a blessed one, and that it would be a great relief to their feelings."

Prof. Masson characterized it as a touch of hypocrisy when he heard some objecting to woman being allowed to prosecute medical studies on the ground of the unpleasantness of the work, considering that nothing was said of the clamour of applause which Miss Nightingale received when she, for the

sake of humanity, went through all sorts of "disagreeables." Where woman has had a chance she has clearly shown herself capable of equalling man in her educational achievements. Witness the unlimited success of the female practitioners in Michigan and other States. Witness the result of a recent London examination, where out of 570 candidates 259 were successful, and nine out of eleven female candidates winning laurels; the second on the honor list being one of these, also the ninth, eighteenth, twenty-first, thirtieth and fortieth on the honor list were filled by women, the remaining three were placed in the first division. Witness the attainments in science of Caroline Herschel, Mary Somerville Maria Mitchell, Emma Willard, Mrs. Phelps, and the merited compliment paid to Madame Lepante by Clariant and Lelande, who said "the assistance rendered by her was such that without her we never should have dared to undertake the enormous labor in which it was necessary to calculate the distance of the two—Jupiter and Saturn from the comet—separately for every degree for one hundred and fifty years." Witness the writings of a Stowe, a Thompson or an Evans. Witness the rule of the Queens Elizabeth and Victoria of England. Surely there can be no man nor woman who has not an inward conviction that it is just and natural for woman to doctor woman. Never you agitate your delicate minds, oh, squeamish objectors, about their nerves not being strong enough to bear the brunt of a medical education; that is their affair, if they can steel themselves against the "disagreeables" of the necessary course of study, all you can do is to look on them trustfully, thankfully and bless the age that is capable of producing such women to meet a felt want. Let all bethink them that

"Whoso cures the plague,  
Though twice a woman, shall be called a leech;  
Who rights a land's finance is excused  
For touching coppers though her hands be white."

And men, don't be alarmed, there are none who wish to usurp your place, but to

excel in their own sphere is enough for the most exalted ambition. This should be, and is to a certain extent, felt by the women of our land. Let woman have full scope for doing good in this wide world of ours, and be assured there would be more happiness and assuredly less misery. If she enters the should-be happy portals of wifehood her field of action is fixed as the laws of the Medes and Persians, and its scope is ample; but if she be single it is essential that she have some means of gaining a livelihood, in a great majority of cases at least. It is very clear that all cannot be cooks or dressmakers, and to be teachers, the limit is set so that woman can in no case secure a salary equal to that of a man in the same position. What though her work be well done? What though she excels in it? yet her being a woman debars her from the remuneration which is her due. We want no bar, no pulpit, no platform, we leave that to man, "for all cannot be masters, nor all masters cannot be truly followed," but what we do want, and justly, is an equal chance of obtaining that education which moves the minds that sway the helm of state—that manage the affairs of moment in this world.

Do you think woman will be any the less modest, gentle and true—any the less a woman in the truest sense of the word because of a thorough education. No, a thousand times no! she would only be a more perfect equal of cultured educated man, would be able to share in his griefs and his joys, would be able to uphold and strengthen all that was grand or pure or great in the mind of that man, would be able to sympathise with him in his trials by being able to appreciate their depth and breadth, and not be a hindrance—a something to be tolerated—something to spend money on like landed estate—something allowed a hearing in polite society for politeness sake. No, then she would not be encouraged, in fact would not desire to talk

“twaddle” and fritter away her valuable life by being treated as of secondary importance. For how can an educated, thoughtful, noble man, though he may “sit like his grandsire carved in alabaster” and hear patiently the nothings of the day, yet, how could he endure a life-long servitude with such a mate, and not sigh for the day when woman could be educated up to his standard, when she could roam in thought o’er the world’s history and realize its vastness—its glories—and the grand “denouements” that have marked the lapse of its centuries. No wonder so many men seek their club to find congenial spirits who can con-

verse with equal intelligence. There are some happy exceptions, but there are many such, let us hope they are decreasing day by day.

Girls, take heart of grace, “nor bate a jot of heart or hope; but still bear up and steer right onward.” Make the most of those advantages you have. Set your standard high, work to live for it—if need be die for it. Be thankful for the enlightened age, as compared with a thousand years ago—in which you live—and believe that man for his own sake if not for yours, will give the desired limit at an early day. For justice and right will have its way and truth will triumph in the end.

E. S.

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## THE LEGISLATIVE APPORTIONMENT TO HIGH SCHOOLS AND COLLEGIATE INSTITUTES.

The Legislative apportionment to High Schools and Collegiate Institutes for the year ending December 31st, 1878, based upon the condition, &c. of the schools when visited by the High School Inspectors, is given below: the amounts are taken from the circulars issued each half year by the Education office. The amount distributed by the three High School Inspectors among the High School and Collegiate Institutes of Ontario, on the result of inspection is about \$10,000, and is apportioned according to the following scheme:—

1st. School accommodation, condition of school premises, general educational appliances, maps, apparatus, &c., &c. 2nd. Number of masters employed, as compared with the number of pupils and classes, qualification of master, character of teaching, &c. 3rd. Character of work done in the lower school, so that any school which, owing to the operation of special causes, may prepare but few pupils to pass the intermediate will nevertheless be awarded for the thorough work they may do below the highest limit. 4th. The quantity and the quality of the work which may be done beyond the higher limit (*i.e.*) by these pupils who shall continue their studies in the higher course prescribed for those who pass the Intermediate Examination. 5th. Government, discipline, general morale. 6th. Music, drawing and military drill.

## LEGISLATIVE APPORTIONMENT.

	First Half.	Second Half.	TOTAL.		First Half.	Second Half.	TOTAL.
Alexandria .....	13.25	14.25	27.50	Newmarket.....	80.55	69.00	149.55
Almonte.....	66.55	55.50	122.05	Niagara .....	32.65	49.50	82.15
Arnprior.....	44.50	54.00	98.50	Norwood .....	14.50	10.00	24.50
Aylmer .....	27.50	29.50	56.00	Oakville .....	29.40	30.50	59.90
Barrie .....	63.63	66.50	130.13	Oakwood .....	24.65	26.00	50.65
Barnsbyville .....	27.25	23.50	50.75	Omamee.....	14.25	14.25	28.50
Belleville .....	40.25	40.50	80.75	Orangeville .....	23.40	22.00	45.40
Berlin .....	96.43	101.50	197.93	Orillia.....	38.25	36.75	75.00
Bowmanville .....	116.93	95.50	212.43	Oshawa .....	65.80	89.50	155.30
Bradford.....	..	14.25	14.25	Ottawa .....	124.13	110.50	234.63
Brampton .....	77.63	102.50	180.13	Owen Sound .....	43.50	69.50	112.00
Brantford (C. I.) .....	131.13	127.50	258.63	Pakenham .....	18.00	29.50	47.50
Brighton .....	..	20.00	20.00	Paris .....	46.00	45.00	91.00
Brockville .....	24.50	24.00	28.50	Parkhill .....	39.50	15.00	54.50
Caledonia .....	50.55	..	50.55	Pembroke .....	23.50	16.25	29.75
Campbellford .....	..	9.00	9.00	Perth .....	71.75	73.00	144.75
Carleton Place .....	27.00	..	27.00	Peterboro' (C. I.) .....	117.13	100.50	217.63
Cayuga .....	14.50	14.25	28.75	Pictou .....	22.75	43.50	66.25
Chatham.....	59.15	68.00	127.15	Port Dover .....	15.25	20.00	35.25
Clinton .....	104.13	92.50	196.63	Port Hope .....	110.13	86.50	196.63
Cobourg (C. I.) .....	101.13	68.50	169.63	Port Perry .....	91.80	92.00	183.80
Colbourn .....	..	2.00	2.00	Port Rowan .....	32.50	31.00	63.50
Collingwood (C. I.) .....	119.13	115.15	224.28	Prescott .....	38.40	39.00	77.40
Cornwall .....	..	42.50	42.50	Renfrew .....	16.25	22.25	39.50
Drummondville .....	8.00	14.75	22.75	Richmond Hill .....	39.40	41.50	80.90
Dundas .....	32.00	37.00	69.00	Sarnia .....	27.00	43.00	70.00
Dunnville .....	31.50	27.00	58.50	Simcoe .....	32.40	6.50	78.90
Elora .....	37.15	37.50	74.65	Smith's Falls .....	7.00	16.50	23.50
Farmersville .....	43.25	50.50	93.75	Smithville .....	24.00	25.00	49.00
Fergus .....	32.50	33.00	65.50	Stratford .....	54.93	41.50	106.43
Galt (C. I.) .....	128.13	122.50	250.50	Strathroy .....	69.60	64.50	134.10
Gananoque .....	27.00	20.75	47.75	Streetsville .....	..	29.25	29.25
Goderich .....	69.75	67.00	136.75	St. Catharines (C. I.) .....	130.13	126.50	256.63
Grimsby .....	26.00	27.00	53.00	St. Mary's .....	119.30	115.50	234.80
Guelph .....	69.83	68.00	147.83	St. Thomas .....	83.05	106.50	189.55
Hamilton (C. I.) .....	137.13	133.50	270.63	Sydenham .....	39.80	59.00	98.80
Hawkesbury .....	32.00	22.75	54.75	Thorold .....	34.30	36.50	70.80
Ingersoll .....	58.30	48.00	96.30	Toronto (C. I.) .....	131.13	129.50	260.63
Iroquois .....	27.15	33.50	60.65	Trenton .....	30.90	39.00	69.90
Kemptville .....	..	12.00	12.00	Uxbridge .....	51.90	43.50	95.40
Kincardine .....	39.80	41.00	80.80	Vankleek Hill .....	38.80	44.00	82.80
Kingston (C. I.) .....	79.75	72.50	152.25	Vienna .....	25.50	22.50	48.00
Lindsay .....	36.40	37.50	73.90	Walkerton .....	43.00	44.50	87.50
Listowel .....	24.00	28.00	52.00	Wardsville .....	29.65	21.00	50.65
London .....	99.53	80.50	180.03	Waterdown .....	74.15	68.00	142.15
Markham .....	31.00	25.50	56.50	Welland .....	44.00	35.50	79.50
Mitchell .....	42.00	36.50	78.50	Weston .....	25.40	31.00	56.40
Morrisburgh .....	34.50	44.50	79.00	Whitby .....	100.00	104.00	204.00
Mount Forest .....	20.90	22.25	43.15	Williamstown .....	20.90	15.50	36.40
Napanee .....	56.25	43.00	99.25	Windsor .....	50.65	56.50	107.15
Newburgh .....	35.40	36.00	71.40	Woodstock .....	34.00	37.50	71.50
Newcastle .....	9.25	11.25	20.50				

## THE TEACHING OF MILITARY DRILL IN OUR SCHOOLS.

That the men of Canada have heretofore, on every occasion, proven themselves willing to turn out and loyally drive back and overcome whatever enemy may have harassed the country, is a fact well known to everyone who is conversant with the history of these colonies.

In 1866, when the Fenians threatened to cross the border, many volunteer companies were formed, the ranks being filled up by the noblest and best of our citizens, so that in the years '67 and '68 Canada had a militia organization that was truly a credit to her. But as soon as the probabilities of an invasion became remote, the good men gradually fell out of the ranks, and their places were filled, in most cases, by men who were not influenced by a spirit of patriotism, but who, simply for the novelty of the thing and the fifty cents per diem that they received, joined the ranks for a sixteen days' carousal in camp, and who came back, in many cases, knowing very little about the drill, and caring less for a knowledge of it; so that at the present day, with the exception of two or three choice battalions, our volunteer brigades, although well officered, are gradually dwindling away, and from all appearances, our militia system is about to die out in a manner that is anything but creditable to the people of Canada.

Now this state of affairs certainly ought to be remedied; and that it is highly desirable that the male portion of our population should be possessed of a knowledge of military drill, is a fact that cannot justly be denied; and while so little interest is manifested in military matters at the present day by the people generally, how are we to see to it that such a knowledge is imparted to the youths of our country, with the least loss of time, and at the least expense? Evidently the duty must be

performed by the schools and colleges of the Dominion.

Let us now enumerate some of the advantages arising from exercising the boys of our schools in military drill, and the most effectual means of carrying it out.

1. Those who have had experience, know that boys acquire a knowledge of the drill in less time than that in which men acquire such knowledge.

2. The boy's time is not worth so much as that of a man.

3. If a man aged, say forty, acquire a knowledge of the drill, after ten or fifteen years he is in all probability unfit for service, whereas, the boy's services, of course, last from the time he acquires the knowledge forward to old age.

4. Boys remember what they learn much better and for a longer period than older people.

5. Practice at military drill is a good exercise, and tends to the development of the physical system.

6. Every teacher will find that it is a much easier matter to enforce discipline in the school if the boys are trained in military drill.

7. It inculcates a patriotic spirit in our boys.

The question now arises, what is the most effectual manner of training the boys in this important branch? Evidently one of two courses must be employed: Either the government must employ drill instructors for every city, town and village, whose duty it will be, from time to time, during school hours to instruct the boys in this branch, or else the masters must teach them. Now, as far as the cities, towns and villages are concerned, the plan of employing a drill instructor would do very well, as the master might be engaged in teaching other pupils while the boys are in charge of the drill instructor, the master's time probably being more val-



able than that of the instructor: but how are the boys in the rural districts to be taught? There is only one answer—The teachers must do it. The question we must now solve is—What is the most effectual means of causing all our male teachers to become possessed of the knowledge necessary to impart such instruction? A means of overcoming this difficulty presents itself: According to the school law of Ontario, every teacher must, before he enters upon the discharge of his duties, attend either a Model or Normal school. Let the government then employ a person well skilled in military drill in connection with each of the Normal and Model schools. The services of a competent person could be secured at a reasonable figure in any of the cities or towns in which these institutions are situated. Then military drill must be a part of the professional training of each male teacher, and an examination in that department should be made a part of his professional examination. Then it should be made obligatory on every male teacher, engaged in his profession, to apportion a certain part of the school time to military exercise. For instance, during the ordinary recess of fifteen minutes at present given both in the morning and in the afternoon, the teacher might train the larger boys in this important branch while the younger pupils are at play. The boys enjoy the exercise just as much as playing at cricket or ball, and such exercise is better suited to them, that of cricket, etc., being too exhaustive before and after severe mental exercise; or, in order to encourage this branch of instruction, a small additional government grant might be made to schools in which military drill is taught. This latter plan would also encourage the engagement of male teachers in the schools.

We are now to consider what part of the military exercise should be taught in the schools. Veterans will tell you that by far the greatest trouble in teaching raw recruits is to make them efficient in the squad drill. The manual

and platoon exercises can be picked up in a sufficiently short time, but it takes some weeks before the men can readily do the ordinary movements in squad and company drill, and the movements of battalions and brigades are, to a great extent, the company movements on a grander scale. The turnings, marchings, formation of fours, &c., as far as the men are concerned, being exactly the same in each—so that it is evident that the greater part of the work is done if the squad drill is thoroughly taught and acquired. Hence, no arms, &c., need be supplied to the schools and yet a very important work can be accomplished. Of course, it would be better if arms were supplied, and the pupils were trained in the other parts of the drill, but the impracticability of this, at least at the present time, prevents us from dwelling on it further.

Again the mere exercise in itself would be a great advantage to our boys even though they should never be called upon to serve their country. Let us enumerate some of its benefits:

1. It teaches a correct method of standing, walking, &c.
2. It is a good physical exercise.
3. It promotes and fosters a respect for discipline.
4. It tends in many ways towards both physical and mental development and inculcates a spirit of patriotism.

We have thrown out these suggestions with a firm conviction that if such a system as we have just proposed were instituted incalculable benefit would result to the community, and, by this plan, after a few years, nearly all of the male portion of the youths of our country would be possessed of some knowledge of military drill, and, should occasion again arise for them to put down any foe, our loyal and gallant young men in rushing to headquarters with feelings of patriotism and with a determination to annihilate the intruders, would go as trained men, to a certain extent fitted for service, and not as mere novices in military matters as has been the case upon occasions heretofore.

To the Editor of the QUARTERLY.

I came across an old but very excellent work on public speaking the other day, in which is the following parody. As the soliloquy of a novice, it expresses with felicity the young speaker's doubts and fears. The words of advice, subjoined by the author, may be encouraging to a certain class of members in the society:—(C. J. A.)

“To spout, or not to spout, that is the question?

Whether 'tis better for a shamefaced fellow,

(With voice unmusical and gesture awkward),

To stand a mere spectator in this business,

Or have a touch at rhetoric! To *spout*, to spout

No more; and by this effort, to say we end

That bashfulness, that nervous trepidation

Displayed in maiden speeches; 'twere a consummation

Devoutly to be wished. To read, to specify

Before folks, perhaps to fail; ay, there's the rub;

For from that ill success what sneers may rise,

Ere we have scrambled through the sad oration,

Must give us pause: 'tis the reason

That makes a novice stand in hesitation, And gladly hide his own diminished head

Beneath some half-fledged orator's impertance,

When he himself might his quietus make By a mere recitation. Who could speeches hear,

Responded to by hearty acclamation, And yet restrain himself from holding forth—

But for the dread of some unlucky failure—

Some unforeseen mistake, some frightful blunder,

Some vile pronunciation, or infection, Improper emphasis, or wry-necked period,

Which carping critics note and raise the laugh,

Not to our credit, nor so soon forgot? We muse on this! Then starts the pithy question:

Had we not best be mute and hide our faults,

Than spout to publish them?”

“Spout and publish them without hesitation. Had Raphael feared to daub, he had never been Raphael. Had Canova feared to torture marble, he had never been a sculptor. Had Macready feared to spout, he had never been an actor. If you stammer like Demosthenes, or stutter like Curran, speak out. He who hesitates to hesitate, will always hesitate.”

The writers in the “Canadian School Journal” are making fair progress in English Composition. One of them, Master James Hughes, writes his composition on “Etiquette” and remarks as follows:—“Young America is charged with a lack of respect for their seniors. There is usually a reason for making the charge. This is not to be wondered at. The boys do not deserve the blame. They naturally prefer to be respectful. They take a delight in showing courtesy to those in authority over them.” We quote these few sentences in order to show other aspirants what has already been achieved and what therefore they may hope to attain if they enter upon the struggle with due diligence. We commend Master James for the progress he has made, and hope he won't take it ill, if we venture to hint, that a subject which is satisfied with a singular verb, scarcely needs a plural pronoun. Should his efforts appear as strenuous and his improvement as marked during the next year or two, we hope to see him introduce into his compositions some of the less intricate, compound and complex sentences. For the present, and in fact until his knowledge of the laws of syntax shall rest on a somewhat firmer footing, he had better, perhaps, restrain his ambition and confine it to the use of the simple sentence.

# THE QUARTERLY.

*Nous travaillerons dans l'espérance.*

HAMILTON, APRIL, 1879.

## OFFICERS OF "THE QUARTERLY."

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		MISS INA SUTHERLAND,	
<i>Educational, Mathematical, Poetry, Wit and Humor,</i>	{	MR. H. B. WITTON,	<i>Junior Society.</i>
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		MISS S. ACHESON.	
		MR. G. H. HAMBLEY, MR. T. L. WILSON.	

## RETROSPECTIVE.

In the July number of the last volume of THE QUARTERLY, the editors promised that at the close of the year a retrospective view of the Literary Society from its first inception would be given. For various reasons this sketch was deferred till the present issue. We now propose, as far as the means at our disposal will permit, to redeem the promise of our predecessors.

In September, 1874, a few of the ambitious students of the Collegiate Institute became desirous of cultivating their oratorical powers and, with this end in view, formed themselves into a society which has since been known as the "HAMILTON COLLEGIATE INSTITUTE LITERARY SOCIETY." Although only about a dozen of the students joined the society at this time, those who became members were men of the right stamp, and by each doing his part, interest was aroused in it and others were induced to join until at the end of six months about twenty gentlemen were availing themselves of its advantages. Having carried on their society successfully for this length of time, its members, desiring not to be behind the students of other educational institutions in affording themselves means

of thoroughly practical intellectual improvement, started THE QUARTERLY.

The first number of this journal, issued March 23rd, 1875, contained twelve pages, including cover, or nine pages of reading matter. The prospectus in this issue announced that THE QUARTERLY would contain essays read before the society, original articles on educational, literary and scientific subjects, besides poetry, wit and humor, and items of general interest. That it did all this satisfactorily was verified by the highly complimentary notices it received from the press in all parts of the Province, and the hearty reception it met from the people of our city.

The society continued to increase in interest and membership until at the end of the first year of its existence about thirty names were enrolled. The same steady increase brought it up to about forty at the end of the second year. At the end of the third year about fifty gentlemen were in actual attendance at the meetings of the society. The question of admitting the ladies to the society was brought up at this time, and, after due consideration, it was decided to admit them to full membership. About a dozen of them thereupon became members. Their presence for a few evenings caused the older members to wonder why they had not been admitted sooner, as they showed themselves both able and willing to perform their part successfully, asking, as one lady remarked on being initiated, "a fair field and no favor." Their presence was found to have a beneficial effect by causing more careful preparation to be made by those appearing on the platform.

Music—vocal and instrumental—was also about this time made part of the programme, and has since formed one of its most pleasing features. The last quarter of 1877 closed with a membership of sixty-three, and everything in the society in excellent working order. Owing to the large influx of new students to the Institute, and the high opinion which they had formed of the

society, its numbers rapidly increased until over a hundred students of the school were availing themselves of its advantages, early in the first quarter of 1878. The advisability of organizing a society for the exclusive benefit of the junior pupils now became apparent. A few of the members of this society consequently interested themselves on behalf of the junior pupils, and the "HAMILTON COLLEGIATE INSTITUTE JUNIOR LITERARY SOCIETY" was started. The success which has attended the efforts of its members will be seen by reference to reports of it, contained in this and previous issues of THE QUARTERLY.

The Junior Society having been started, it was decided to admit no person to the Senior Society under sixteen years of age. This, of course, had the effect of keeping out some who would otherwise have joined the Senior Society, and consequently diminished its numbers to some extent. Notwithstanding this, although there was a slight decrease during the last quarter of 1878, the society numbers at present about one hundred and ten members, with a regular attendance of from ninety to one hundred.

During all the time that has elapsed since its first issue, THE QUARTERLY has made its appearance regularly. The first eleven numbers were of the form and size previously indicated and carried out the pledges given in the prospectus. The success of the number for October, 1877, being very great, a project was set on foot for increasing its size and changing its form in order that it might be more adapted to the requirements of the society, and keep pace with its progress in other respects. The form and size in which it at present appears were decided upon as being the most suitable for a school paper. A cut of the Institute was procured for the first page of the cover, and the December number made its appearance in a form that gave great satisfaction to all its friends. Since that time it has made its appearance regularly in the same form, and it has

been the constant aim of its officers to make each issue at least equal to its predecessor.

We have thus shown our readers what we have been, and what we are. We are conscious that there is still room for many improvements in our society and its paper, but at the same time, looking at the past, *Nous travaillerons dans l'esperance.*

### SENIOR LITERARY SOCIETY.

Under this heading it has been our custom in the past to discuss, at some length, the advantages derived from Literary Societies and particularly from our own. We think that this is scarcely necessary at this time as we believe it has been amply shown by the retrospect which we have given that these benefits are fully appreciated by our students. No stronger evidence of this can be given than the fact that about a hundred of our students over sixteen years of age are in regular attendance at its meetings. We shall not therefore refer to it further than to briefly state the work of the present quarter.

Ten programmes of entertainment have been carried out during the quarter, nearly all of them very satisfactorily. At a few of our meetings gentlemen appointed to debate, through press of work and for other reasons, failed to appear. This marred to some extent the pleasure of the debates, but our essayists have never failed us, so that we have had ten essays read before the Society during the quarter, most of them showing literary taste and some of them even talent. The essays were all written by students in attendance at the school. The readings, of which there have been two each evening, have been exceptionally good. Music has also formed a very pleasing feature of each of our programmes. As far as possible it has been the practice of the committee to provide for both vocal and instrumental music each evening.

A report of a "Friendly Debate" in which our Society took part, on one of its regular evenings of meeting, appears elsewhere in our columns.

It is the intention of the Society to offer prizes for competition during the ensuing quarter, so that a report of a prize competition, similar to that which took place at the close of last year, may be looked for in our next issue.

### JUNIOR LITERARY SOCIETY.

Owing to the commendable energy of some of the members of our Society it has prospered until its members feel themselves in a position to offer prizes for competition in the various departments of the programme. A competition for these prizes will take place during the ensuing quarter. The Society is much changed since it began its existence a year ago, many of its first members not appearing amongst us any more. Their places, however, have been filled by others, and the same earnestness characterizes its work which obtained at that time.

During the present quarter we have had eleven regular meetings, at each of which the programme was very fully carried out. At each of our meetings an essay was read by one of our members. Most of the essays were highly creditable to the writers. The debates, readings and music were equally satisfactory.

That the members of the Senior Society do not attend our meetings as regularly as formerly, nor manifest so much interest in us is noticeable. This is no doubt attributable to the fact that the Senior Society—as well as ours—has changed very much during the past year, and also that its members are overcrowded with work. We shall be glad to receive a visit from any of its members whenever convenient. We feel that visits from them have been beneficial in the past and would be again.

### FRIENDLY DEBATE.

Some time since the Literary Society in connection with the Central Presbyterian Church of this City, challenged our Society to a friendly debate, for the purpose of arousing increased interest in the work of the Societies. Our Society, after some hesitation, on account of the pressure of school work, decided to accept the challenge, and gentlemen were appointed to carry out the proposed scheme. The debaters, Messrs. Curell and Sheppard from the C. P. L. S., and Messrs. Atkinson and Hunter from our Society, arranged to discuss the question—"Resolved, that the execution of Charles I. was not justifiable," Messrs. Curell and Sheppard taking the affirmative. Other attractions were added to the programme, in the way of music and readings, making it very complete. Arrangements were made to have the debate on the evening of Friday, 28th February. On that occasion the basement of the C. P. Church, which holds about five hundred, was filled to overflowing, with a thoroughly appreciative audience. When Mr. T. C. L. Armstrong, President of the C. P. L. S., who was to occupy the chair, appeared, rounds of applause greeted him, which were repeated again and again when the debaters came to the platform.

The programme was opened by Misses Flett and Turnbull, with a very well rendered piano duet, entitled "Souvenirs of Scotland," after which Mr. J. Reid read "King Robert of Sicily," in excellent style. A piano solo by Miss Cummings entitled "Spring Song," was followed by another by Miss Flett, entitled "Irish Diamonds." Both of these selections were well received.

The main feature of the evening now occupied the attention of the audience for upwards of two hours. Although the affirmative was ably sustained by its supporters, the masterly address of Mr. Hunter so took the audience by storm, that a decisive victory was gained by the negative. Mr. Atkinson, sal-

though one of our ablest debaters, on account of illhealth, failed on this occasion to meet the anticipations of his friends.

After the debate Miss Crawford read Toplady's "Rock of Ages" in such a manner as to elicit a hearty encore. The Chairman here announced that as the programme was a very lengthy one, no encores could be received. That encores were not given earlier in the evening was no doubt owing to the anxiety with which all were waiting for the debate. An excellent song by Prof. Whish concluded the programme, after which the singing of the National Anthem brought to a close a most pleasant and profitable evening's entertainment.

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Many of our students go to Toronto each year to prosecute their studies in the University. We would remind all such that they will profit by paying Jas. Vannevar a call when in need of books.

MATHEMATICS.

We continue in this number to give solutions to the deductions in Todhunter's Euclid. These we find prove very acceptable to students and teachers. They were begun in the October number of last year, and have now been given as far as the end of the Second Book. We will continue them in future numbers until all are published on the six books. It is our intention to give solutions to all questions in the Intermediate Mathematics presenting any difficulty. We intend to give solutions for all the Mathematics for First-class Certificates since '71. The Mathematics for honors in Junior and Senior Matriculation will also receive our attention in future. Besides this we may mention that valuable hints and notes on Mathematics not found elsewhere are given in each issue of our paper.

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1. Class for senior matriculation—honors in all departments.
2. Class for junior matriculation—honors in all departments.
3. Class for junior matriculation—pass.
4. Class for matriculation in medicine.

There are also the following classes for Teachers:

1. Class for First Class Teacher's Certificate.
2. Class for Second Class Teacher's Certificate.

Those reading for matriculation in the LAW SOCIETY are classed with the "pass" matriculation students, and do the same work.

Candidates for examination in ENGINEERING recite with the honor class in mathematics for junior matriculation.

*The special features of the school are:*

1st. Each department of the Upper School is taught by a University trained

man, who has made the subjects of his department a specialty in his University course.

2d. Complete equipment for doing the work of both Upper and Lower Schools. Not only is there a full staff of masters, but there is an ample supply of maps, mechanical apparatus used in applied mathematics, chemicals and chemical appliances for experiments, and apparatus for illustrating physics.

3d. Large classes reading for matriculation in the Universities. Arrangements are made for those who have all the subjects for matriculation prepared, except classics and modern languages, to join special classes in these subjects, to enable them to advance more rapidly than they would in the Lower School.

4th. A course of instruction in practical chemistry. Students will be taught both to manipulate and extemporize apparatus.

5th. A large collection of fossils and minerals; also several cases of Canadian birds, human skeleton, etc., to illustrate the lessons in physiology.

6th. Two flourishing literary societies among the students for the purpose of improving themselves in public speaking, reading, writing of essays, and in general literature.

7th. Classes in free-hand, oil and water-color drawing. Drawing is optional in the Upper School.

8th. Publication of a school journal by the Literary Societies.

9th. Advanced classes in vocal music. All the students are taught music, but none are permitted to join the advanced class unless they can read music at sight.

10th. Regular instruction in military drill.

### THE SCHOOL AT THE UNIVERSITY AND OTHER EXAMINATIONS.

During the last five years, fifty-four students of this School entered Toronto University; nearly all of them are now pursuing a University course. Last

year nineteen entered Toronto University; two entered McGill; one entered Trinity; one entered Queen's; one entered Albert; eight passed the local examination of Toronto University; nineteen passed the local examination of McGill University; two obtained first class Teacher's Certificates; sixty-seven passed the intermediate examination; twenty-four obtained third class Certificates; eight matriculated in law.

The following is a statement of the Scholarships won by our students on leaving the School:—

1873, two scholarships at Toronto University.

1874, three scholarships at Toronto University, and one at London, Eng.

1875, three scholarships at Toronto University and one at Knox College.

1876, three scholarships at Toronto University and two at Knox College.

1877, two scholarships at Toronto University and two at Knox College.

1878, one scholarship at Toronto University.

Altogether fourteen at Toronto, one at London (the Dominion Gilchrist Scholarship), and five at Knox College—making a total of twenty scholarships.

How far our students are prepared to take advantage of a University course of study may be seen by referring to the last Class-List of Toronto University. The following scholarships were awarded to the ex-students of the School:—

In the First Year—1st Proficiency Scholarship.

In the Second Year—1st and 2nd Classical Scholarships, and the 2nd Proficiency Scholarship.

In the Third Year—1st Modern Language Scholarship, and the Blake Scholarship.

Taking the six Intermediate Examinations together, no fewer than 158 passed:

At the 1st Intermediate, 21 passed.		
“ 2nd	“	23 “
“ 3rd	“	16 “
“ 4th	“	33 “
“ 5th	“	35 “
“ 6th	“	30 “

In 1877 two obtained First Class certificates.

In 1878 two obtained First Class certificates.

This record includes only those who were students of the school at the time of passing these examinations, not former students. Nor does it include those who passed the Intermediate a second time.

### DEPARTMENT OF MUSIC.

This department is still under Mr. Johnson's careful and energetic management. The following is the course of study in vocal music:

#### LOWER FIRST FORMS.

1. Arranging major scales.
2. Transposition of scales in sharps and flats.
3. The difference between major and minor thirds.
4. Rules for reading simple exercises at sight.
5. Reading music in bass and treble clefs.
6. Counting and beating common and triple time.
7. Use of the musical staff.

#### UPPER FIRST FORMS.

1. Arranging major and minor scales.
2. Accent.
3. Counting and beating compound, common and triple time.
4. Rules for finding the key note and sharps and flats.
5. Accidentals indicating modulation.
6. Accidentals not indicating modulation.
7. Chromatic scale.
8. Use of the tuning fork.

#### SECOND FORMS.

1. Melody. 2. Rythm. 3. Dynamics.

Although music is taught to all the school, it is not introduced as a compulsory subject into any of the intermediate or upper school forms; the members of these forms, who are able to read music at sight, are organized into a special class that meets twice a week.



## SOLUTIONS TO INTERMEDIATE MATHEMATICS, DEC. 1878.

## ALGEBRA.

TIME—TWO-HOURS-AND-A-HALF.

Values.

- 7 1. Multiply  
 $4x^2 - \frac{2}{3}x + \frac{1}{3}$  by  $2x + \frac{1}{3}$ .  
 Prove that  
 $(\frac{1}{3}x - y)^3 - (x - \frac{1}{2}y)^3$  is exactly divisible by  $x + y$ .
- 7 2. Express in words the meaning of the formula  
 $(x+a)(x+b) = x^2 + (a+b)x + ab$ .  
 Retaining the order of the terms, how will the right-hand member of this expression be affected by changing, in the left-hand member (1) the sign of  $b$  only, (2) the sign of  $a$  only, (3) the signs of both  $a$  and  $b$ ?
- 10 3. Simplify  $(a+b)^4 + (a-b)^4 - 2(a^2 - b^2)^2$ ; and show that  
 $(a+b+c)(b+c-a)(a+c-b)(a+b-c) = 4a^2b^2$  when  $a^2 + b^2 = c^2$ .
- 10 4. Prove that  $\frac{a}{b} \div \frac{c}{d} = \frac{ad}{bc}$ .  
 Simplify  
 $(\frac{a^2 + b^2}{2ab} + 1) (\frac{ab^2}{a^3 + b^3}) \div \frac{4a(a+b)}{a^2 - ab + b^2}$
- 10 5. I went from Toronto to Niagara, 35 miles, in the steamer "City of Toronto" and returned in the "Rothesay," making the round trip in 5 hours and 15 minutes; on another occasion I went in the "Rothesay" (whose speed on this occasion was 1 mile an hour less than usual), from Toronto to Lewiston, 42 miles, and returned in the "City of Toronto," making the round trip in 6 hours and 30 minutes; find the usual rates per hour which these steamers make.
- 10 6. Define a surd. What are similar surds?  
 Simplify  
 $\sqrt{12} + \sqrt{48} - 2\sqrt{3}$ ;  $\sqrt[3]{56} + \sqrt[3]{189}$ ;  
 $(\sqrt{a} - \sqrt{b})(a + \sqrt{ab} + b)$ ;  $(x^2 + xy + y^2) \div (x + x^{\frac{1}{2}}y^{\frac{1}{2}} + y)$ .
- 10 7. Solve  
 (1)  $\frac{3}{x} - \frac{2}{y} = \frac{1}{a}$ ;  $\frac{2}{x} - \frac{1}{y} = \frac{2}{a}$   
 (2)  $x^2 + 5x = 5\sqrt{x^2 + 5x + 28} - 4$ .
- 8 8. Find three consecutive numbers whose product is 48 times the middle number.
- 14 9. If  $a$  and  $b$  are the roots of  $ax^2 + bx + c = 0$  then  $a(x-a)(x-b) = 0$ .  
 Show that if  $ax^2 + bx + c = 0$  has equal roots, one of them is given by the equation  $(2a^2 - 2ab)x + ab - b^2 = 0$ .
- 14 10. If  $\frac{m}{x} - \frac{n}{y} = 1$  and  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ , prove that  $\frac{m^2}{a^2} - \frac{n^2}{b^2} = \frac{m^2 + n^2}{x^2 + y^2}$ .

SOLUTIONS IN ALGEBRA.

SOLUTIONS.

1. (a)  $8x^3 + 1\frac{1}{2}x$

(b) If  $(x+y)$  is a factor of that expression, then, when  $(x+y)=\text{zero}$ , the whole quantity will become zero; and conversely, if when  $(x+y)=\text{zero}$ , the whole quantity becomes zero, then  $(x+y)$  is a factor. Let  $(x+y)=0$  then  $x=-y$ . Substituting the value of  $x$  in this expression, the whole quantity vanishes and  $\therefore (x+y)$  is a factor.

3. (a) Expression  $= [(a+b)^2]^2 - 2(a-b)^2(a+b)^2 + [(a-b)^2]^2 =$   
 $[(a+b)^2 - (a-b)^2]^2 = 16a^2b^2$

(b) Expression  $= [(a+b)+c] [(a+b)-c] [c-(a-b)] [c+(a-b)]$   
 $= [(a+b)^2 - c^2] [c^2 - (a-b)^2] = (\text{after substituting value of } c^2) 4a^2b^2$

4. Expression  $= \frac{(a+b)^2}{2ab} \times \frac{ab^2}{a^3+b^3} \times \frac{a^2-ab+b^2}{4a(a+b)} = \frac{b}{8a}$

5. Let  $x = \text{rate of "Rothesay" in mls. per hr.}$   
 $y = \text{" " "City of Toronto" in mls. per hr.}$

(1)  $\frac{35}{x} + \frac{35}{y} + 5\frac{1}{4}$ ; (2)  $\frac{42}{x-1} + \frac{42}{y} = 6\frac{1}{2}$ .

Simplifying,  $\frac{1}{x} + \frac{1}{y} = \frac{3}{20}$  and  $\frac{1}{x-1} + \frac{1}{y} = \frac{13}{84}$

Subtract, and  $x(x-1) = 210 \therefore x = 15$  and  $y = 12$

6. (a)  $4\sqrt[3]{3}$ ; (b)  $5\sqrt[3]{7}$ . (c)  $a^2 - b^2$ .

(d) Expression  $= \frac{(x+x\frac{1}{2}y\frac{1}{2}+y)(x-x\frac{1}{2}y\frac{1}{2}+y)}{(x+x\frac{1}{2}y\frac{1}{2}+y)} = (x-x\frac{1}{2}y\frac{1}{2}+y)$

7. (1) Multiply the second equation by 2, and subtract, then  $x = \frac{a}{3}$ , and  $y = \frac{a}{4}$

(2) Transpose and add 28 to each side. It then assumes the form of a quadratic and we have  $x^2 + 5x + 28 - 5\sqrt{x^2 + 5x + 28} = 24$ . Let  $s^2 - 5s = 24$ , represent this equation; then  $s = 8$  or  $-3$ . Now  $\sqrt{x^2 + 5x + 28} = 8$  or  $-3$ ,  $\therefore x = 4$ , or  $-9$ , or  $-\frac{1}{2} \pm \frac{1}{2}\sqrt{-51}$ .

8. Let  $x-1$ ,  $x$ , and  $x+1$  represent the three numbers, then  $x(x^2-1) = 48x \therefore x^2-1=48$  and  $x = \pm 7 \therefore$  no's are 6, 7, 8.

9. (b) Since  $ax^2 + bx + c = 0$ ,  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ ;  $\therefore$  the roots are equal,  $b^2 = 4ac$ ,

$\therefore x = \frac{-b}{2a}$ . Solving the equation  $(2a^2 - 2ab)x + ab - b^2 = 0$  also gives  $x = \frac{-b}{2a}$

10. Since  $\frac{m}{x} = \frac{n}{y} \therefore \frac{m^2}{x^2} = \frac{n^2}{y^2} = \frac{m^2+n^2}{x^2+y^2}$  and  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

Then  $\frac{x^2}{a^2} \times \frac{m^2}{x^2} + \frac{y^2}{b^2} \times \frac{n^2}{y^2} = 1 \times \frac{m^2+n^2}{x^2+y^2} \therefore \frac{m^2}{a^2} + \frac{n^2}{b^2} = \frac{m^2+n^2}{x^2+y^2}$

## ARITHMETIC.

## TIME—THREE HOURS

NOTE—Ten marks allowed for each question.

1. Show that  $\frac{4}{5}$  of 1 =  $\frac{1}{5}$  of 4.

Simplify

$$\left\{ \frac{1}{4} \left( \frac{4\frac{7}{8} \text{ of } 6\frac{2}{3}}{7\frac{3}{4}} \right) \div \frac{3\frac{1}{3} + 2\frac{1}{6}}{3\frac{2}{3} - 3\frac{1}{6}} \right\} \text{ of } \text{£}182 \text{ 7s. 5d.}$$

2. Prove the principle on which the rule for finding the G.C.M. of two quantities depends.

Find the G.C.M. of 169037 and 66429, and the L.C.M. of 44, 48, 52, 96.

3. Define Ratio. Show how to find a fourth proportional to three given numbers.

A grocer has 224 lbs. of a mixture of chicory and coffee, the chicory being to the coffee as 1 : 6 ; what amount of chicory must be added to make the ratio 1 : 5 ?

4. A cistern (no lid) whose floor and walls are an inch-and-a-half thick, is 5 ft. 3 in. long, 3 ft. 7 in. wide, and 2 ft. 5½ in. high, in *external dimensions*; find the cost of painting the internal surface at 90 cents per square yard.5. Perform the following operations :— $\cdot 053407 \times \cdot 047126$  to six places of decimals; and  $2.569141797 \div 7.5284$  to five places of decimals. (Ten marks to be allowed if done by the *contracted* method; 5 marks for correct answer obtained in any other way.)

6. A note for \$730, drawn at 90 days and bearing interest at 8 per cent. per annum, is discounted by a broker 45 days before maturity; what must the broker pay for the note in order to realize 10 per cent. for his money? (No days grace).

7. A discount (true discount) of \$4 was allowed on a bill of \$52 that had 8 months to run, and at the same rate a discount of \$5 was allowed on a bill of \$75; how long had the latter bill to run.

8. A grocer mixed coffee at 28 cents a pound with some of a better kind at 42 cents a pound, and by selling the mixture at 35 cents a pound he gained 15 per cent. on the former and 20 per cent. on the latter; in what proportion did he mix them?

9. A vat 4 ft. long, 3 feet wide, and 9 inches deep contains pulp for making paper; a percentage of the pulp is lost in drying, and a sheet of paper 2700 yards long, 2 ft. 6 in. wide and  $\cdot 004$  of an inch thick, is obtained; what percent of the pulp was lost in drying?

10. Find the area of a trapezoid whose parallel sides are 27.5 and 38.5 chains respectively, and whose other sides are 12.5 and 15.5 chains respectively.

## SOLUTIONS.

1. £7 7s. 7d.

2. G.C.M.=121. L.C.M.=13,728.

3. At first, coffee =  $\frac{6}{7}$  of 224 lbs = 192 lbs. After the change coffee =  $\frac{1}{2}$  whole.  $\therefore$  192 lbs. =  $\frac{5}{8}$  of whole mixture in second case,  $\therefore$  whole mixture = 230½ lbs., and chicory added = 6½ lbs.

4. Deducting the thickness of the floor and walls, the area of internal surface is as

follows: sides =  $5 \times 2\frac{1}{3} \times 2 = \frac{70}{3}$  sq. ft.; ends =  $3\frac{1}{3} \times 2\frac{1}{3} \times 2 = \frac{140}{9}$  sq. ft.; floor =  $5 \times 3\frac{1}{3} = \frac{50}{3}$  sq. ft.  $\therefore$  total area =  $\frac{500}{9}$  sq. ft., which at 90 cts. a sq. yd. costs  $\$5\frac{5}{9}$ .

5. .002516+; .34126+.

6. Amount of \$730 for 90 days at 8 per cent. = \$744.40. At 10 per cent. for 45 days,  $\frac{9}{10}$  of P. = int.  $\therefore$  P.W. =  $\frac{733}{10}$  of \$744.40 = \$735.33 $\frac{2}{3}$ ; or, if taken to mean 10 per cent. per annum, the P.W. =  $\frac{10}{11}$  of \$744.40 = \$676.72 $\frac{2}{11}$ .

7. In the first case,  $\frac{1}{3}$  amt. = discount  $\therefore \frac{1}{2}$  of P.W. = interest. In the second case  $\frac{1}{3}$  amt. = discount  $\therefore \frac{1}{4}$  of P.W. = interest;  $\frac{1}{3} : \frac{1}{4} :: 8 : 6\frac{2}{3}$ , ans.

8.  $\frac{2}{3}$  of 28c. = 32 $\frac{2}{3}$ ;  $\frac{1}{3}$  of 42c. = 50 $\frac{2}{3}$ . By selling 1 lb. of each at average price 35cts., 2 $\frac{2}{3}$ c. are gained on 1st kind and 15 $\frac{2}{3}$ c. lost on 2nd. Hence to gain 1ct. on 1st kind,  $\frac{5}{7}$  lbs. must be taken, and to lose 1c. on 2nd,  $\frac{5}{7}$  lbs. must be taken  $\therefore$  to preserve the equality of gains and losses, the mixture must be in the proportion of 11 lbs. of 1st kind to 2 lbs. of 2nd.

9. Pulp =  $4 \times 3 \times \frac{7}{8} = 9$  cu. ft.; paper =  $8100 \times 2\frac{1}{2} \times \frac{1}{30000} = 6\frac{3}{4}$  cu. ft.  $\therefore$  loss of pulp =  $2\frac{1}{4}$  cu. ft. which equals 25 per cent. of 9.

10. This trapezoid is made up of a  $\square^m$  and a  $\triangle$ , the sides of which are 12.5, 15.5 and 11 chs. respectively. Area of any  $\triangle = \sqrt{s(s-a)(s-b)(s-c)}$  where  $s$  represents  $\frac{1}{2}$  sum of three sides, and  $a, b$  and  $c$  the three sides.  $\therefore$  area of this  $\triangle = \sqrt{4641}$  chs. Again, since the area of any  $\triangle =$  product of perpendicular into  $\frac{1}{2}$  base,  $\therefore \sqrt{4641}$  chs. = perp.  $\times \frac{1}{2}$ ,  $\therefore$  perp. =  $\frac{2\sqrt{4641}}{11}$  chs. Also, area of any trapezoid = prod. of  $\frac{1}{2}$  sum of parallel sides into perpendicular distance between parallel lines,  $\therefore$  the area of this trapezoid =  $6\sqrt{4641}$  sq. chs.

EUCLID.

TIME—TWO-HOURS-AND-A-HALF.

Values.

- |    |  |
|----|--|
| 6  | 1. Distinguish between <i>problem</i> and <i>theorem</i> , <i>axiom</i> and <i>postulate</i> , <i>direct</i> and <i>indirect</i> demonstration, <i>converse</i> and <i>contrary</i> propositions.                |
| 6  | 2. (a) What is the magnitude of each interior angle of a regular hexagon?<br>(b) If one side of a regular heptagon be produced, what is the magnitude of the exterior angle?                                     |
| 12 | 3. If from the ends of the side of a triangle there be drawn two straight lines to a point within the triangle; these shall be less than the other two sides of the triangle, but shall contain a greater angle. |
| 12 | 4. The opposite sides and angles of a parallelogram are equal to one another, and the diameter bisects it.   |
| 12 | 5. If a parallelogram and a triangle be upon the same base and between the same parallels, the parallelogram shall be double of the triangle.  |
| 12 | 6. To a given straight line to apply a parallelogram which shall be equal to a given triangle and have one of its angles equal to a given rectilineal angle.   |
| 12 | 7. If a straight line be divided into two equal and also into two unequal parts, the squares on the two unequal parts are together double of the   |

Values square on half the line and of the square on the line between the points of section.

- 8 8. Construct an isosceles triangle equal in area to a given scalene triangle, and upon the same base.
- 8 9. If two straight lines, AB and CD, cut each other in the point F, and AD, DB, BC be joined, and the triangle CBD be equal to the triangle ABD, then shall the straight line drawn through F, parallel to BD and terminated by the lines CB and AD, be bisected in F.
- 8 10. Let BCD be a triangle, and F any point in BC. Construct a triangle equal in area to the given triangle, with FC for one of its sides and the angle at C for one of its angles.
- 8 11. The squares on two sides of a triangle are together equal to twice the square on half the remaining side and twice the square on the straight line drawn from the point of bisection to the opposite angle.

## SOLUTIONS.

2. (a) The six  $\angle$ s of fig. + 4 rt.  $\angle$ s = 12 rt.  $\angle$ s,  $\therefore$  each  $\angle$  of the fig. =  $120^\circ$ .  
 (b) Each of the seven  $\angle$ s of fig. =  $51\frac{3}{4}^\circ$ .
8. Let ABC be any scalene  $\triangle$ . Through A draw EDF  $\parallel$  to base BC; bisect BC in H, and through H draw st. line HD at rt.  $\angle$ s to BC. Join BD and CD. BDC is isos.  $\triangle$  reqd.
9. Through F draw KFH  $\parallel$  to DB, join AC;  $\therefore \triangle CBD = \triangle ABD$ ,  $\therefore AC$  is  $\parallel$  to DB, and is also  $\parallel$  to KFH. Easily seen that  $\triangle AFD = \triangle CFB$ . FH must either be  $>$ ,  $=$  or  $<$  KF. Easily seen that if FH is  $>$  KF that  $\triangle FHC > \triangle FKA$ ; also that  $\triangle FHB > \triangle FKD$ .  $\therefore$  whole  $\triangle CFB$  is  $>$  whole  $\triangle AFD$  which is impossible,  $\therefore$  FH is not  $>$  KF. In the same manner it can be shown that FH is not  $<$  KF  $\therefore$  FH is  $=$  KF.
10. Join FD. Draw BE  $\parallel$  to FD, meeting CD prod. in E. Join FE; FCE shall be  $\triangle$  reqd.  $\triangle FDE = \triangle FDB$ , add to each the  $\triangle FCD$ ,  $\therefore$  &c.
11. Let ABC be any  $\triangle$ , D the mid. pt. of AB; to prove that  $AC^2 + BC^2 = 2(AD^2 + DC^2)$ . Let fall  $\perp$  CE, meeting AB or AB prod. in E; then  $AC^2 = AD^2 + DC^2 + 2(AD \cdot DE)$ , again  $BC^2 = BD^2 + DC^2 - 2[BD \text{ (or AD) } \cdot DE]$ ;  $\therefore AC^2 + BC^2 = 2(AD^2 + DC^2)$ .

## SOLUTIONS TO THE EXERCISES IN TODHUNTER'S EUCLID.

(Continued from the January Number.)

134. In figure II 4 let  $2AG =$  to HF and CK. If O be not pt of bisection let O be mid. pt. Then des. sq AOQP meeting HK on M. Then AG is  $\frac{1}{4}$  of sq. on AB  $\therefore$  is  $=$  to AQ  $\therefore$  HQ is  $=$  to OG  $\therefore$  rect. CB $\cdot$ CO is  $=$  to rect. CO $\cdot$ AO  $\therefore$  AO = CB.
135. Bisect str. line,  $\therefore$  the rect. of pts. is sqr. on  $\frac{1}{2}$  the line which by II, 5, is greatest rect.
136. Let ABCD be one sq. and ARFE be other, so that AB and DR, also AD and AE shall be in one str. line, produce EF to BC meeting it in L and then produce it to G so that LG shall be  $=$  to LB. Through G draw

- GP = to BC, and meeting DC produced in P. Then EGPD shall be rect. req.
137. Bisect str line. Then by II. 9, the sqs, on these str. lines are least poss.
138. Take figure of II. 10, then AD = sum of str. lines and BD = diff.  $\therefore$  AD<sup>2</sup> + BO<sup>2</sup> = 2AC<sup>2</sup> + 2CD<sup>2</sup> by prop.
139. Let A B be one str. line, E D the str. line on which sq. desc on. From centre A distance ED describe circle cutting AB, and at pt. B make  $\angle$  ABC, = to 45° and meeting O at C drop  $\perp$  CP on AB. Then AB shall be divided at P.
140. Let AB be str line, at pt. B make  $\angle$  ABC equal to 45° and at pt. A make angle BAC = to 22½ at pt. C make ACD = to BAC. Then A B shall be divided at D in manner req. For BD<sup>2</sup> is double of CD<sup>2</sup>  $\therefore$  double of DA<sup>2</sup>.
141. By Figure AF and AB are = to AH and AC and  $\angle$  FAB is = to  $\angle$  CAH  $\therefore$   $\angle$  FBH is = to  $\angle$  ACH, also  $\angle$  AHC is = to  $\angle$  LHB  $\therefore$   $\angle$  CAH is = to  $\angle$  HLB.
142. By figure  $\angle$  EBF =  $\angle$  AFB and  $\angle$  BLO is = to  $\angle$  BAF  $\therefore$   $\angle$  HOB is =  $\angle$  ABF  $\therefore$   $\angle$  ACO =  $\angle$  HOB  $\therefore$   $\angle$  ACO =  $\angle$  EOC  $\therefore$  EO is = to EC &c.
143. By figure (AH + HB) (AH - HB) = AH<sup>2</sup> - HB<sup>2</sup> = AB·HB - HB<sup>2</sup> = AH·HB.
144. Let CBA be  $\Delta$  and AD  $\perp$  to BC, BA<sup>2</sup> = CA<sup>2</sup> + CB<sup>2</sup> - 2BC·CD; CA<sup>2</sup> = BA<sup>2</sup> - CB<sup>2</sup> + 2BC·CD; CA<sup>2</sup> = 2BC·CD.
145. See page 293 Todhunter's Euclid.
146. Draw CE  $\perp$  to AB. CD<sup>2</sup> = DB<sup>2</sup> + BC<sup>2</sup> + 2 EB·BD; AB<sup>2</sup> = AC<sup>2</sup> = AB + BC<sup>2</sup> - 2 AB·BE; BC<sup>2</sup> = 2 AB·BE = 2 EB·BD; CD<sup>2</sup> = AB<sup>2</sup> + 2 BC<sup>2</sup>.
147. Let ACDB be a  $\square^m$  and E the pt. where diag's bisect. BD<sup>2</sup> + DC<sup>2</sup> = 2 DE<sup>2</sup> + 2 EC<sup>2</sup>; CA<sup>2</sup> + AB<sup>2</sup> = 2 AE<sup>2</sup> + 2 EC<sup>2</sup>. CA<sup>2</sup> + AB<sup>2</sup> + BD<sup>2</sup> + DC<sup>2</sup> = 2 AE<sup>2</sup> + 2 DE<sup>2</sup> + 4 EC<sup>2</sup> = AD<sup>2</sup> + CB<sup>2</sup>
148. Let EAB be  $\Delta$  with base AB bisected at C, and touching Oe at E; EA<sup>2</sup> + EB<sup>2</sup> = 2 AC<sup>2</sup> + 2 EC<sup>2</sup> which are invariable.
149. Let ACDB be a quadrilat, and E, F, H, G middle pts. of sides; AD<sup>2</sup> + CB<sup>2</sup> = 4FE<sup>2</sup> + 4 EG<sup>2</sup> = 2 EH<sup>2</sup> + 2 FG<sup>2</sup>.
150. Let BDEC be a  $\square^m$ , diag's bisect at F, with F as a centre describe a circle. Take any pt. A in Oe, and join AB, AD, AC, AE, AF. BA<sup>2</sup> + AE<sup>2</sup> + DA<sup>2</sup> + AC<sup>2</sup> = 2 AF<sup>2</sup> + 2 BF<sup>2</sup> + 2 DF<sup>2</sup> + 2 AF<sup>2</sup> which are constant.
151. Let ACDB be a quadrilat. bisect CB at E and AD at F. Join AE, ED, EF. BD<sup>2</sup> + DC<sup>2</sup> = 2EB<sup>2</sup> + 2ED<sup>2</sup> AB<sup>2</sup> + AC<sup>2</sup> = 2BE<sup>2</sup> + 2AE<sup>2</sup>. AB<sup>2</sup> + BD<sup>2</sup> + DC<sup>2</sup> + AC<sup>2</sup> = 4EB<sup>2</sup> + 2ED<sup>2</sup> + 2AE<sup>2</sup> = CB<sup>2</sup> + AD<sup>2</sup> + 4EF<sup>2</sup>.
152. Let F be centre of circle. EC<sup>2</sup> + ED<sup>2</sup> = 2EF<sup>2</sup> + 2CF<sup>2</sup> = 2AF<sup>2</sup> + 2DF<sup>2</sup> = AC<sup>2</sup> + AD<sup>2</sup>. (II. 10.)
153. Take E the middle pt. of AD. Join BE, EC. AB<sup>2</sup> + BD<sup>2</sup> = 2DE<sup>2</sup> + 2BE<sup>2</sup>. AC<sup>2</sup> + CD<sup>2</sup> = 2EC<sup>2</sup> + 2ED<sup>2</sup>. 2DE<sup>2</sup> + 2BE<sup>2</sup> = 2EC<sup>2</sup> + 2ED<sup>2</sup>; 2BE = EC.
154. Let ABC be an isos.  $\Delta$ . From A the vertex draw AD cutting base at D. Draw AE  $\perp$  to BC. Suppose  $\angle$  ADC obtuse. AD<sup>2</sup> = AC<sup>2</sup> - DC<sup>2</sup> - 2CD·DE = AC<sup>2</sup> - BD·DC.
155. Draw AF  $\perp$  to DE meeting BC at H; EA<sup>2</sup> + AB<sup>2</sup> = DA<sup>2</sup> + DE<sup>2</sup> - 2DE·DF + BC<sup>2</sup> - CA<sup>2</sup> = DA<sup>2</sup> + 2BC<sup>2</sup> - 2CB·BH - CA<sup>2</sup> = DA<sup>2</sup> + 2BC<sup>2</sup> - 2BA<sup>2</sup> - CA<sup>2</sup> = DA<sup>2</sup> + CA<sup>2</sup>.
156. BD<sup>2</sup> = AD<sup>2</sup> + AB<sup>2</sup> - 2BA·AE; 2BA·AE = AD<sup>2</sup> + AB<sup>2</sup> - BD<sup>2</sup> = AD<sup>2</sup> + AC<sup>2</sup> - CD<sup>2</sup> = 2CA·AD.
157. Let CBA. be any equilat.  $\Delta$ , draw BD to meet CA produced at D; bisect

- CA at F.  $BD^2 = BA^2 + AD^2 + 2FA \cdot AD = BA^2 + AD^2 + CA \cdot AD = BA^2 + CD \cdot DA = 2AC^2$ .
158. Let  $\triangle BAD$  be a  $\triangle$  having vertical  $\angle A$  a rt.  $\angle$  draw  $AC \perp$  to  $BD$ .  
 $AD^2 = AB^2 + BD^2 - 2BC \cdot CD$ .  $AC^2 + CD^2 = AC^2 + BC^2 + AB^2 + AD^2 - 2BC \cdot CD$ .  
 $CD^2 = 2BC^2 + 2AC^2 + CD^2 - 2BC \cdot BD$ .  $BC \cdot BD = BC^2 + AC^2$ .  
 $BC \cdot CD = AC^2$ .
159. Construct same as preceding, then  $BC \cdot CD = AC^2$ ;  $BC \cdot BD = AB^2$ .
160.  $BC^2 = BA^2 + AC^2 + 2CA \cdot AE = BA^2 + EC \cdot CA + CA \cdot AE = BA^2 + BA \cdot AF + EC \cdot CA = FB \cdot BA + EC \cdot CA$ .
161. Let  $AB$  be the larger str. line and  $C$  the smaller, through  $B$  draw  $BD =$  to  $C$  at rt.  $\angle$ s to  $AB$ , bisect  $AB$  at  $E$  and from  $E$  at the distance  $EB$  describe the circle  $ABF$ . Through  $D$  draw  $DF \parallel$  to  $AB$  and meeting the circle at  $F$  and from  $F$  draw  $FG \perp$  to  $AB$ ;  $AG \cdot GB = BD^2 = G^2$  by Prop 14.

## MATHEMATICAL NOTES.

In solving such questions as the following :—If  $A$  can do a piece of work in 5 days,  $B$  in 6 days, and  $C$  in 8 days; in what time can all three working together do the work? A simpler solution than the ordinary one may be given, and this class of questions placed under L. C. M. instead of under Fractions as is usually done. Thus,

If  $A$  can do the work once in 5 days he could do it 24 times in 120 days.

B	“	“	20	“	“	“
C	“	“	15	“	“	“

$A$ ,  $B$  and  $C$  together could do the work 59 times in 120 days, or once in  $1\frac{5}{59}$  days. It will be seen that 120 is L. C. M. of 5, 6, 8; and so in all similar cases.

FIRST CLASS PROVINCIAL CERTIFICATES, COMMENCING 26th  
DECEMBER, 1873.

ALGEBRA.

TIME—TWO-HOURS-AND-THREE-QUARTERS.

- Three clocks,  $A$ ,  $B$  and  $C$ , the first of which is gaining uniformly, and the last losing uniformly, while the second keeps correct time, are all right at noon. The rates at which they go are in geometrical progression. When  $C$  indicates midnight,  $A$  is  $2\frac{1}{17}$  minutes ahead of true time. Find how many seconds  $A$  gains, and how many  $C$  loses, in the hour.
- $A$  hare is a certain distance ahead of a greyhound. It takes 12 leaps in  $m$  seconds, the greyhound taking 9 leaps in the same time; and 2 of the greyhound's leaps are equal to 3 of the hare's. After having taken half as many leaps as are necessary to catch the hare, the greyhound increases by one the number of leaps it takes in  $n$  seconds, the length of its leaps remaining unchanged. In consequence of this, it catches the hare  $t$  seconds sooner than it would otherwise have done. Find by how many of its own leaps the hare was ahead of the greyhound at starting.
- Given  $(m + n) pq = p + q$ , and  $(p + q) mn = m + n$ . Prove that, if  $m$  and  $n$  be the roots of the equation,  $2x^2 + ax + 3 = 0$ ,  $p$  and  $q$  shall be the roots

of the equation,  $3x^2 + ax + 2 = 0$ ,  $a$  being supposed to be distinct from zero. Inquire whether the theorem holds good when  $a$  is zero.

4. Find in how many ways 12 guineas may be made up of half-guineas and half-crowns.

## SOLUTIONS.

1. Let  $12 + x$  P.M = correct time in hours.

$$\text{Then } \frac{12+x}{12} = \frac{12+x + \frac{2\frac{1}{8}n}{60}}{12+x}; \therefore (12+x)^2 - 12(12+x) = \frac{3\frac{1}{8}n}{60}.$$

$\therefore x^2 + 12x = \frac{3\frac{1}{8}n}{60}$  and  $x = \frac{1}{30}$  hrs, or 12  $\frac{1}{30}$  P.M = c. t. A in 12  $\frac{1}{30}$  hrs. gains 2  $\frac{1}{8}$  m.  $\therefore$  in 1 hr. A gains 10 seconds and C in one hr. loses 9  $\frac{3}{8}$  seconds.

2. Let  $x$  = No. of its own leaps the hare was ahead of g. h. at starting. Hare takes 12 leaps in  $m$  seconds and hound 9 leaps in same time. 9 of hound's leaps = 13  $\frac{1}{2}$  hare's leaps.  $\therefore$  hound gains 1  $\frac{1}{2}$  hare's leaps in  $m$  seconds.

$\therefore$  hound gains  $\frac{1}{2}x$  leaps in  $\frac{mx}{3}$  seconds.

Again, 9 leaps in  $m$  sec. =  $\frac{9n}{m}$  in  $n$  sec.  $\therefore$  increased rate =  $\frac{9n}{m} + 1$  in  $n$

sec. wh. =  $\frac{9n+m}{9n}$  of former rate.  $\therefore$  time for 2nd half =  $\frac{9n}{9n+m}$  of time

for 1st half =  $\frac{mx}{3} \times \frac{9n}{9n+m}$ .  $\therefore \frac{mx}{3} - \frac{mx}{3} \times \frac{9n}{9n+m} = t$ .

$$\therefore x = 3t \left( \frac{m+9n}{m^2} \right).$$

3. (a),  $(m+n) pq = p+q$ ; (b),  $(m+n) = (p+q) mn$ . I Eq.  $x^2 + \frac{a}{2}x + \frac{3}{2}$

= 0. Since  $m$  and  $n$  are the roots,  $-\frac{a}{2} = m+n$ , and  $\frac{3}{2} = mn$ . II Eq.  $x^2$

+  $\frac{a}{3}x + \frac{2}{3} = 0$   $\therefore -\frac{a}{3} =$  sum of roots, and  $\frac{2}{3} =$  prod. of roots. Sub-

stitute in (b) the values of  $(m+n)$  and  $mn$ ; then  $-\frac{a}{2} = \frac{3}{2}(p+q) \therefore p+$

$$q = -\frac{a}{3}$$

Again,  $-\frac{a}{2} \times pq = -\frac{a}{3} \therefore pq = \frac{2}{3} \therefore p$  and  $q$  are the roots of  $3x^2$   
+  $ax + 2 = 0$ .

4. Let  $x$  and  $y$  denote the number of  $\frac{1}{2}$  crowns and  $\frac{1}{2}$  guineas, then  $5x + 21y = 504$ .  $\therefore$  it can be paid in 4 ways.

Solutions of First Class Algebra Paper for July, 1873, the remainder of those for December, 1873, and of the Intermediate Philosophy, December, 1878, were prepared for this Number, but, having been crowded out, they will appear in our next issue.



## OUR EXCHANGES.

Knowing the difficulties which have embarrassed and discouraged all who have undertaken to establish monthly periodicals in Canada, it must be acknowledged that Mr. Adam and his co-laborers are to be congratulated on the great success of the *Canada Educational Monthly*.

If excellent typography, suitable subject matter, and good literary taste are omens of success, then we predict for this educational periodical a most prosperous career. None of its readers can fail to appreciate the ability and freshness which have characterized the articles that have appeared in each number. Since the last appearance of THE QUARTERLY three numbers of the *Canada Educational Monthly* have made their appearance, each succeeding number of which, has increased the high opinion formed of it at its inception. Every Canadian interested in that which concerns the best interests of his country should use his utmost endeavors to promote the circulation and enhance the success of a magazine which reflects great credit on the editor and his co-adjutors.

Having given so much space to mathematics in this issue we are compelled to forego noticing at length our other exchanges. The *Queen's College Journal*, *Kingston Coll. Inst. Herald*, *Acta Victoriana*, *Morrisburg High School Journal*, *Tyro*, *Canada School Journal*, *St. Thomas Home Journal*, *Pembroke Observer*, *Montreal Spectator*, &c., &c., are to be found regularly on our table. They are always welcome and we shall be pleased to notice them at greater length when space will permit.

## THE FINE ARTS OF THE SCHOOL.

The Drawing Master, Mr. W. C. Forster is certainly working up his department of the school, if we may judge from the numerous drawings done by his classes. The Lower First Form

began the session with some knowledge of the subject, and now they are at groups from the flat and geometrical design. The pupils of the Seconds have commenced drawing from objects and from day to day the blackboards bear testimony to their skill and industry. The *Upper Firsts* are about to follow the same course, and it is hoped with equal success. Each pupil has to make two drawings per month; these drawings are made at home and from objects; as it may be the means of gradually improving the surroundings of each home, cultivating the taste and producing some interest in art matters, the home work is considered of the highest importance.

Mr. Forster's classes in oils and water colors meet as usual on the afternoons of Monday and Thursday in Room No. 12.

At a late meeting of the East Middlesex Teachers' Association, Mr. S. K. Davidson, a former student of our school and pupil of Mr. Forster, gave an address and lesson on Drawing, which was so highly appreciated by its members that a large number of them immediately formed themselves into a class for instructions from him in the subject. Although it is only a few months since he left us, Mr. D. has already earned an enviable reputation for himself as an artist. He says, in his letter to Mr. Forster, "In painting I learnt more from you than I ever did from any other master."

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