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ON BUCKLE'S THEORY OF HISTORY.

BY FRANCIS RYE, BARRIE.

"There is a mystery in the soul of States
Which hath an operation more divine
Than our mere chroniclers dare meddle
with."*

YEARS have passed by since Buckle first gave to the world his views upon the true method of historical enquiry, and, as yet, no one has been bold enough to take up the task which he began and to push the principles he enunciated to their legitimate conclusion. I propose in this paper to state shortly what his leading views and principles were, to enquire into the sufficiency of some of the grounds upon which his method has been attacked, and to give such a sketch of the plan of his great work as may prove of interest to those who have not had an opportunity of reading it themselves.

The first volume of the "History of Civilization in England" appeared about 1857, and as this struck the key-note of Buckle's system, we may say that his theory has awaited a general acceptance at the hands of the civil-

ized world for nearly a quarter of a century. That key-note consisted in the bold assertion that blind chance baffles itself in attempting to influence the career of nations, baffles itself by continually counteracting and neutralising its own operations, even as the element of uncertainty in tossing up a coin becomes eliminated if we repeat the experiment often enough. But if chance is removed from the equation, as an unimportant and self-cancelling factor, a clear field is evidently left for the manifestation and consequent detection of those widely extended laws which have ever been silently at work, however hidden by the outward drapery, so to speak, of current and unimportant events, the external glitter of which has attracted our attention from the really vital processes of nature that underlie them.

To revert a moment to our illustration. If after a thousand spinnings of our penny in the air we found a small, but still a marked, excess in the number of times head came up over the number of times that tail was

* "Troilus and Cressida," Act 3, sc. 3, as altered by Coleridge.

uppermost, we should conclude that there was a reason for this. And searching keenly we might find a reason, either in some slight irregularity in the shape of the coin or in the distribution of the mass of metal between its two surfaces. Enquiring still further, we might find other disturbing elements, and we might be obliged to play off one against the other in order to prove the exact preponderance of "head" over "tail" which we discovered empirically by our thousand tosses.

Mr. Buckle hoped to prove that the actions of mankind, taken on the grand scale and cast into the crucible of history would yield sufficient data from which to construct the great laws that have governed the development and the decline of nations. It is admitted that these actions and their resultant laws are far more complicated than those which govern the gyrations of a penny, but at the same time the field of enquiry is also wider, and although we cannot test our views experimentally, we can check them by asking if the laws we have evolved from the history of one nation hold good (*mutatis mutandis*) when applied to a different race and another epoch. This may be said, shortly, to be the novel view of history propounded by our author.

He intended to have done more than propound it, he hoped to have put it into practice, and to do so in a field of study dear to every Englishman,—the history of civilization in his own native country. It was on this subject, he tells us, that his deepest sympathies were centred, to English literature he acknowledged that he owed his best lessons, and it was the most cherished wish of his heart that it might be given to him to apply his novel principles in elucidating the successive phases of English history. Those who have read the *torso* which is all that remains of his projected

work, can imagine how deeply interesting the completed history would have been. His untimely death frustrated these hopes and left even his introduction incomplete. For it was part of the vast plan of this great scholar to conduct the student through selected eras of French, of Spanish, of Scotch, and of German history, which would lead on his mind to the appointed end as a succession of fair vestibules and noble court-yards lead on the eye to some grand temple or magnificent palace. We were to study in France the evil effects of state patronage upon national literature and science, and the deeply rooted causes of that centralizing or protective spirit which reappears under the most diverse forms of government in that country. In Spain we were called on to see, in the physical conformation of the country, in its early religious wars, and the long struggle which it waged for life with the Moors, the seeds of that predominance of the religious classes which has run its course almost unchecked in that isolated country. Without going over all the ground covered by this introduction I may shortly state that Buckle expected by its means to discover and give *prima facie* evidence of those general laws which he intended to apply, to elaborate, and to illustrate, in the body of his work.

About the middle of his third volume, his heart failed him lest he should have miscalculated his powers. In a touching passage at the close of his third chapter* he owns that the plan he had sketched out for himself must be curtailed. In order to avoid sacrificing the work to its introduction he had to reconcile himself to a slighter construction and a less detailed method of proof. He refers, pathetically, to those earlier days when the field of knowledge, then suddenly re-

* Vol. III., p. 188.

vealed to him, seemed so fair that he aspired not only to cover the surface, but to master the details. That expectation he sorrowfully abandons. Perhaps, too, he thinks, he may have to console himself with the mere honour of vindicating the new principles of historical writing, leaving their application to the maturer studies of succeeding generations. This last thought foreshadowed his fate, for he died at an early age while travelling in Palestine. His enemies scoffed at the inveterate doubter's journey to the Holy Places; but he had more of the spirit of the Crusaders than they would fain allow. The energy and the chivalrous love of combat that led so many to die near the same spot burned in him too, and that deep faith which would seem, at first sight, to be wanting in his character, really drove him onwards with an overwhelming influence; but the object of that faith was not religious dogma, it was directed towards the reign of harmony and law in the affairs of men no less than in the inorganic world of chemistry. This belief was his creed, it edged his blade and nerved his arm, and to it he paid a devotion as sincere as ever Our Lady of Succours received from belted knight or monk of the order of Jesus.

The principles which Buckle conceived he had demonstrated may be shortly stated as follows:—Physical agents, such as climate, food, and soil, exercise an influence over the accumulation and distribution of wealth. A more intangible influence is exercised by the general aspect of nature, its earthquakes, tempests, pestilences and famines, upon the understanding and imagination of mankind, but this latter influence has not been powerful enough in most European countries to develop the imagination to that morbid extent which was attained in many of the extra-European civilisations. I will pause here for a moment to remark that much criticism has been

directed with the view of ridiculing the idea that the aspect of nature is a factor in the formation of national character. It would occupy too much space to go into this controversy at length, but I will give two instances which occur to me at the moment in which men of widely differing views, and neither of whom were in any way disciples of Buckle, have, unconsciously perhaps, ratified and illustrated his conclusions on this head. The first is M. Taine, who has devoted much of the opening part of his "History of English Literature" to the enunciation of the theory that our national poetry and prose owes much of its present form to the peculiar climate and scenery among which our early poets found themselves. Their damp, cloudy skies, their lush water meadows, heavy with dew, their deep forests full of a perpetually green vegetation, almost sodden with moisture,—the short, joyous English summer, the long, dreary English winter,—provocative of love for home and fireside pleasures, the effects of all these M. Taine thinks can be detected even in our modern poetry. Clearly he thinks the aspects of nature have done much to make us what we are now. The other authority I will quote is Lord Beaconsfield, who, in a speech delivered in Parliament during the debates on the Irish Church question, in alluding to the mental and moral peculiarities of the Irish as a people, accounted for some of them by the fact that Ireland was surrounded by a "melancholy ocean." This was not argument, but merely one of his Lordship's happy epithets; we may however see from the fact of his using it how deeply rooted is the notion that our local surroundings *do* tell upon us. If I were to trace this thought through general literature and show how Wordsworth has sung of one who lived near a waterfall, that

"Beauty born of murmuring sound did pass into her face,"

and how the grand old Grecian myths told the same tale, I should be allowing this digression to run away with me, and will therefore pause while there is yet time.

The next great rule is that, in Europe at least, mental laws are more powerful than physical laws in moulding the fates of nations. Consequently our first study must be the operation of the mental laws, and we must consider the others as merely subsidiary or conflicting and disturbing elements. Of mental laws, those which we call intellectual, affording as they do unlimited scope for expansion, are more potent in bringing about a state of civilization than moral laws, which are from their nature hardly capable of progressive improvement.

I have now gone briefly over the great general principles on which Buckle expected not only to explain the past, but to a certain extent to forecast the future: it remains to consider a few of the objections that have been urged against his theory.

I do not number among the objections worthy of an answer that common stigma of infidelity which Buckle had to endure in common with so many other noble minds. But as that reproach may operate to deter many from opening his pages, it is only just that I should point out how falsely it is applied to him. His sentiments towards Christianity may be gathered from his allusions in the chapter on the early causes of the French Revolution to what he calls "the unhappy crusade against Christianity" which preceded those times of upheaval. In a noble passage he points out how the abuses of the system might have been cut away while the foundations of Christianity remained intact. While preserving the right to reform a Church as well as other institutions, he says, "we dare not tamper with those great religious truths which are altogether independent of it, truths

which comfort the mind of man, raise him above the instincts of the hour, and infuse into him those lofty aspirations which, revealing to him his own immortality, are the measure and the symptom of a future life."*

It is said, however, and this deserves an answer, that Buckle's theory of necessary laws governing the course of national existence detracts from man's freewill and God's superintending Providence. For the purpose of this argument it will only be fair for us to take it for granted that individual freedom of will *does* exist in some degree, as it would be merely evading the difficulty, to take shelter under the Calvinistic doctrine of predestination. But in the first place the objectors are met by this reply, that freedom of will in the unit is perfectly consistent with the subjugation of the group or family to a law. Take a herd of cattle grazing in the meadows, free to go in any direction they please. As the sun rises in the heavens the herd (*as a herd*) will probably have gone to seek shelter under the trees, although a stray cow here or there may prove its independent spirit by wandering in a different course from the rest.

Again, this freedom of will is not absolute. We are all of us aware, for instance, of the force of hereditary influences, how the child of a drunkard may inherit the fatal craving for liquor, how disease, deformity, habits, and even crimes descend no less surely than riches and honours, a truth recognized alike by the prophet who spoke "of the fathers having eaten sour grapes and the children's teeth being set on edge," and by the social poet who passes his laugh and his jest at some

"—tenth transmitter of a foolish face."

* Vol. ii, p. 255. I do not wish to deceive people by leading them to believe from what I have said above that Buckle was an orthodox Christian. His position reminds me more of Shelley's, a dislike of modern Christianity because of its dissimilarity to Christ.

Here is at once a limitation, a curb to our free will. The drunkard's child is *not* so free as his schoolfellow to lead a pure and innocent life; it is a harder struggle for him; and though one here and there may have strength enough to endure and to conquer, yet the heavy weight thus imposed upon the offspring of inebriates will throw them as a class out of all hope of success in the great race of this life.

I need not suggest the many other curbs on our free will. We take away from each other and from ourselves large portions of this freedom. If laws are not altogether inoperative, they prevent our indulging in crimes as often as we should otherwise do, therefore our national virtue *ends*, to some extent, not on the aggregate will of the community, but on the wisdom of the rules it has devised, or which have been devised in former ages, to preserve order and property, and the diligence with which these rules are enforced. These are matters so external to ourselves, and yet they operate so clearly on national character, that to my mind they prove beyond question the position taken by Buckle, that outward circumstances *do* control the life of a people and "shape its ends" without in the least conflicting with the exercise of the qualified free-will such as I have described, on the part of every citizen within its borders.

Individual action, as opposed to the corporate life of a nation, being thus left to a certain degree untrammelled, it is obvious that a field remains for that immediate exercise of a personal superintending Providence over man, the existence of which is believed in by the overwhelming majority of Christians.

But, when we come to the larger dealings of Providence, by which God is supposed to punish, to reward, and to chasten nations, the case is different. Certainly we must concede that

Buckle's theory clashes with the view too commonly taken of this vast superintending and controlling power. It is quite incompatible with the belief that such a Providence is exercised in an irregular manner or with a disproportionate measure; it cannot be held by those who believe that a pestilence may be the appointed punishment of a national crime, which is utterly unconnected with the causes of that pestilence, or that the weather can be altered by fasting and prayer. But while the theory rejects such views of Providence as these, does it not raise our ideas of what God's Providence really is? Is not the conception of law and order the noblest we can form in constructing an ideal government of the universe? Is not it owing to the fact that we, poor weak and foolish mortals, feel cramped and injured by laws, which distress us the more in proportion to the difference between our meanness and their all-embracing wisdom, that we fail to conceive the absolute freedom and happiness of an All-wise God, bound by laws which, being part of Himself, cannot gail or hinder Him, and whose desires can never, even for a moment, be antagonistic to them? So far as we can tell, God works always by such laws. The pestilence warns us to be clean in our bodies and homes. The drought and the famine bid us see to our irrigation systems, natural or artificial, and to clothe once more with high-waving forests the lofty hill-tops which we have too greedily stripped of their timber.

All these laws are teaching us such simple lessons as these if we will but heed them, telling us frankly and plainly what we should do in the plain matters of daily life. "Nature," says Kingsley, "is God's good will expressed in facts." Too often, unfortunately, we refuse to listen to these small clear voices that are sounding all around us; or, rather, with per-

verted ingenuity, we wring from them meanings which their words do not convey. We will not take the simple explanation of God's anger which lies on the surface of the pestilence, we must fain detect a deeper meaning. Perhaps we are angry ourselves at some recent national act, some policy which we, perchance, opposed unsuccessfully, and at once with unparalleled boldness and hypocrisy we seize on the famine or the plague, the inundation or the conflagration, and try to degrade these weapons of God's wrath into our service and to make the Almighty himself a partisan in our petty and ignoble strifes. How often this has been done all readers of history know well. It is to my mind no slight recommendation of the theory under consideration that when it is more widely received such degrading views of God's Providence will gradually die out.

If I were asked what was Buckle's most conspicuous fault as a historian, I should unhesitatingly say, his absence of a complete sympathy with bygone ages, and his being unable to see any good in old forms of thought, which are clearly unfitted to assist the progress of enlightenment. Now this defective sympathy is very destructive to good historical writing. I do not allude merely to the external beauties of narrative, though even there sympathy comes largely into play and (truthfulness being supposed on both sides) everyone would prefer a history of Ireland written by one of Irish race and feelings to a similar history by one of the dominant faction, or a Protestant life of Latimer and Ridley to a Roman Catholic one. But I refer more especially to that insight into the springs and germs of policies, into the aims and real objects of institutions, which is seldom given but to the eye of a loving as well as an intelligent criticism. It is true that Buckle allows to the Church in the

Middle Ages a considerable share of praise for its work in keeping alive some spark of learning, and for preserving some bond of common fellowship between wrangling kings and half barbarous tribes. But when he comes to speak of the literature of that period his condemnation of it is most sweeping. Indeed, to judge from the samples he gives of it, it was beneath contempt and could only serve to harass and clog the human mind in its slow struggle to the light. But had Buckle possessed that gift of sympathy which I have spoken of, he would have recognized the fact that, at one period, at least, those innumerable legends of Saint and Bishop *did* convey a lesson, *did* subserve a moral purpose. I will give a few examples.

When slavery was universal throughout Christendom, how touching to all true hearts must have sounded the tale of the self-inflicted penance of St. Bavon of Ghent, who, having sold a man in chains, sought him out and prayed with bitter tears to be allowed to take his place in prison, there to expiate beneath the lash of the taskmaster the act which he so bitterly regretted.

Or again, there was the true life of St. Germain by Paris, the forerunner of our own Wilberforce, who spent rent and revenue in redeeming fellow-believers from slavery, and who sat at last, mournful and dejected, when he had spent his all, not, mind you, grieving that he himself was left penniless, but because the cries of bondsmen must rise to heaven unanswered.

When coarse and obscene language was on every man's lips, what a true reprimand was contained in an incident in the life of St. Valery, who, travelling on foot in the winter time, stopped to rest, half-frozen, in a priest's house. He tried in vain to check by gentle reproof the idle words of the company, the, turning away

from the shelter and the warmth, chose to face the inclement night rather than listen to their gross and blasphemous discourse.*

One more example must suffice. St. Anselm met a boy in the pleasant Kentish meadows, playing with a bird, which was attached to his wrist by a string. "Ah! I wish thou wert free," exclaimed Anselm, half involuntarily, and straightway (so ran the legend) the bird flew away into the woods.†

Was not this enough to make any man reflect on the sanctity of life and liberty, even among the animal creation, then so grievously oppressed by hawk and hound; all the spare energy of man being centred on forest pleasures, and all his harshness occupied in devising forest laws.

Regarding the early legends in this light we can see that they were calculated to convey moral lessons which could in no other shape have been rendered acceptable to the people, but at the same time we must not forget that in so far as they usurped the place of true historical literature, they deserve all the censure which our author has heaped upon them. Growing up a rank and tangled herbage, they choked not only history, but all forms of literary work, and in many cases were perpetuated on parchments from which the great works of classical authors were expunged for their reception.

I have not attempted to give in this short paper the minor laws which Buckle evolved from his study of the

* Guizot's "History of Civilization in France," vol. ii. (Bogue's Edition—Lecture 17, where the above examples will be found).

French, Spanish, and Scotch civilizations. Some of these have been attacked, but as a rule criticism has rather attempted to impugn the illustrations and instances with which he enforced his conclusions, than the soundness of those conclusions themselves. It is probable he may have erred in the application of his own general rules, but the spirit of those rules will, in my opinion, govern the future of historical literature, which, ever pushing onward into the region of science and determinate laws, will abandon that style which loved to linger in Courts and Camps and to picture the rise and fall of nations as dependent upon a favourite's caprice or the accidents of a foughten field.

In that higher, purer atmosphere none but large minds will breathe with pleasure,—but to them, how exalting and mentally invigorating will be the prospect! Nor need smaller capacities complain, for, far below those glittering heights, rose-red in the flush of morning, there will be ample space left for the petty crowd, who will find in their memoirs, chronicles, court calendars, genealogies, and Dryasdust biographies a congenial field for the exercise of their feeble capacities. No longer usurping the place of history, these minor studies will at once take up their true position as its feeders and gazetteers, and, with an irony not unfrequently seen in events, will furnish materials for those wider generalizations by which they themselves are doomed to be superseded.

† Vide Eadmer's Life of Anselm, or Berington's "Literary History of the Middle Ages," p. 176.

THE MORAL DISCIPLINE OF THE SCHOOL.

BY RICHARD LEWIS, HEAD-MASTER, DUFFERIN SCHOOL, TORONTO.

THE education of a human being presents itself in a three-fold aspect. Man is an animal, subject to the influences of physical laws; he is a rational being with capacities and necessities for mental culture and development; and he is a moral being, endowed with conscience and governed by laws of duty to himself and his fellow man, which he cannot transgress without incurring penalties. Each of these capacities is so distinct from the other, that one may be cultivated to a very large and almost undefinable extent without regard to the other, although the three are necessary to the full development of the perfect man. I do not deny the presence and the supreme claims of a fourth characteristic—the religious. But although it is common to assert that the moral may flourish without the religious, I prefer to accept the fuller and higher view that there can be no true religion without the highest morality, and that he who is faithful in the highest sense to the moral impulses of his nature and the behests of conscience, is indisputably a religious being.

Now education as it is passing through experiments and becoming moulded into the fashion of an Art, is taking full cognizance of the two aspects, the animal and the intellectual. For securing the first, every consideration is paid to the claims of the body. Ventilation of school rooms, exercises for muscular develop-

ment and general health, whatever is considered necessary to good health, receives more or less attention, and advances its claims in the economy of school government. For the development of mind, methods are still more advanced. Never before was such activity, such thoughtfulness, and so much invention manifested. In this regard—the cultivation of the mind by methods of instruction, study, books, and other appliances—education is fast rising to the dignity and safety of a systematized art. Much of this is no doubt due to the fact that mental proficiency, success in study, pays best. It pays the student best as it wins him distinction and substantial rewards, and it pays the teacher best, as his professional reputation depends chiefly on this kind of success. Society has not yet attained the wisdom of regarding the moral culture of the pupil as the highest and final object of all education.

But I must be understood in making that accusation. Does any national school system sanction in any form falsehood, vice, or irreligion? Of course it does not. If we take this Province as an illustration, we know that all school authorities unanimously enjoin the supreme claims of morality and religion. Nay, the school is in many respects in advance of society in its careful regard for propriety of conduct, and those external acts by which the sovereignty and providence of God are acknowledged; and though

bigotry may libel our public schools as Godless, I have no hesitation in saying that in all the external forms of morality and religious reverence they will bear honourable comparison with the best governed families and the most austere of the churches.

But it is the absence of method in the moral training of the pupils which chiefly marks school government. Systems of literary and scientific training are assuming form and permanency. If you take arithmetic or grammar, for example, you will find every teacher in the land following very similar methods, and these, improved by experience, produce the best results. There is system, and little is left to the waywardness of fancy or the uncertainties of temperament. But examine how any two teachers secure diligence in study, respect for authority, truthfulness, courtesy, and manliness of character, and you will find that all that lies outside of intellectual training, and all that lies in the province of morality and religion is uncertain and dependent on the views and character of the teacher. He may be in character and practice an Arnold, and regard the moral and spiritual training of his pupils as his highest responsibility. But the probability is that the claims of mental culture under the pressure of competition, whether in high or public school, will be supreme, and that the moral discipline generally amounts to nothing beyond occasional counsels and rebukes, hastily given, often under irritation, and that corporal punishment is regarded as the quickest and best remedy for all moral disease.

Probably the grand mistake, in many instances, is to believe that the moral culture of the pupil means suppression, not development. That is the principle that guides jail discipline, and it cannot be denied that as it is apparently the easiest method it too often marks the school discipline. It is the

easiest and quickest mode of getting rid of the difficulty. It owes its success to the fear of pain; and because it is the quickest way to put down disorder or misconduct of any kind, it is always in favour with teachers who have no high conception of the moral culture of their pupils, or who are only anxious for success in the intellectual contests.

The school discipline is the preparation for the future life of the pupil; and in many respects it is the most important discipline which he can receive. The home discipline is uncertain and incompetent. The discipline and teachings of the Church in a human point of view can do little beyond the creation and maintenance of religious habits: and the habits are in danger of lapsing into mere formalism, because the judgment is not ripe to appreciate them. The Sabbath-school is a better agency for moral culture; but there the attendance of pupils is uncertain, the influence of the teacher comparatively weak, and the time given to instruction bears no comparison with that of the day-school. It is however urged in behalf of the Church and the Sabbath-school that their ministrations and teachings are sacred and blessed of God. But why may we not claim for the day-school all that is claimed for the Church and the Sabbath-school? The culture of an immortal being—body, mind, and soul—is its final purpose, and this culture in its moral and spiritual aspects—outside the limits of denominational theology—is sacred and susceptible to divine influences, and equally subject to divine regard. It is herein I apprehend that the great mistake is made. Parents and teachers have been so impressed by this view: that the Church and the Sabbath-school were sufficient for moral and spiritual culture, and the day-school had no other vocation than that of fitting the pupil for the material business

of life, that the day-school teachers who have such manifold opportunities of knowing their power as agents for the higher culture have been misled by public opinion, and have made success in studies, which means success in life the highest object of their vocation. Let it not be suspected for a moment that I am here pleading for the re-institution of denominational theology in the programme of the day-school. I hold that the school-room, in its freedom from denominational partisanship and prejudices, in its grand aspect of Christian liberty and unity, is the most hopeful fountain and nursery of Christian charity and beneficence. All that I urge is that the principle and sense of *DURV*, in its largest and divinest spirit, shall pervade the whole discipline of the school. There is a success in life which is the success of life—higher, deeper, reaching infinitely further, than all the success which may arise out of mental culture. Society, with all its material successes, industrial power, wealth, defences of law, and ecclesiastical organizations, is baffled and almost conquered by the counter-influences of vice in every form, commercial and political corruption, dishonour in the high, and ignorance and brutal crime in the low places. I urge that we have left the remedy more to chance and expected too much from the ecclesiastical organizations, and have overlooked in moral and spiritual training what we have fully accomplished for intellectual culture in the education of the day-school.

It is held in theory that the teacher takes the place of the parent, and in the punitive aspect society accepts and the law sanctions the arrangement. But it is as the moral agent that the teacher has the best claim to the title. The imperfect education of parents too often utterly unfits them for this highest office. They are governed by their affections; they indulge, or they restrain and punish, from mere animal

feeling and not from a sound principle. It is in this relation that the intelligent and conscientious teacher becomes the necessary and the best substitute for the parent. He is free from the control of mere parental affection, and when qualified by education and a high sense of his work, which it is as possible to secure in the school teacher as in the clergyman, his office and his power embrace the functions and responsibilities of parent and pastor. Without the necessity for formal lectures on duty or homilies on theological doctrine, the discipline of the school-room, pervaded by, and ever made subordinate, to the obligation of the moral advancement of the pupil, will become a new ally on the side of virtue and religion of whose issues we have had no experience yet because we have had no faith in its power. When we begin to practise what we delight to sing, that "just as the twig is bent the tree is inclined," that the first battle with vice or crime, sensuality, fraud, and disloyalty in every form to virtue and religion must begin in the school-room, then shall we reap the holiest fruits of national education.

It is not my purpose nor is it within my ability to suggest methods. They must spring out of the strongest conviction that the moral discipline of the school-room is its greatest work, and that conviction can only produce the highest results when it is the supreme motive in the labours of the school teacher. The character of the school and of the teacher is now decided altogether by their intellectual achievements. If the teacher can secure order and intellectual progress, that will satisfy public demands. Hence, whatever is not seen in moral depravity is in danger of being disregarded. The success of moral discipline lies altogether in the deep moral consciousness of its supreme claims in the mind of the teacher. But that moral conscious-

ness may be awakened and sustained by a change in public opinion. The teacher who has the courage and the self-denial to make the intellectual progress of his pupils subordinate to their moral culture cannot fail to strengthen this faith. But public opinion must exalt the office by its reverence for the highest work. When teachers feel that their moral discipline and counsels are held by parents in as high esteem as the instructions of the church ; when society attaches

to their moral guidance the same regard that it now attaches to the professional opinions and practice of the lawyer, the doctor, or the clergyman, then the teacher will comprehend the true dignity of his office, and no office to him will be higher than his own, because his convictions and public opinion will assure him that no work can do more for the moral and spiritual advancement of mankind than the work of the day-school.

LETTERS ON THE EDUCATION AND EMPLOYMENT OF WOMEN.

BY AGNODICE.

LETTER III.

DEAR CLYTE,—In my last letter to you I mentioned a picture I had seen some years ago at the Royal Academy ; since writing I have come across another, which I cannot forbear describing to you. It was by no means so pretentious as the first, being only an indifferently executed piece, representing a young and pretty woman, though rather of the namby-pamby type, leaning against a horse, while some hounds were depicted in contemplative attitudes gazing up into her face. So far, so good. I have certainly no right, nor do I wish to object, to any artist painting a graceful woman surrounded by any number of pet animals, but it was the title of the picture that particularly annoyed me. It was called "My wife, my horse, my dogs." I must own to you, Clyte, that at first I felt angry enough to wish that the young wife had had sufficient spirit (which by her expres-

sion she certainly had not) to have insisted on a companion picture being painted, to be entitled, "My husband, my bonnet, my boots." I say my first feeling was one of indignant anger, but this was soon replaced by a deeper sentiment and I passed on to a train of thought as to the manner in which the generality of men view the subject of the advancement of women.

It is a truth, though a sad one, that we have not many men on our side. Their number is small because at present only those who are really unselfish take an interest in the movement ; men whose souls are greater than their bodies, who can bear the thought of losing a little creature-worship with equanimity. Such men, disdaining to be looked up to merely on account of their manhood, will receive their due reward by the respect they will gain as individuals. Abhorring to be regarded as lords and masters by their equals, they will reap a benefit by obtaining the friendship and sympathy of cultured women.

And this friendly sympathy will be the more valuable on account of the constant approximation we may expect to see in the intellectual powers of the sexes, until at last man and woman will differ only as one man now differs from another, owing to the accidents of environment and education. The thoughtful man and woman will then be able to enter into companionships which will be as helpful to the one as to the other, and in which, while she as well as he will prove for "contemplation formed," she will also be able to "soothe him with her finer fancy, touch him with her lighter thought."

Alas, that such men should be so scarce! The usual run of men give but little thought at all to the subject, and when it is brought up in the course of conversation, insult us by their common-places, their hackneyed expressions, and attempts to make the whole thing appear ridiculous.

When they consider the matter at all they begin to suspect that it only means a certain amount of renunciation on their part with no ostensible compensation. Speak to an ordinary man of a woman who reads and thinks, and by some unaccountable method he translates the reading and thinking into a neglect of all house-keeping duties, endless cold meat without pickles, shirts without buttons, socks with holes, and the continual absence from home of the mistress of the family. I have seen it somewhere written that Charles Dickens has much to answer for with regard to the opinions held by many men of clever women. I sincerely hope that he is guiltless in the affair, for Mrs. Jellaby is so amusing one would regret very much if she had done any harm. And if men have been so indiscriminating as to mistake a character like hers for that of the genuine intellectual woman, let us hope that on the other hand Mrs. Jellaby has made many women with erroneous ideas of their duties,

not only ashamed of themselves, but more ready to walk in the path immediately before them.

When will men, and women too, understand that the smallest details of home-life need never be neglected because they are not all-absorbing? Does any one consider it absolutely necessary for a man to leave his clerks entirely to their own devices, and neglect every minutia of office routine as he rises in his profession and takes larger and more powerful views of things? As a rule the more important a man's work is, the more careful he is about every detail, and why may we not expect the same in an educated woman?

We are continually being told that the matter is entirely in our own hands, and that we must "work out our own salvation." I cannot think that this is altogether the case.

For centuries man has ruled and woman has submitted, until it has become an understood thing that women must always hold an inferior position in whatever branch of learning or industry they aspire to. Now, when we begin to know our harness and to believe that we are capable of achieving something, and when, moreover, we can point to women who have already done great things, we are informed that all this accumulated mass of prejudice and selfishness must be overturned by our own hands, that we alone must

"Fan and winnow from the coming step of
time

All chaff of custom,"

while those who have brought things to this pass look on in scorn or indifference.

I do not wish you to suppose for an instant that I have not great faith in the belief that much, a great deal more than is usually supposed, can be done by the women themselves, but I must say that until men, who at present hold all the interest and authority,

exert themselves in our behalf the progress of our movement must necessarily be slow.

How can we then, having so few willing to help us, sufficiently appreciate that one who above all others made our interests his own, fought for us in Parliament and in print, and showed us what we may do and what we are capable of attempting. In his life, when he spoke for us and to us, he removed mountains, he made many men view the subject in its simplicity apart from their private interests and individual views, and he pointed out to us the immense field of usefulness that lay open ready for our energies and skill. Liberty of thought, of speech of action; liberty for all, was what he strove for; liberty in its truest and purest sense, not confining himself to that narrow interpretation of the word which is contented with the acquisition of a suffrage however deeply based or widely extended.

Let us then as the women of to-day, remembering the position of women in the past, and looking forward with hope to their place in the future—let us ever honour and revere the name of John Stuart Mill.

We not unfrequently hear from some who would flatter us back into a state of quiescence, that we are "so very nice" that it would be a pity to alter ourselves in any way; why not remain as we are? But unfortunately, even if we wished such a thing, it is not in our power to keep long in one "stay;" we must by a law of Nature go backwards or forwards. No one for one moment could recommend the former course, and if there should exist one single individual so lost to all sense of shame, let me advise that person instantly to procure a copy of Kingsley's "Water Babies," and to study thoughtfully the dreadful condition of those benighted people who freely chose to go and live in the land of Ready-made instead of the

country of Hard-work. Let them ponder the awful consequences which arose therefrom, and the horrible *finale*, where the sole remaining inhabitant could only climb a tree (when he was mistaken for a specimen of the Troglodytes by some adventurous traveller,) and sob out "boo-hoo, boo-hoo," though what he meant to say was,— "Am I not a man and a brother?"— but, alas, he had lost all power of speech through want of use and so came to a dismal end. After this there can be no voice of exception in the cry of Onward!

"Where soil is, men grow,
Whether to weeds or flowers."

Why should we grow as weeds when we have before us the prospect of being health-giving, food-supplying plants?

I lay so much stress upon the fact that men are not helping women in their movement, because at present almost all employments are exclusively confined to them, and nearly all the professions are closed to us. Until our legislators and voters feel the necessity of allowing women a fair field for their talents, all we do and strive for will avail us little. We may endeavour to fit ourselves for the bar, or the church, or to study the science of medicine, or the art of designing, but at present we can go no further than prepare ourselves for these vocations, biding our time till we can practise in an authorized way. Do not, my dear Clyte, do not, I beseech you, exercise your lively imagination by depicting girls fresh from school in gowns and bands, or poking over bones, or designing Gothic halls. You know quite well that I do not mean that kind of thing at all, and that I am as fully aware as you are of the fact that in the present state of society it would appear unseemly for women to enter actively into any of the professions I have mentioned. Education is want-

ed by the age no less than by ourselves, and then perhaps by and by we may hope to see some fruits of our toil and pains. Of course it will be the old story of "one must sow and another will reap;" but what of that? Let us who are awake now rejoice that our eyes are opened, and work on patiently and perseveringly while we have strength and life.

In another generation we trust women will not be ashamed to own that they have aspirations and desires beyond the "daily round of their common task." The Agnodices of that day will act and work in their own character.

You have not forgotten, I hope, the story of my namesake—a young Athenian maiden, the daughter of a great physician, who from taking an intense interest in all that her father did, came at last to entertain the wish to study the science of physiology with him for her teacher. Her enthusiasm helped her to make great progress in her studies, her natural common-sense (a quality, I believe, ascribed more particularly to women), her tact, and her delicacy of perception soon raised her to a considerable height in her profession.

She determined to practise as a doctor. Imagine her position if you can. Recollect that the women of Athens never left their homes, that their apartments looked into an inner court, that they knew and heard nothing of the outside world, only going abroad to swell a religious procession or attend a funeral. Their time was wholly employed in embroidery, spinning, and in household affairs. Their sole companions were their children and their slaves. Think of Agnodice braving all her innate prejudices, donning the doctor's gown, and going out into public life. Her practice was immense, her fame great; everyone was talking of her wonderful skill and keen insight, though no one

ever suspected her sex. When she was called in to attend a sick person, she confessed her disguise by the bedside of her patient before she undertook the case, and for some time her secret was faithfully kept. But at last somehow or other it leaked out and she was discovered. I am glad to be able to bring the anecdote to a happy termination by adding that in consequence of her success in her profession, she was permitted to continue practising, and enjoyed besides the advantage of being an acknowledged physician.

Many of the arguments urged against fuller employment for women are based upon the position that women hold now. Women are too frivolous, too much given to detail, too diffuse and wordy, to attend to anything serious. They fritter away and squander their talents by confining themselves to small things and contenting themselves with small aims. They are too fond of the precept, "here a little, and there a little." Our answer is—only let us try what we can do when we endeavour to concentrate our minds upon a given subject, when we have been taught the value of habitual attention and the conservation of energy. When we are allowed something to interest us of a higher order of things than new bonnets or lawn tennis, it is not presumption to say the old charge of idleness and levity will be exploded. Only open to us the professions, and let us see what we can do.

What old Fuller said many years ago will fit us admirably now—

"The study of physic giveth wealth; the study of law giveth honours; when high birth and beauty are compelled to go on foot. To prevent such foot-travelling it is good to be mounted on a gainful vocation, to carry one out of the mire on all occasions."

Your sincere friend,

AGNODICE.

ENGLISH PROSODY AND THE NATIONAL READERS.

BY JAS. H. KNIGHT, INSPECTOR PUBLIC SCHOOLS, LINDSAY.

MY object in the present paper is to offer some suggestions which may assist the profession in teaching the Reading of Poetry. To do this satisfactorily it is very necessary to understand the principles upon which verse is constructed. All poetry is based upon some form, and although the varieties are almost endless, a careful examination of a few of them will enable us to analyze every possible form which can be adopted. At the same time it may be laid down that no composition of any length adheres strictly to its adopted model, but is marked by irregularities which also require a careful study. These irregularities are by no means to be regarded as faults, as they often add life and vigour to what would otherwise be tame and insipid. In the metrical analysis of a poem, then, we have first to find out the model on which it is based, and then to examine how far it comes up to its standard, and to what extent it deviates therefrom.

The component parts which enter into the construction of verse are syllables, feet, lines, and stanzas.

Syllables in Prosody are generally equivalent to those in Etymology, but there are some exceptions. For instance, in Etymology, *Assyrian** is a word of four syllables, while metrically

it has but three. Israel* may have two or three syllables. Salvation † may have three or four. Syllables are either accented or unaccented. Dissyllables generally follow the ordinary rules. Trisyllables and polysyllables have often an additional accent, as in

"It was a famous vic-to-ry."

—Bk. IV., p. 180.

and in

"Lord! Thou didst love Je-rú-sa-lém."

—Bk. IV., p. 339.

Some monosyllables are always accented, others invariably unaccented, while a few are common, that is, sometimes they are accented, and at other times they are unaccented, according to their relation to the words which precede and follow them.

Feet are groups of syllables, and are of different kinds, according to the number and order of the accented and unaccented syllables. In English Prosody the feet differ from those in the Greek and Latin classics, inasmuch as in the latter the foot is determined by long and short syllables, while in the former it is regulated by accent. Though the difference between quantity and accent is great,

* "When Is-ra-el, of the Lord below'd."—*Scott*. Bk. VI., p. 19.

† "Is-ra-el in ancient days."—*Cowper*.
"Fallen is thy throne, O Is-ra-el."—*Moore*. Bk. IV., p. 339.

‡ "Sal-va-tion, O! the joyful sound."—*Watts*.
"A joyful noise make to the Rock
Of our sal-va-ti-on."

—Psalm XCV., Scotch version.

* "The As-syr-ian came down like a wolf on the fold."—*Byron*. Bk. IV., p. 291.

as is also the method of construction of the two kinds of verse, the resemblance is sufficient to warrant most writers in adopting the classical names for the feet employed in English, both for reading and in the adaptation of words to music. Feet differ from bars or measures in music, for while the first beat in a bar of music is *always accented*, the first syllable in a foot may or may not be so, according to its character.

Lines are groups of syllables or feet, usually written or printed in the same horizontal row. Two lines are sometimes printed as one. They are variously named, according to the number of syllables or feet they contain.

Stanzas are groups of consecutive lines. They are not an essential part of verse, as many poems are not thus divided.

Stanzas are frequently, but incorrectly, called verses. The word verse is derived from *versus*, a part of the Latin verb *verto*, I turn, and signifies a turning from one side to the other. In the Jewish Temple service the Psalms of David were sung by the Levites, divided into companies, who alternately sang and listened, so that the music turned from side to side, each portion between the turns being called a verse. The word "verse" is still used thus in Cathedral music. A Full Anthem is one in which the whole choir sing throughout, while that in which certain parts are assigned to individual singers, who sing in turn with the chorus, is called a Verse Anthem. In classical writing the terms verse and line are synonymous.

In illustrating my remarks I shall quote, whenever practicable, from the Authorized Reading Books, with which I presume my readers are all familiar. Occasionally, however, it will be necessary for me to draw from other sources.

The most common foot in English Poetry is the *Iambus*, consisting of

two syllables, the first unaccented and the second accented. Irregularities are more numerous in iambic verse than when any other foot is employed. One of the most regular examples of iambic poetry is the favourite Irish melody by Thomas Moore.

"The Hárp | that ónce | through Tà | ra's hálls

The sóul | of mú | sic shéd,
Now hángs | as múte | on Tà | ra's walls
As if | that sóul | were fléd."

In the above extract, the vertical strokes divide the verse into feet of two syllables each, the second in every foot being marked with an accent. The reader will observe that in poetry of this metre the first and third lines contain four feet each, and the second and fourth lines three feet each. He will also observe that the last syllable of the first line rhymes with the last of the third line, and the last syllable of the second line with the last of the fourth. In printing, it is usual to indent the second and fourth lines.

This is the measure employed in most of the old English Ballads, and in many of the metrical versions of the Psalms. It is often called *Common Metre*. Usually it is divided into stanzas of four or eight lines, but occasionally there are six or twelve lines. Sometimes two lines are printed as one, in which case four lines are equal to eight, as usually printed.

The Reading Books contain many specimens of this metre. I can only quote the first lines of a few, for example, in the Third Reader:

"It was the schooner Hesperus." p. 38.
"The boy stood on the burning deck." p. 78.
"A wet sheet and a flowing sea." p. 197.
and "John Gilpin was a citizen." p. 304.

In the Fourth Reader :

"The warrior bow'd his crested head." p. 242.
"When God of old came down from heaven." p. 351.
"They grew in beauty side by side." p. 365.

And in the Fifth Reader:

"From Blois to Senlis, wave by wave." p. 113.

In distinguishing the different metres it is more common to count the syllables than the feet. The above metre would be designated 8, 6, 8, 6, iambic, meaning that the first and third lines contain eight syllables, and the second and fourth lines six syllables each, and that all the feet are iambs.

Next in importance is the *Long Metre*, or 8, 8, 8, 8, iambic, each line containing four feet. Sometimes the first line rhymes with the third, and the second with the fourth. This we call alternate rhyme, as in

"When Is | racl of | the Lord | be- loved
Out from | the land | of bon | dage came,
Her fa | ther's God | before | her moved,
An aw | ful guide, | in smoke | and flame."

And

"O God, whose thunder shakes the sky,"

in the *Advanced Reader*, pp. 19 and 95; or the rhyme is between consecutive lines, as in

"The spacious firmament on high,"

in the *Third Reader*, p. 165,

"The turf shall be my fragrant shrine,"

in the *Fifth Reader*, p. 382, and

"God of my life, to Thee I call,"

in the *Advanced Reader*, p. 86. Occasionally the first three lines rhyme together, as in Campbell's "Hohenlinden," Bk. III., p. 276:

"On Linden, when the sun was low,
All bloodless lay the untrodden snow;
And dark as winter was the flow
Of Iser, rolling rapid-ly."

The final syllable of the first stanza rhymes with the final syllable of every other stanza except with that of the last. In the "Hymn of the Hebrew Maid," above quoted, it will be observed that in the second line, the first syllable is accented instead of the second, a very common irregularity in iambic poetry. This metre is often employed without

the use of stanzas in descriptive poetry, as in the narrative parts of the "Lady of the Lake," and the "Lay of the Last Minstrel." The rhyme is consecutive, but occasionally three lines rhyme together instead of two. In such a case the three lines are called a *triple*t. Two consecutive lines which rhyme are called a *couplet*.

The stanza sometimes contains six lines instead of four or eight, as on page 41 of the *Advanced Reader*. In reading this, care should be taken not to use the falling inflection at the end of the fourth line:

"How sleep the brave who sink to rest }
By all their country's wishes blest }
When spring, with dewy fingers cold }
Returns to deck their hallow'd mould }
She there shall dress a sweeter sod }
Than fancy's feet have ever trod." }

It will be observed that this stanza consists of three couplets. Another variety is that in which the first four lines rhyme alternately and the fifth and sixth lines form a couplet, as in No. 344 of Wesley's Hymns:

"Thou hidden love of God whose height."

A third variety consists of two triplets, as in Hymn 134 "Ancient and Modern":

"O God of life whose power benign."

In the fourth variety the first and second lines form a couplet, as do also the fourth and fifth lines, the third and sixth lines rhyming. The versions of the 113th Psalm by Tate and Brady, and by Dr. Watts, are examples. As the sense of the words always agrees with the grouping of the lines, as shewn by the order of the rhymes, in compositions adapted for singing, it is evident that in selecting music for any of these varieties of stanza, care should be taken to have the right tune for the hymn. But while there are four varieties of words, there are only two varie-

ties of tune; in the first and second varieties, the close, or partial close, occurring at the end of the second and fourth lines, and in the third and fourth varieties, at the end of the third line.

Next we come to what is known as *Pentameter* verse, or 10, 10, 10, 10, iambic. Each line contains five feet. This is the metre of Gray's "Elegy," in which the rhyme is alternate. The "Epitaph" is familiar to all.

"Here résts | his héad | upón | the lap' | of
carth,
 A youth | to fôr | tune a'nd | to fáme—
unknôwn ;
 Fair sci | ence frôwn'd | not ón | his
 hum | ble birth,
 And mël | an-cho | ly ma'rk'd | him fôr
 | her *ôwn.*"

The well known hymn,

"Abide with me, fast falls the eventide,"

is in couplets. Goldsmith adopts this metre for his "Traveller" and "Deserted Village," but they are not in stanzas. When the rhyme is omitted it is called *Blank Verse*, as in

"Be wise to-day, 'tis madness to defer." p. 393.

"I would not enter on my list of friends." p. 394.

and in the various selections from Shakespeare in the Fifth Reader.

The "Address to an Egyptian Mummy," Bk. V., p. 6, is a modification of this metre. The stanza consists of six lines, but the last foot of some of the lines is an *Amphibrach* instead of an Iambus. The Amphibrach is a foot of three syllables, the first and third unaccented, and the second accented. In the first stanza of the Address, the Amphibrachs are at the end of the 1st, 3rd, 5th, and 6th lines, as will be observed:

"And thou | hast walk'd | about, | how
 strange | a story!
 In Thebes | 's streets | three thou- | sand
 years | a-go,
 When the | Memno- | nium was | in all | its
 glory,

And time | had not | begun | to o- | ver
throw
 Those tem- | ples, pal- | aces, | and piles |
stu- pendous,
 Of which | the ve- | ry ru- | ins are | tre-
mendous !"

The ninth stanza has an amphibrach at the end of every line, the eleventh has none. All the other stanzas are irregular.

Next we come to the *Hexameter* verse of 12, 12, 12, 12, iambic, as in the "Death of Leonidas," Bk. V. p. 27, or 6, 6, 6, 6, as in "Come to the sunset tree," Bk. III., p. 50. Two lines of the latter are equal to one of the former. Both of these selections are irregular, having an extra unaccented syllable in some of the feet.

All other iambic metres are a modification of some of the foregoing. Byron's "Apostrophe to the Ocean," Bk. IV., p. 252, consists of eight lines of ten syllables, followed by one line of twelve syllables, thus, 10, 10, 10, 10, 10, 10, 10, 10, 12.

"Roll on, thou deep and dark blue Ocean
 —roll!

Ten thousand fleets sweep over thee in *vain*;
 Man marks the earth with ruin—his con-*tról*
 Stops with the shore; upon the watery *plain*
 The wrecks are all thy deed, nor doth re-
main

A shadow of man's ravage, save his *ôwn*;
 When, for a moment, like a drop of *rain*,
 He sinks into thy depths with bubbling *groan*.
 Without a grave, unknell'd, uncoffin'd and
 un-*known.*"

The "Battle of Waterloo," Bk. V., p. 276, also by Byron, is in the same metre. The disposition of the rhymes, which are three in number, is worthy of observation, the first being between lines 1 and 3, the second embracing lines 2, 4, 5, and 7, and the third including lines 6, 8, and 9. This arrangement is faithfully carried out in every stanza. This metre is sometimes called the *Spenserian Stanza*, being that in which Edmund Spenser wrote his "Faery Queen," about the year 1590.

The Fifth Reader contains two

specimens of 6, 10, 10, 6. The first on page 72 :

"Whither | midst fall- | ing dew,
While glow | the heavens | with the | last
steps | of day,
Farthrough | the ro- | sy depths | dost thou |
pursue
Thy sol- | ita- | ry way ?"

The other, on page 221, is entitled "Blind Bartineus."

A modification of the Common Metre is 8, 6, 8, 6, 8, 8. The selection in the Advanced Reader, p. 135, is more regular, but not so great a favourite as the "Battle of Blenheim" in the Fourth. In the latter, the first stanza lacks a syllable at the end of the first line, unless "evening" be pronounced as three syllables. The fourth stanza lacks one in the first line, and has an extra syllable in the second.

"I find | them in | the gar | den,
For there's ma- | ny here | a- *bout* ;
And oft- | en when | I go | to plough,
The plough- | share turns | them *out*.
For ma- | ny thou- | sand men, | said *he*,
Were slain | in that | great vic- | to- *ry*."

In the concluding couplet of this stanza, the last syllable of "victory" is supposed to rhyme with "he." Some readers make it a rule to alter one of the syllables in every case of imperfect rhyme. For instance, *wound* (oo) is altered to *wound* (ow) in order to rhyme with *sound*, and *wind* to *wind*, in order to rhyme with *find*. The folly of making such alterations may be illustrated by an incident which occurred at Ware, in Hertfordshire, England, a few years ago. It was then customary to employ a lay clerk to give out the hymns at one of the Nonconformist chapels. The clerk, one Sunday, surprised the congregation by commencing one of Dr. Watts' hymns thus:

"Man has a soul of vast desires,
He burns with strong, with inward fires;
Tossed to and fro, his passions fly
From vanite to vaniti."

Another modification of Common Metre is 8, 8, 6, 8, 8, 6, Bk. IV, p. 347. The octosyllabic lines form couplets, and the remaining lines rhyme together. The reader's attention is called to the *diston*, or cutting out of the vowel in the particle "the" in the 1st, 3rd, and 6th lines.

"Begin, | my soul, | th' exalt- | ed *lay* |
Let each | enrap | tured though; | o- *bcy*,
And praise | th' Almigh- | ty's *name* ;
Lo ! heaven | and earth, | and seas | and *skies*
In one | melo- | dious con- | cert *rise*
To swell | th' inspir- | ing *theme*."

Some writers carry elision to such excess that it is difficult, in reading, to give the sense and at the same time preserve the rhythm. Bishop Percy, in his "Friar of Orders Grey" reduces "complaining" to "plaining" :

"Within these holy cloisters long
He languished, and he died,
Lamenting of a lady's love,
And 'plaining of her pride."

Sir Walter Scott's "Death of Keeldar," and Montgomery's "Common Lot" are in the metre 8, 8, 8, 6, the former taking eight lines, and the latter four lines to the stanza; but the rhymes are differently arranged. The amphibrach occurs in the sixth stanza of the Death of Keeldar, in the 4th and 8th lines.

"The no- | ble hound, | he dies, | he *dies*—
Death, death | has glazed | his fix | ed *eyes*,
Stiff on | the blood- | y heath | he *lies*,
Without | a groan | or *qui-zer* :
Now day | may break | and bu- | gle *sound*,
And whoop | and hai- | loo ring | a- *round*,
And o'er | his couch | the stag | may *bound*,
But Keel- | dar sleeps | for *co-er*."

The "Common Lot" was in the Old Third Reader. It is a pity to lose such a beautiful poem from our books:

"Once in | the flight | of ag- | es *past*,
There lived | a man | and who | was *he* ?
Mortal ! | howe'er | thy lot | be *cast*,
That man | resem- | bled *thee*."

In "Lord Ullin's Daughter," Bk. IV., p. 195, the amphibrach occurs at

the end of every second line. The metre is 8, 7, 8, 7, 8, 7, 8, 7, with alternate rhymes.

"A chief- | tain tó | the High- | lands *b'hand*,
 Cries, 'Béat- | man, dó | not *ta'rry*,
 And 'I'll | give thée—a sil- | ver *p'mund*,
 To rów | us ó'er | the *férry*,
 'Now whó | beyé | would cróss | Loch-*gy'le*
 This dárk | and stór- | my *wa'ter*?
 'Oh, 'I'm | the chéf | of 'Ul- | va's *'isle*
 And this | Lord 'Ul- | lin's *da'ughter*."

The last iambic metre I shall notice is 7, 6, 7, 6, in which the final foot of the first and third lines is an amphibrach, is the selection on page 340 of the Fourth Reader,

"Hail to | the Lord's | a- *nóinted*,
 Great Dá- | vid's greáter *son*;
 Hail, in | the time | ap- *póinted*,
 His réign | on éarth | be- *sp'u'n*."

In the first and third lines, the first syllable being accented and the second syllable not, we have three different feet in the same line.

A foot consisting of two syllables, the first accented and the second unaccented, is called a *Trochee* (tro'-ke). It is not as extensively used as the iambus, but poetry in which it is employed is generally marked by great vigour or much pathos. Metres in which this foot is employed are generally characterized by regularity in their construction. It has seldom more than eight syllables in a line, nor less than six, the common number being seven, in which case the last foot has only one syllable. Such lines are said to be *Catalectic*, or truncated. Cowper's "Boadicea," Bk. V., p. 83, is a fine specimen of the four-line sevens, where the first and last syllables of every line are accented.

"Whén the | British | wárrior | *queen*,
 Bléeding | fróm the | Róman | *rods*,
 Sought with | án in- | dignant | *mien*,
 Cónsél | of, her | cóuntry's | *gods*."

This metre is subject to the same variations as to number of lines and distribution of rhymes as the eight-syllable iambics. When written in couplets

the lines are not indented. Toplady's hymn,

"Rock of ages | cleft for me,"

Bk. IV., p. 346, is written in couplets, of which there are three to each stanza.

Of 8, 7, 8, 7, the first and third lines having four perfect feet, the second and fourth lines being catalectic, we have, in the Fourth Reader, Longfellow's "Psalm of Life," p. 342,

- (1) "Tell me not, in mournful numbers,"
 in the Fifth Reader, p. 286,
 (2) "Cold and brilliant streams the sunlight
 On the wintry banks of Seine,"
 and in the Advanced Reader, p. 93,
 (3) "Now the third and fatal conflict
 Of the Persian throne was done,"

and (4) the "Burial March of Dundee," p. 177. In the first of these selections the rhyme is alternate, and, with one exception, perfect. In the other three selections the rhyme is wanting between the first and third lines, and for that reason the fourth selection should have been printed, like the second and third, in lines of fifteen syllables each.

The reader will observe that though the six last quoted selections are all true to their model, they are not perfect specimens of trochaic metre. "Hiawatha's Sailing," Bk. IV., p. 27, is made up of perfect trochees, every line having four feet. As there is no rhyme, it is a species of blank verse. A much more melodious composition in the perfect trochee is a hymn by the Rev. Sir Henry Baker, in 6, 6, 6, 6, metre :

"Lord, Thy | Word a- | *bideth*
 And our | footsteps | *guideth*;
 Who its | truth be- | *lieveth*
 Light and | joy re- | *ceiveth*."

The *Anapest* is a foot consisting of three syllables, the first and second unaccented and the third accented. The frequent occurrence of an iambus

as the first foot, in lines of anapestic verse, makes the measuring of these metres by syllables very uncertain and unsatisfactory. For this reason it is more convenient to reckon the number of feet in a line. This irregularity interferes very little with the reading, and, in fact, is hardly perceptible. The character of anapestic poetry is generally light and playful. Sometimes, however, it rises to the sublime.

Lines consisting of four feet are called *Tetram'eters*. The Readers contain four selections in this metre:

- (1) "The char- | iot, the char- | iot | its wheels
| roll on fire,
As the Lord | cometh down | in the
pomp | of His ire,"

in the Advanced Reader, p. 145.

- (2) "In a crack | near the cup- | board with
dain- | ties pro-vid- | ed,
A cer- | tain young mouse | with her
moth- | er re-sid- | ed,"

in the Second Reader, p. 166.

- (3) "Be-tween | Eyes and Nōse | a sad |
contest a-rose,"

in the Third Reader, p. 56; and the "Destruction of Sennacherib," by Lord Byron, in the Fourth Reader, p. 291. It is to be regretted that it is incorrect to place the accent on the third syllable of Galilee.

- (4) "The As-sy- | rian came down | like the
wolf | on the fold,
And his co- | horts were gleam- | ing in
pur- | ple and gold;
And the sheen | of their spears | was
like stars | on the sea,
When the blue | waves roll night- | ly
on deep | Gal-i-lee."

Lines having an extra unaccented syllable at the end, as in the example (2) from the Second Reader, above quoted, are called *Hyper-met'rical*. Sometimes such a redundant syllable, if added to the next line, would make the first foot perfect. A line consisting of three feet is called a *Trim'e-ter*. In the Third Reader, p. 209, an example of this metre will be found,

"I am mon- | arch of a.l | I sur- | vey;
My right | there is none | to dis- | pute;
From the cen- | tre all round | to the sea
I am lord | of the fowl | and the brute."

When the first foot is an iambus and the remaining feet are anapests, we consider the metre as anapestic. There are, however, several selections in which the two kinds of feet are mingled in a very promiscuous manner. For instance in the Third Reader, p. 70, we have,

"Faint-ly | as tolls | the éve- | ning chime,
Our voiç- | es keep tune | and our bars |
keep time."

In which the first foot is a trochee.

"Hast thou sōund- | ed the dépths | of yōn- |
der sēa?"—p. 181.

"Not a drum | was héard, | nor a fū- | ne-ral
nōte."—p. 192.

"A sōl- | dier óf | the Lé-gion | lay dy'- |
ing in | Al-gi'ers,
There was lack | of wó- | man's nūr-sing, |
there was déarth | of wó- | man's
téars."—p. 285.

In the Fourth Reader we have,

"A-fár | in the dés- | ert I lōve | to ride."—
p. 254, and

"I héar | thee spéak | of the bét- | ter lánd;
Thou cáll- | est its chil- | dren a hap- | py
bánd;

Mó-ther ! | oh, whére | is that rá- | diant
shóre?

Sháll we | not séeek it, | and wéep | no
móre?

Is it whére | the flówer | of the ór- | angé
blóws,

And the fire- | flies glánce | through the
my'r- | tle-bóughs?"

"Not thére, | not thére, | my child !"—
p. 353;

And in the Fifth Reader,

"Old Tú- | bal Cáin | was a mán | of might."—
p. 51.

"Here's a so'ng | for thée— | of the lín- | den
trée."—p. 108.

"I bring | fresh sho'wers | for the thírst- | ing
flówers."—p. 123, and

"Ye mariners of England."—p. 142.

If due attention be paid to the *scanning*, no mistake need be made in

reading any of these selections. By scanning we understand the dividing of verse into feet, and the marking of the accented syllables. Whether this can be done mentally, with sufficient rapidity, depends on the nature of the work and the skill of the reader. There are cases in which it is difficult to tell which are the accented syllables. For instance, there are two versions of the 95th Psalm, beginning with the same line. One has four iambic feet and reads

"O co'me | let u's | sing to' | the Lo'rd."

The other has an iambus and two anapests, thus,

"O co'me | let u's sing | to the Lo'rd."

The *Dactyl* is a foot consisting of three syllables, the first accented, the second and third unaccented. It is not commonly employed. Heber's "Epiphany Hymn" is one of the finest specimens. The stanza has four tetrameter lines, of which the first and third end with a trochee. The second and fourth are catalectic. The rhyme is alternate.

"Bright-est and | bést of the | so'ns of the |
mórn-ing,
 Dáwn on our | dárkness, and | lénd us
 thine | áid;
 Stár of the | éast, the ho- | ri-zon a- | *dórn-*
ing,
 Guíde where our | ín-fant Re- | déem-cr
 is | *la'íd.*"

The *Spondee* is a foot consisting of two accented syllables. It never occurs except as an irregularity, and always requires careful looking to, so that the emphasis may be distributed evenly. In the Doxology,

"Praise Go'd, | from who'm | 'all blés | sings
fló'w,
 Pra'ise Hím | all créa- | tures hére | be-lo'w ;
 Pra'ise Hím | a-bo've, | ye héaven- | ly ho'st,
 Pra'ise Fa'ther, So'n, | and Ho'- | ly Gho'st."

there are five spondees. The first foot of the line

"'All péo- | ple tha't | on éarth | do dwéll."

is a spondee, and the first foot of

"Go'd mó'ves | in a | mys-té- | rious wa'y."

The second foot is a *Pyrrhic* (pir'-ik), and consists of two unaccented syllables. There is one other foot we occasionally meet with in English poetry. It consists of four unaccented syllables, and is called *Proceleusmaticus*. In Faber's hymn "Hark! hark, my soul!" it occurs in the last line, thus:

"An-gels of | Jé-sus, | a'n-gels of | light,
 Sing-ing to | wel-come the | pil-grims of
 the | night."

Also in Heber's "Trinity Hymn,"

"On-ly | Tho'u art | ho-ly | there is none
 be- | side Thee."

I shall conclude this paper with an analysis of the "National Anthem." The stanzas contain seven lines. The metre is 6,6,4, 6,6,6,4. The music evidently treats it as dactylic; but the question arises whether to divide the first two lines into two feet of three syllables each, or three feet of two syllables. Using the classical signs of long and short syllables for accented and unaccented syllables respectively, they would be arranged thus, — — — — — and might be scanned

"Go'd sa've | our gra'- | cious Quéen,
 Lo'ng live | our no'- | ble Quéen,
 Go'd sa've | the Quéen."

in which the first is a spondee, and the other feet are iambs; or with irregular dactyls, thus,

"Go'd sa've our | gra'-cious Quéen,
 Lo'ng live our | no'-ble Quéen,
 Go'd sa've the | Quéen."

About the remaining lines there can be no doubt.

"Sénd her vic- | to'-ri-ous,
 Ha'p-py and | glo'-ri-ous,
 Lo'ng to reign | o'-ver us,
 Go'd save the | Quéen."

EARLY CONTINENTAL EDUCATORS AND THEIR THEORIES.*

THE *Emile* of Rousseau was published in 1762. It produced an astounding effect throughout Europe. Those were days when the whole cultivated world vibrated to any touch of new philosophy. French had superseded Latin as the general medium of thought. French learning stood in the same relation to the rest of Europe as German learning does now; and any discovery of D'Alembert, Rousseau, or Maupertuis travelled with inconceivable speed from Versailles to Schönbrunn, from the Spree to the Neva. Kant in his distant home of Königsberg broke for one day through his habits, more regular than the town clock, and stayed at home to study the new revelation. The burthen of Rousseau's message was Nature, such a nature as never did and never will exist, but still a name for an ideal worthy of our struggles. He revolted against the false civilization which he saw around him; he was penetrated with sorrow at the shams of government and society, at the misery of the poor existing side by side with the heartlessness of the rich. The child should be the pupil of nature. He lays great stress on the earliest education. The first year of life is in every respect the most important. Nature must be closely followed. The child's tears are petitions which should be granted. The naughtiness of children comes from weakness; make the child strong and he will be good. Children's destructiveness is a form of activity. Do not be too anxious to make children talk; be satisfied with

a small vocabulary. Lay aside all padded caps and baby jumpers. Let children learn to walk by learning that it hurts them to fall. Do not insist too much on the duty of obedience as on the necessity of submission to natural laws. Do not argue too much with children; educate the heart to wish for right actions; before all things study nature. The chief moral principle is *do no one harm*. *Emile* is to be taught by the real things of life, by observation and experience. At twelve years old he is scarcely to know what a book is; to be able to read and write at fifteen is quite enough. We must first make him a man, and that chiefly by athletic exercises. Educate his sight to measure, count, and weigh accurately; teach him to draw; tune his ear to time and harmony; give him simple food, but let him eat as much as he likes. Thus at twelve years old *Emile* is a real child of nature. His carriage and bearing are fair and confident; his nature open and candid, his speech simple and to the point; his ideas are few but clear; he knows nothing by learning, much by experience. He has read deeply in the book of nature. His mind is not on his tongue but in his head. He speaks only one language, but knows what he is saying, and can do what he cannot describe. Routine and custom are unknown to him; authority and example affect him not; he does what he thinks right. He understands nothing of duty and obedience, but he will do what you ask him, and will expect a similar ser-

* From the article on "Education" in the new (9th) edition of the *Encyclopædia Britannica*.

vice of you in return. His strength and body are fully developed; he is first-rate at running, jumping, and judging distances. Should he die at this age he will so far have lived his life. From twelve to fifteen Emile's practical education is to continue. He is still to avoid books which teach not learning itself but to appear learned. He is to be taught and to practice some handicraft. Half the value of education is to waste time wisely, to tide over dangerous years with safety, until the character is better able to stand temptation. At fifteen a new epoch commences. The passions are awakened; the care of the teacher should now redouble; he should never leave the helm. Emile having gradually acquired the love of himself and of those immediately about him, will begin to love his kind. Now is the time to teach him history, and the machinery of society, the world as it is and as it might be. Still an encumbrance of useless and burdensome knowledge is to be avoided. Between this age and manhood Emile learns all that it is necessary for him to know. It is, perhaps, strange that a book in many respects so wild and fantastic should have produced so great a practical effect. In pursuance of its precepts, children went about naked, were not allowed to read, and when they grew up wore the simplest clothes, and cared for little learning except the study of nature and Plutarch. The catastrophe of the French Revolution has made the importance of Emile less apparent to us. Much of the heroism of that time is doubtless due to the exaltation produced by the sweeping away of abuses, and the approach of a brighter age. But we must not forget that the first generation of Emile was just thirty years old in 1792; that many of the Girondins, the Marseillais, the soldiers and generals of Carnot and Napoleon had been bred in that hardy school. There

is no more interesting chapter in the history of education than the tracing back of epochs of special activity to the obscure source from which they arose. Thus the Whigs of the Reform Bill sprang from the wits of Edinburgh, the heroes of the Rebellion from the divines who translated the Bible, the martyrs of the Revolution from the philosophers of the Encyclopædia.

The teaching of Rousseau found its practical expression in the *philanthropin* of Dessau, a school founded by Basedow, the friend of Goethe and Lavater, one of the two prophets between whom the world-child sat bodkin in that memorable post-chaise journey of which Goethe has left us an account. The principles of the teaching given in this establishment were very much those of Comenius, the combination of words and things. An amusing account of the instruction given in this school, which at this time consisted of only thirteen pupils, has come down to us, a translation of which is given in the excellent work of Mr. Quick on Educational Reformers. The little ones have gone through the oddest performances. They play at "word of command." Eight or ten stand in a line like soldiers, and Herr Wolke is officer. He gives the word in Latin, and they must do whatever he says. For instance when he says "claudite oculos," they all shut their eyes; when he says "circumspicite," they look about them; "imitamini sutorem," they draw the waxed thread like cobblers. Herr Wolke gives a thousand different commands in the drollest fashion. Another game, "the hiding game," may also be described. Some one writes a name and hides it from the children, the name of some part of the body, or of a plant or animal, or metal, and the children guess what it is. Whoever guesses right gets an apple or a piece of cake; one of the visitors wrote

"intestina," and told the children it was part of the body. Then the guessing began, one guessed caput, another nasus, another os, another manus, pes, digiti, pectus, and so forth for a long time, but one of them hits at last. Next Herr Wolke wrote the name of a beast or quadruped, then came the guesses, leo, ursus, camelus, elephas, and so on, till one guessed right; it was mus. Then a town was written, and they guessed Lisbon, Madrid, Paris, London, till a child won with St. Petersburg. They had another game which was this. Herr Wolke gave the command in Latin, and they imitated the noises of different animals, and made the visitors laugh till they were tired. They roared like lions, crowed like cocks, mewed like cats, just as they were bid. Yet Kant found a great deal to praise in this school, and spoke of its influence as one of the best hopes of the future, and as "the only school where the teachers had liberty to act according to their own methods and schemes, and where they were in free communication both among themselves and with all learned men throughout Germany."

A more successful labourer in the same school was Salzmann, who bought the property of Schnepfenthal near Gotha in 1784, and established a school there, which still exists as a flourishing institution. He gave full scope to the doctrines of the philanthropists; the limits of learning were enlarged; study became a pleasure instead of a pain; scope was given for healthy exercise; the school became light, airy and cheerful. A charge of superficiality and weakness was brought against this method of instruction; but the gratitude which our generation of teachers owes to the unbounded love and faith of these devoted men cannot be denied or refused. The end of the 18th century saw a great development given to

classical studies. The names of Cellarius, Gesner, Ernesti, and Heyne are perhaps more celebrated as scholars than as schoolmasters. To them we owe the great importance attached to the study of the classics, both on the Continent and in England. They brought into the schools the philology which F. A. Wolf had organized for the universities. Pestalozzi, on the other hand, was completely and entirely devoted to education. His greatest merit is that he set an example of absolute self-abnegation, that he lived with his pupils, played, starved, and suffered with them, and clung to their minds and hearts with an affectionate sympathy which revealed to him every minute difference of character and disposition. Pestalozzi was born at Zurich in 1746. His father died when he was young, and he was brought up by his mother. His earliest years were spent in schemes for improving the condition of the people. The death of his friend Bluntschli turned him from political schemes, and induced him to devote himself to education. He married at 23, and bought a piece of waste land in Aargau, where he attempted the cultivation of madder. Pestalozzi knew nothing of business, and the plan failed. Before this he had opened his farm-house as a school; but in 1780 he had to give this up also. His first book published at this time was *The Evening Hours of a Hermit*, a series of aphorisms and reflections. This was followed by his masterpiece, *Leonard and Gertrude*, an account of the gradual reformation, first of a household, and then of a whole village, by the efforts of a good and devoted woman. It was read with avidity in Germany, and the name of Pestalozzi was rescued from obscurity. His attempts to follow up this first literary success were failures. The French invasion of Switzerland in 1798 brought into relief his truly heroic

character. A number of children were left in Canton Unterwalden on the shores of the Lake of Lucerne, without parents, home, food or shelter. Pestalozzi collected a number of them into a deserted convent, and spent his energies in reclaiming them. "I was," he says, "from morning till evening, almost alone in their midst. Everything which was done for their body or soul proceeded from my hand. Every assistance, every help in time of need, every teaching which they received, came immediately from me. My hand lay in their hand, my eye rested on their eye, my tears flowed with theirs, and my laughter accompanied theirs. They were out of the world, they were out of Stanz; they were with me, and I was with them. Their sup was mine, their drink was mine. I had nothing, I had no housekeeping, no friend, no servants around me; I had them alone. Were they well, I stood in their midst; were they ill, I was at their side. I slept in the middle of them. I was the last who went to bed at night, the first who rose in the morning. Even in bed I prayed and taught with them until they were asleep,—they wished it to be so." Thus he passed the winter, but in June, 1799, the building was required by the French for a hospital, and the children were dispersed. We have dwelt especially on this episode of Pestalozzi's life, because in this devotion lay his strength. In 1807 he gave an exposition of his ideas on education in the book *How Gertrude teaches her Children*. His method is to proceed from the easier to the more difficult. To begin with observation, to pass from observation to consciousness, from consciousness to speech. Then come measuring, drawing, writing, numbers, and so reckoning. In 1799 he had been enabled to establish a school at Burgdorf, where he remained till 1804. In 1802, he went as deputy to Paris, and did his best to

interest Napoleon in a scheme of national education; but the great conqueror said that he could not trouble himself about the alphabet. In 1805 he removed to Yverdon on the Lake of Neufchatel, and for twenty years worked steadily at his task. He was visited by all who took interest in education, Talleyrand, Capo d'Istria, and Madame de Stael. He was praised by Wilhelm von Humboldt and by Fichte. His pupils included Ramsauer, Delbrück, Blochmann, Carl Ritter, Fröbel, and Zeller. About 1815 dissensions broke out among the teachers of the school, and Pestalozzi's last ten years were chequered by weariness and sorrow. In 1825 he retired to Neuhof, the home of his youth; and after writing the adventures of his life, and his last work, the *Swan's Song*, he died in 1827. As he said himself, the real work of his life did not lie in Burgdorf or in Yverdon, the products rather of his weakness than of his strength. It lay in the principles of education which he practised, the development of his observation, the training of the whole man, the sympathetic application of the teacher to the taught, of which he left an example in his six months' labours at Stanz. He showed what truth there was in the principles of Comenius and Rousseau, in the union of training with information, and the submissive following of nature; he has had the deepest effect on all branches of education since his time; and his influence is far from being exhausted.

The *Emile* of Rousseau was the point of departure for an awakened interest in educational theories which has continued unto the present day. Few thinkers of eminence during the past hundred years have failed to offer their contributions more or less directly on this subject. Poets like Richter, Herder, and Goethe, philosophers such as Kant, Fichte, Hegel, Schleier-

macher, and Schopenhauer, psychologists such as Herbart and Beneke, have left directions for our guidance. Indeed, during this time the science of education or pædagogics, as the Germans call it, may have been said to have come into existence. It has attracted but little attention in England; but it is an important subject of study at all German universities, and we may hope that the example given by the establishment of chairs of education in the Scotch universities may soon be followed by the other great centres of instruction in Great Britain. Jean Paul called his book *Levana*, after the Roman goddess to whom the father dedicated his newborn child, in token that he intended to rear it to manhood. He lays great stress on the preservation of individuality of character, a merit which he possessed himself in so high a degree. The second part of *Wilhelm Meister* is in the main a treatise upon education. The essays of Carlyle have made us familiar with the mysteries of the pædagogic province, the solemn gestures of the three reverences, the long cloisters which contain the history of God's dealings with the human race. The most characteristic passage is that which describes the father's return to the country of education after a year's absence. As he is riding alone, wondering in what guise he will meet his son, a multitude of horses rush by at full gallop. "The monstrous hurly-burly whirls past the wanderer; a fair boy among the keepers looks at him with surprise, pulls in, leaps down, and embraces his father." He then learns that an agricultural life had not suited his son, that the superiors had discovered that he was fond of animals, and had set him to that occupation for which nature had destined him.

The system of Jacotot has aroused great interest in this country. Its author was born at Dijon in 1770. In

1815 he retired to Louvain and became professor there, and director of the Belgian military school. He died in 1840. His method of teaching is based on the principles:—

1. All men have an equal intelligence;

2. Every man has received from God the faculty of being able to instruct himself;

3. Every thing is in every thing.

The first of these principles is certainly wrong, although Jacotot tried to explain it by asserting that, although men had the same intelligence, they differed widely in the will to make use of it. Still it is important to assert that nearly all men are capable of receiving some intellectual education, provided the studies to which they are directed are wide enough to engage their faculties, and the means taken to interest them are sufficiently ingenious. The second principle lays down that it is more necessary to stimulate the pupil to learn for himself, than to teach him didactically. The third principle explains the process which Jacotot adopted. To one learning a language for the first time he would give a short passage of a few lines, and encourage the pupil to study first the words, then the letters, then the grammar, then the full meaning of the expressions, until by iteration and accretion a single paragraph took the place of an entire literature. Much may be effected by this method in the hands of a skilful teacher, but a charlatan might make it an excuse for ignorance and neglect.

Among those who have improved the methods of teaching, we must mention Bell and Lancaster, the joint-discoverers of the method of mutual instruction, which, if it has not effected everything which its founders expected of it, has produced the system of pupil-teachers which is common in our schools. Froebel also deserves an honourable place as the founder

of the Kindergarten, a means of teaching young children by playing and amusement. His plans, which have a far wider significance than this limited development of them, are likely to be fruitful of results to future workers.

The last English writers on education are Mr. Herbert Spencer and Mr. Alexander Bain, the study of whose writings will land us in those regions of pædagogics which have been most recently explored. We need not follow Mr. Spencer in his defence of science as the worthiest object of study, or in his rules for moral and physical training, except to say that they are sound and practical. In writing of intellectual education, he insists that we shall attain the best results by closely studying the development of the mind, and availing ourselves of the whole amount of force which nature puts at our disposal. The mind of every being is naturally active and vigorous, indeed it is never at rest. But for its healthy growth it must have something to work upon, and, therefore, the teacher must watch its movements with the most sympathetic care, in order to supply exactly that food which it requires at any particular time. In this way a much larger cycle of attainments can be compassed than by the adoption of any programme or curriculum, however carefully drawn up. It is no good to teach what is not remembered; the strength of memory depends on attention, and attention depends on interest. To teach without interest is to work like Sisyphus and the Danaïdes. Arouse interest if you can, rather by high means than by low means. But it is a saving of power to make use of interest which you have already existing, and which unless dried up or distorted by injudicious violence, will naturally lead the mind into all the knowledge which it is capable of receiving. Therefore,

never from the first force a child's attention; leave off a study the moment it becomes wearisome, never let a child do what it does not like, only take care that when its liking is in activity a choice of good as well as evil shall be given to it.

Mr. Bain's writings on education, which are contained in some articles in the *Fortnightly Review*, and in two articles in *Mind* (Nos. v. and vii.) are extremely valuable. Perhaps the most interesting part of them consists in his showing how what might be called the "correlation of forces in man" helps us to a right education. From this we learn that emotion may be transformed into intellect, that sensation may exhaust the brain as much as thought, and we may infer that the chief duty of the schoolmaster is to stimulate the powers of each brain under his charge to the fullest activity, and to apportion them in that ratio which will best conduce to the most complete and harmonious development of the individual.

It seems to follow from this sketch of the history of education that, in spite of the great advances which have been made of late years, the science of education is still far in advance of the art. Schoolmasters are still spending their best energies in teaching subjects which have been universally condemned by educational reformers for the last two hundred years. The education of every public school is a farrago of rules, principles, and customs derived from every age of teaching, from the most modern to the most remote. It is plain that the science and art of teaching will never be established on a firm basis until it is organized on the model of the sister art of medicine. We must pursue the patient methods of induction by which other sciences have reached the stature of maturity; we must discover some means of registering and tabulating results; we must invent a phrase-

ology and nomenclature which will enable results to be accurately recorded; we must place education in its proper position among the sciences

of observation. A philosopher who should succeed in doing this would be venerated by future ages as the creator of the art of teaching.

AUTHORIZED ETYMOLOGICAL TEXT BOOKS.*

WHEN the teachers of Ontario are promised a new text-book, it is not to be wondered at if they reserve their manifestations of delight until they have seen it; for surely there is no place less blest in the matter of school-books than Ontario. Mysterious as the hailstorm in a summer day is the authorization of text-books; they often come forth without any *raison d'être*, hold their ground without a merit, and die hard. Half-educated men, men unacquainted with their subject and with teaching, put forth books which the wand of authorization can introduce into every school-room, but cannot make effective. In our boyhood we used to have unlimited confidence in our spelling-book, and a spelling-book ought to excite confidence. English spelling is a subject which demands very great attention in its teaching; it is anomalous, it is difficult, but it can be taught and learned in a reasonable time; and if the proper attention were given to it we should not so often be disturbed with a threat of a "Spelling Reform" from those who have never acquired the art, or from those who want to see their names cheaply connected with the "reform" itself.

When, therefore, a new book on Etymology was announced from the pen of Mr. Connor, we were in hopes

that there would be a spelling department in it too. We were quite prepared to believe that it would be marked with evidence of modern scholarship throughout. We have not been disappointed, except in finding that it is not an "Etymological Spelling-book," but only a book on etymology. But we have every reason to be thankful nevertheless, and if it could be necessary to prove this we have only to turn again to the "Spelling-book, a Companion to the Readers." The teachers of Ontario know full well what a good chance this "Companion" would stand of being "spelled down" at a spelling-match. We know not to what edition our copy belongs, a date—1876—alone gives us any hint as to its age. Of course we do not accuse its author, or authors, of not knowing how to spell, but the evidences are numerous that the whole matter was left to the taste of the compositors. A curious example of this is found among the "Latin Roots." One copy—we do not like to say edition—had a misprint of *e* for *o* in the word *caro*, *flesh*; a subsequent copy corrects the mistake of the letter, and at the same time inserts an *n*, 'carno.' Whoever made the correction could not see how nominative *caro* could have genitive *carnis*. But we have no space for any further examples of this kind.

* (1). Elements of Etymology, for the use of Public and High Schools, by Jas. W. Connor, B.A., Head Master, Berlin High School. Toronto: Wm. Warwick, 1879.

(2). The Spelling-book: a Companion to the Readers, authorized by the Council of Public Instruction for Ontario. Toronto: James Campbell & Son

(3). Analysis of the English Language, by I. Plant Fleming, M.A. Toronto: Adam Miller & Co.

If in matters of spelling our "Companion" is a bad one, in matters of derivation it is infinitely worse. Let us take a hasty glance over the "Fourth Part" of this blind leader of the blind. First comes a history of the English Language, in which—note the title-page bears the date 1876—appear the following words, as containing the second step in the history of our language: "The early invasion by the Romans about 55 B.C., who introduced some military terms," etc. This implies, as we take it, that Julius Cæsar and his legions introduced such forms as *caster*, *coln*, and *street*. Turning a couple of leaves we find the following entry: "The term Anglo-Saxon, for the sake of convenience, is employed as embracing the Saxon, Gothic, and Celtic elements of the language;" Saxon and Celtic set aside as one language for the sake of convenience! On the next page we are shown how one word is derived from another, and the following are given as examples of the steps in the process: *feign*, *feigned*, *feint*; *bear*, *beareth*, *birth*; *die*, *dieth*, *death*, in which we are left to infer that *feint*, *birth*, and *death* are shortened forms of *feigned*, *beareth* and *dieth*. But let us turn a page. In the section on "Prefixes" we have *en* or *em* set down as Anglo-Saxon—which may mean Celtic as well,—and as examples of this prefix we have *enclose* and *embalm*. In the section on "Affixes" we find the suffixes *ar* (with *bursar*, *scholar*, and *vicar* as examples) and *ard* (with *coward* as example) given as Anglo-Saxon. To the same source are referred the suffixes *ry* in *carpentry*; *let* and *et* in *eaglet* and *coronet*; and *ish* in *publish* and *finish*. At page 198 we have *other* derived through French *autre* from Latin *alter*; *hear* through *our* from *audire*; *eight* through *huit* from *octo*; *out* through *outré* from *ultra*. Lastly, to go back to page 144, we find three parallel columns of "Words of similar signification," the first of

Greek, the second of Latin, and the third of English, which last, we ventured to suppose, meant words not derived from Latin or Greek. Then, in the column of English words we find *plea*, *praise*, *power*, *abridgment*, *pointer*, *change*, *chair*. But enough of this. Nothing more need be said to show what a dangerous "Companion" our school-children have, and how necessary that something should be done to rid them of the danger. Mr. Connor's little book corrects all these errors, not directly, for of course he ignores the "Companion" altogether, but by preparing a book in harmony with the present state of philological knowledge. Every page bears evidence of conscientious labour and true scholarship, and we are glad to find that in such a department as Philology Ontario possesses in the author of the "Elements" one who is able to deal with the subject as a master, and not as a *dilettante*.

To teach Etymology, as it must be taught at the present day, a very extensive range of philological reading is essential. It is not by any means sufficient to be able to indicate from what word the given one is derived, the means by which the parent is discovered must be stated also. Without this, Etymology is a barren study; with this, it is both instructive and interesting. It is possible, too, to make a great display of learning, and to very little purpose. What avails it to set down half a score of related words from different languages, without indicating what this accord among them means? One word cannot be derived from half a score of languages, and the danger is, that the unskillful seeker will select the word which, he imagines, most resembles the word in question, and so derive Anglo-Saxon, for example, from High German. Another dangerous rock is *guessing*. We do not now refer to ancient and mediæval efforts; such as *Latium* from *latere*, or *Lateran* from

lata rana, or Latin words from Greek, for Philology, in the modern sense, was then unknown. Even at the present day, however, we find the guess-work plan lingering on. Now it is exceedingly unlikely that the Latin word *luscinia* comes from $\delta\upsilon\varsigma$ (and *cano*), though the *l* is found in Latin, representing δ in Greek, and yet this derivation has been suggested during the present year.

The "Elements of Etymology" begins with a chapter on the history of the formation of the English language. This is given with sufficient fulness. The word *Romanic* is used to "include all words borrowed from Latin (the language of the Romans) whether directly or indirectly through French, or other Romanic languages." While admitting that the word Romanic is good enough when we are dealing with the philology of the group of languages, which is derived from the Latin, we must nevertheless confess that we believe the term inappropriate when it is a question of tracing the formation of the English tongue. We cannot be too closely accurate in pointing out the historical landmarks of the language, and so we cannot deem it advisable to place Latin and French together under one head, seeing that Latin and French influenced our national speech independently of each other. Latin, in the form which it wore anteriorly to the rise of the French language, is projected into English, at least at two successive epochs. French, though essentially of Latin origin, possesses so many peculiarities of its own, that on its introduction into England in the eleventh century, it began to affect the language in such a manner as Latin, in its purer form, never did affect it. French is indeed a corruption of Latin, but not by a Latin people, and it was long before it was fully recognized what part Latin played in the formation of French. Now, English organs of speech, dealing with Latin words produced one

set of changes; dealing with French words, they produced another set; because the materials to be worked over were different in each case—an alloy is easier to work than pure metal.

The learner should acquire a knowledge of the successive waves of foreign influence, and the closest accuracy which we can attain would not have made the introduction too long. Not till this clear outline is thoroughly grasped, should much attention be given to the derivation of individual words. The other languages, from which we have drawn some of our stores, are kept sufficiently apart. With regard to the Norse element, we might remark in passing, that a language that could impose upon English a verbal auxiliary—*are*—must have had closer relations with the language than our present vocabulary would lead us to believe. Many of the words which we now explain as Anglo-Saxon are doubtless of Norse origin.

As soon as a tolerably clear idea of the historical development of our language has been secured by the learner, the next important step is to place within his reach an adequate exposition of what is meant by "Grimm's Law." It is surprising how little is known of this well-established principle, even by many of the teachers in our schools, and yet it is both easy of acquisition and sure to attract the attention even of young scholars. One often hears a learner of German ask if such and such an English word is derived from its German relative. At the present time there are, both in Ontario and elsewhere, young scholars who cannot make up their minds as to whether English is derived from German or German from English. A few black-board exercises on "Grimm's law" would render the matter for ever plain. The sketch made in section 9 of the "Elements" will, we imagine, be found by no means easy by young scholars, especially if they are unacquainted

with the elements of Greek. Our author evidently takes for granted that the Greek mutes have been learned by the young scholar, and that a table—we mean a clear, formal table, standing well out from the text—is unnecessary. We should like to have seen more space allowed to the subject, and additional typographical expedients employed in its simplification.

It must be confessed that to make Philology attractive to those who never intend to learn more than they must learn in order to pass an impending examination, is no easy matter. Still it is not impossible to give a sufficiently clear idea of the scope of the subject to the general student; but for this we can never depend upon a text-book. Of course the text-book is of prime importance, and no subject taught without a text-book is really taught at all; but our meaning is, that the teacher of this subject, as of every other, must stand above his text-book, and not merely on a level with it, or below it. Doubtless Mr. Connor had in view this important fact when, in his third chapter, he presents us with a list of roots and root-words without prefacing them with any general remarks on the nature of roots. The book might have been rendered too bulky by such explanation, but we fear Mr. Connor has rated too highly the preparation for the work to be found even in some of our High Schools. This third chapter cannot be understood by a young scholar without careful explanation, and we are not sure that he will at once, in all cases, be able to get the needed light, for few but deliberate philological students get to know what a "root" is.

The real work of the "Elements" begins with the third chapter. We have evidence here of very careful and extended study. One has only to look at the list of works from which much of the material is culled, to perceive that the author is *au courant*

with the best literature of his subject. No second-rate compiler will be found among the names enumerated. To say that we do not accept everything set down is only to remark that no two etymologists will agree on every point, nor is there, for the present, any hope of getting any two to agree in every respect in a subject in which it is so easy to go astray in labyrinths of words, or in which one is so liable to be led hither and thither in the twilight by all kinds of will-o'-the-wisps in the shape of false analogies. It were almost better, in such doubtful cases, instead of saying that such and such a word is *probably* derived from such another, to adopt Brachet's plan, and boldly say, "Origin unknown." In unskilful hands the 'probably' drops out, and a side-door is kept open for the reception of such words as would not dare to present themselves at the main entrance. If a word lie outside the region of historical proof, or of philological law, then it is mere waste of time to learn—at least for a beginner—from what source it has probably sprung. Indeed, we hope that in a subsequent edition we may have an appendix containing common words of unknown origin, for even knowledge of this negative kind is extremely useful. The truth is, as we have been often reminded in our examination of Mr. Connor's book, the author had much better have taken it for granted that those for whom his book was prepared have little better than a negative knowledge of the subject of which he is such a master. We should, in this case, have had a work that, though it might not have so well mirrored Mr. Connor's full and scholarly mind, would have been within the grasp of that of the ordinary pupil. As it is, the book is beyond the requirement, and even the power of use, of all but the graduating University student and the High-School master. This is a pity, because there was urgent need

in the schools for a good, well-adapted text-book in Etymology, with a series of instructive lessons for the pupil's use, and as much else of philological lore as the average school-boy could usefully digest. In a sense it is not to be regretted that this is not what Mr. Connor has thought fit to give us, but it is, nevertheless, what the schools wanted, and what we supposed the Minister of Education, or his advisory body, would have taken care to see that it was what we got. It may be to little purpose now to rail at those responsible for this new Departmental *contre-temps*, but surely if it is to assume proprietary interests in the text-books it authorizes, it should first submit them to practical teaching tests, and then to competent literary supervision. It is no compliment to an author to allow him to undertake the preparation of a manual for a specific educational purpose, and from want of judicious direction and oversight to have a work produced not best, but only approximately, suited to its uses. What warrant the Department has, in any case, for entering into publishing speculations of its own, it would be hard to say. It would be harder still to say why it engages in trade enterprises not justified by a pressing educational necessity. For such a text-book as the schools *did* want, there was an admitted necessity; for such as Mr. Connor—through the Department—has given us, there was little or none. It would be ungracious to Mr. Connor to say more, lest that gentleman should misconceive the point of our criticism. We are not decrying *his* work, but that of the Central Committee. *His* labour has been well performed; *theirs* not at all.

And now for Fleming's "Analysis." We suppose that this work was placed among the authorized text books, chiefly on account of its so-called "Etymological Derivations," but let not the reader be startled at the redundancy of

the phrase. Horne Tooke, if he does not reign, at least holds, throughout the work, a recognized position. The author of the "Analysis" has, however, a great advantage over the compilers of the "Companion": the former, we perceive, manifests some knowledge of Anglo-Saxon, for which we seek in vain in the latter. But of modern Philology, the book before us is almost as destitute as the other—individual words are dealt with, and not principles, and sometimes the individual words are very harshly dealt with indeed. As an evidence of want of philological training in the author of the "Analysis," we have merely to note that *drunkard* and *braggart* are said to be of Gothic origin, just as *balloon* and *trombone* are Italian. Now these latter are borrowed from the Italian, while, of the former, one is only "akin" to Gothic, the other is most probably Celtic. Here again we meet with the old error of supposing that because Gothic possesses so strong a likeness to English in some of its words, the former must therefore be the parent of the latter. Further on we find a list of "Diminutive Verbs," and *gladden*, *bind*, *brush*, with many others, are among the examples. The *ish* in *burnish*, is explained as a causative suffix, so that *burnish* means, we suppose, *to make burn*. Passing over several lists, from any of which we might select specimens of false derivation, we come to Chapter V. This may be called Horne Tooke's own chapter. Out of a couple of pages of what at the present day seems very like nonsense—and it *is* nonsense when seriously reproduced for our young people to study—we shall take only three examples. *Coward* is from *cower'd*, from *to cower down*; *month*, from *mooneth*; *tooth*, from *tuggeth*! But let us pass rapidly on. We are disposed to treat leniently attempts to derive such words as defy the application of ordinary philological principles.

There are words which seem to be of no great antiquity, and yet whose origin is hidden; with these an ingenious guess is pardonable, but it must be given as a guess. It is in such words as these that the unscientific etymologist seems to take the greatest interest; to him it is of prime importance to know whether *caucus* is from the *call-house* in Boston, or from Gaelic; whether *bachelor* is *bas chevalier*, or from the Welsh *bachgen*, or from Low Latin *baccalarius*; the most fanciful derivation is usually the one preferred.

Mr. Fleming's tenth and following chapters will be found to contain many examples of "far-fetched" derivation, and though a large proportion of

these be admissible, the lists contain so many old guesses that they are quite untrustworthy for reference.

On the whole, then, with the exception of Mr. Connor's book, and that with the reservation we have made, we have not much occasion to congratulate the Ontario teaching profession on the character of the Etymological text-books which possess the authorization of the Department. It is quite time that, in so important a subject, we should have text-books of a higher character of scholarship, and better adapted to the wants of our Public and High Schools. Is it hopeless to expect the Department to recognize and supply these wants?

WE are much pleased to learn that the new "Intermediate" Geography, designed to take the place of "Lovell's Easy Lessons," in that enterprising publisher's series of school books, is to appear early in September. We also learn that the "Advanced" Geography in the same series, which is to take the place of the "General Geography,"—the first text-book on the subject published in this country—will be issued in October next. Mr. Lovell announces that the new issues will, in their literary and mechanical execution, be in advance of anything hitherto published in Canada, the books having been carefully edited by competent scholars, and scrupulously revised by gentlemen familiar with the results of modern geographical research. We hope to notice them at length in our next number.

THE Young Ladies' Class conducted by Mrs. Lovell, of Montreal, will open at her residence in that city early in September. The object aimed at by Mrs. Lovell is to direct the studies of young ladies, well-grounded in the elementary branches, who may desire to pursue a course of reading that will thoroughly train their minds. That result is achieved by means of lectures and

conversations on literary, art, and scientific subjects, and by weekly conversaciones devoted to art, music, and literature, at which the pupils are brought into contact with intelligent and cultivated society, which Mrs. Lovell's accomplishments, her enthusiasm on behalf of the Higher Education of Women, and her position in Montreal society enable her, at stated intervals, to bring together.

THE Institution, Dufferin House, conducted by Miss Dupont, John Street, Toronto, will re-open on the 8th September. It is of no little moment—if the fair sex in Canadian society is to exercise that influence which many of their English sisters are now exercising in the domain of mind, as well as in that of society circles,—that such an institution as Miss Dupont's should exist in our midst, affording facilities not only for acquiring a high-class education, but for the imparting of those graces of manner and bearing which stamp the true lady, and exert a wholesome refining influence. Ably assisted by resident governesses and by visiting professors, Miss Dupont's establishment easily leads among similar institutions of the city and province.

ARTS DEPARTMENT.

[NOTE.—We publish this month a selection from the Annual Examination Papers of the University of Toronto, for Junior Matriculation; also a selection from the July Examination Papers of the Education Department for First, Second, and Third-Class Teachers, the continuation of which we will give, with solutions to the Mathematical papers, in subsequent numbers. ARCHIBALD MACMURCHY, M.A., Math. Ed. C. E. M.]

UNIVERSITY OF TORONTO EXAMINATIONS, 1879.

JUNIOR MATRICULATION.

HISTORY AND GEOGRAPHY

[Legible writing, correct spelling, and grammatical language are indispensable.]

(N.B.—Questions 2, 3, 4, 5, 8, 9, 10, 11, 12, and 13 are for Candidates in Arts; Questions 1, 2, 5, 6, 7, 8, 9, 11, 12, and 13 for Candidates in Medicine.)

1. Enumerate the Aryan or Indo-European races of Europe, and explain what is meant by the term.

2. Relate the history of the invasion of Greece by Xerxes.

3. Describe the political constitution of Athens in the age of Pericles.

4. Give an account of the causes, course, and results of the Social War.

5. State the causes of the downfall of Roman freedom, and explain how they operated.

6. Describe the feudal system, state the causes to which it owed its origin, and those which led to its decay.

7. Give a brief account of the history of the early part of Charles the First's reign, so as to show what were the causes of the war between him and the Long Parliament.

8. Tell briefly what you know about the history of England during the reign of George II.

9. Give an account of the events which led to the revolt of the American colonies.

10. State in order the names of the cities and islands you would have passed, if you had sailed along the coast of Asia Minor from the Hellespont to Halicarnassus, in the fifth century B.C.

11. Trace the course of the Mississippi from its source to its mouth, naming in order its chief tributaries, the principal cities on its banks, and the states past or through which it flows.

12. Give an account of the water system of the Pacific slope of Canada.

13. Sketch in outline the map of France, indicating the course of the chief rivers, and the position of the large cities and mountain ranges.

HISTORY AND GEOGRAPHY.—
HONORS.

(Questions 4, 5, 6, 7, 8, 9, 11, and 13 are for Candidates in Arts; Questions 1, 2, 3, 7, 10, 11, 12, and 13 for Candidates in Medicine.)

1. Give an account of the career of Alexander the Great.

2. Tell what you know about the division of the Western Roman Empire among the northern barbarians.

3. Estimate the influence of the Crusades on the development of European civilization.

4. Give an account of the Revival of Letters, and point out its influence on the history of the sixteenth century.

5. Contrast the religious organization of England in the latter part of the reign of Elizabeth with that of Ontario at the present time.

6. "No event ever marked a deeper or more lasting change in the temper of the English people than the entry of Charles the Second into Whitehall. With it modern England begins."—*Green*.

Explain and illustrate this statement.

7. Give an account of the steps by which

Charles the Second made himself absolute towards the end of his reign.

8. Sketch the development of the system of party government in the reign of Anne.

9. Describe the physical geography of India, state what races inhabit it, what languages are spoken, what its chief exports and imports are, and give an account of its political, religious, and social condition.

10. Give a similar account of Austro-Hungary.

11. State what you would see on a coasting trip from Dover to Leith.

12. Describe briefly the course of the Nile, the Congo, the Missouri, the Hudson, the Ebro, the Rhine, the Amoor, and the Meinam.

13. Describe briefly the course of the Severn (England), the Shannon, the Ottawa, and the Peace River; and state as definitely as you can where Manchester, Inverness, Londonderry, Melbourne, Singapore, Heliogoland, A'len, Delhi, and Dundee are situated.

N.B.—As some of these names occur more than once on the map of the world, candidates are directed in every such instance to select the most important place.

ENGLISH.—HONORS.

1. Give an epitome of the play of Macbeth.
2. Sketch briefly the characters of Lady Macbeth, Macbeth, and Duncan, illustrating with quotations.

3. Write a paper upon the employment of the supernatural in the tragedies of Shakespeare, referring particularly to Macbeth.

4.

"To-morrow, and to-morrow, and to-morrow,
Creeps in this pretty pace from day to day,
To the last syllable of recorded time;
And all our yesterdays have lighted fools
The way to dusky death. Out, out, brief candle!
Life's but a walking shadow; a poor player
That struts and frets his hour upon the stage,
And then is heard no more; it is a tale
Told by an idiot, full of sound and fury,
Signifying nothing."

(a) Point out and name all figures of speech in the extract.

(b) Name the metre, and scan lines 1 and 3.

5.

" * * * * * Come, feeling night,
Skarf up the tender eye of pitiful day;

And, with thy bloody and invisible hand,
Cancel, and tear to pieces, that great bond,
Which keeps me pale! Light thickens, and the
crow
Makes wing to the rocky woods;
Good things of day begin to droop and drowse,
Whiles night's black agents to their prey do rouse:
Thou marvell'st at my words: but hold thee still:
Things bad begun, make strong themselves by ill:
So, pry'thee, go with me."

(a) Who speaks, and under what circumstances?

(b) Derive *night*, *tender*, *pitiful*, *invisible*, *cancel*, *tear*, *bond*, *whiles*, *agents*, *prcy*, *marvell'st*, *themselves*, *pr'ythee*.

6.

"How he solicits heaven
Himself best knows; but strangely visited people,
The mere despair of surgery he cures;
Hanging a golden stamp about their neck;
Put on with holy prayers; and 'tis spoken
To the succeeding royalty he leaves
The healing benediction."

(a) Analyse this passage.

(b) Parse italicized words.

7. Brief notes on:

Acheron, Hecate, "a vaporous drop profound," Dunsinane, thane, *Norwegian*, *Scone*, "Hyrcan tiger."

MATHEMATICS.

1. Define the Greatest Common Measure and Least Common Multiple of any number of quantities. How is the L. C. M. of a number of fractions found?

Add together $\frac{13}{42}$, $\frac{59}{63}$, $\frac{83}{121}$, $\frac{3}{70}$, $\frac{91}{110}$, $\frac{91}{264}$.

2. Prove the rule for the conversion of a circulating decimal into a vulgar fraction, using a numerical example.

3. Distinguish between interest and discount, and shew that if P , I , D , be respectively the principal sum, and the interest and discount upon it for any given time.

$$\frac{I}{D} = \frac{I}{I} + \frac{I}{P}$$

4. A person has an income derived from £3,360, which was originally invested in the Four per cents at 96. If he now sells out at 94, and invests one half of the proceeds in Railway Stock at 82½, which pays a dividend of 3 per cent., and the other half in Bank Stock at 164½, paying 8½ per cent.

dividend, what difference will he find in his income?

5. Simplify.

$$(i) \frac{2^n + 4 - 2 \times 2^n}{2^n + 4} \times \frac{2^n}{4}$$

$$(ii) \frac{x^2 + \left(\frac{a}{b} + \frac{b}{a}\right)xy + y^2}{x^2 + \left(\frac{a}{b} - \frac{b}{a}\right)xy - y^2}$$

$$(iii) \frac{\frac{a^2 + b^2}{1} - a}{\frac{b}{1} - \frac{1}{a}} \times \frac{a^2 - b^2}{a^2 + b^2}$$

$$\times \left(\frac{2 + b}{a - b} + \frac{a - b}{a + b}\right) \times \left(\frac{a}{a + b} + \frac{b}{a - b}\right)$$

6. Divide $6x^5 - 4x^4 - 19x^3 + 23x^2 - 13x + 3$ by $3x^2 - 2x + 1$, (i) in full; (ii) by Horner's method.

7. Prove the rule for finding the G. C. M. of two quantities.

Find the G. C. M. of $(x^3 + x^2y + 3xy^2 + y^3)$ and $(x^3 + 3x^2y + xy^2 - y^3)$.

8. Solve.

$$(i) \frac{3-x}{3+x} - \frac{2-x}{2+x} + \frac{1-x}{1+x} = 1.$$

$$(ii) x^2 + 4.8x + 2.87 = 0.$$

$$(iii) \sqrt{2 + 1 - (2x - 1)^{-2}} = 0.$$

9. Extract the square root of $32 + 10\sqrt{7}$.

10. Solve.

$$(i) \begin{cases} x + y = a \\ x^4 + y^4 = 14x^2y^2 \end{cases}$$

$$(ii) \begin{cases} \frac{(x+y)^2}{a^2} + \frac{(x-y)^2}{b^2} = 8 \\ x^2 + y^2 = 2(a^2 + b^2) \end{cases}$$

$$(iii) \begin{cases} (x+y)(x^2+y^2) = 1216 \\ x^2 + xy + y^2 = 49. \end{cases}$$

$$(iv) \begin{cases} x^2y^2 = a \\ y^2xz = b \\ z^2xy = c \end{cases}$$

11. If a side of any triangle be produced, the exterior angle is equal to the two interior and opposite angles; and the three interior angles of every triangle are together equal to two right angles.

The difference of the angles at the base of any triangle is double the angle contained by a line drawn from the vertex perpendicular to the base, and another bisecting the angle at the vertex.

12. To describe a parallelogram that shall be equal to a given triangle, and have one of its angles equal to a given rectilineal angle.

13. The opposite angles of any quadrilateral figure inscribed in a circle are together equal to two right angles.

If two opposite sides of a quadrilateral figure inscribed in a circle be equal, prove that the other two are parallel.

TRIGONOMETRY—HONORS.

1. Explain the terms *characteristic* and *mantissa*, and state the rule for writing down the characteristic of the logarithm of any number.

Write down the characteristics of '5, '0007 and 60050.3.

What would be the characteristics of these numbers to base 100, and also to base $\frac{1}{10}$.

2. Find the logarithms of $\sqrt[3]{.007}$ and $(.5)^{-3}$. Find the index of the power to which 7 must be raised to produce 300.

3. Having given

$$\text{Log cot } 57^\circ 30' = 9.804187$$

$$\text{Difference} = 279.$$

Find $\text{Log cot } 57^\circ 30' 15''$, and find the angle, the Log of whose tangent is 9.804251.

4. Find the values $\sin 30^\circ$, $\cos 30^\circ$, and $\sec 45^\circ$.

Write down the tabular logarithms of these ratios.

5. Prove the formulas:

$$(1.) \sin A = \sin (180^\circ - A) = \cos (90^\circ - A).$$

$$(2.) \cos (A - B) = \cos A \cos B + \sin A \sin B.$$

$$(3.) \sin 2A = 2 \sin A \cos A.$$

The angle BAC is bisected by AD . BC and BD are perpendicular to AC and AD . Prove that

$$BA \cdot BC = 2 BD \cdot AD$$

$$\text{and } BA \cdot AC = AD^2 - BD^2$$

6. Shew that

$$(1.) \sin 18^\circ \sin 54^\circ = \frac{1}{4}.$$

$$(2.) 16 \cos 20^\circ \cos 40^\circ \cos 60^\circ \cos 80^\circ = 1.$$

7. In any triangle, prove the formulas

$$(1.) c = a \cos B + b \cos A.$$

$$(2.) \tan \frac{1}{2} A = \sqrt{\frac{(s-b)(s-c)}{s(s-a)}}.$$

In the triangle ABC , BD is drawn at right angles to AB , meeting AC in D . Find BD in terms of the sides of the triangle.

8. Solve the equations

$$(1) \sin^2 \theta + \sin^2 2\theta = 1.$$

$$(2) \begin{cases} \sin^2 (\theta + \phi) - \sin^2 (\theta - \phi) = \frac{\sqrt{3}}{2} \\ \operatorname{cosec} 2\theta + \cos 2\phi = \frac{2}{\sqrt{3}} \end{cases}$$

9. Solve the triangles

$$(1) A = 21^\circ. 10', C = 90^\circ, a = 314.16.$$

$$(2) A = 74^\circ. 53', B = 37^\circ. 55', c = 300.$$

10. Find the area of the circle inscribed in the triangle whose sides are 50, 68, and 78.

$$(\pi = 3.1416.)$$

EDUCATION DEPARTMENT, ONTARIO.

July Examinations, 1879.

FIRST-CLASS TEACHERS.

ARITHMETIC.

1. Extract the square root of .000997199-881 to six decimal places, and reduce to its simplest form $\frac{\sqrt{3.43}}{\sqrt{270}} \div \frac{\sqrt{.02744}}{\sqrt{.08}}$.

2. A cistern holding 1299 gallons is filled by 3 taps, A, B, C, in 30 minutes; A conveys 10 gallons more than B every $2\frac{1}{2}$ minutes, and C 8 gallons less than B in the same time: how much does each supply per minute?

3. At the English Mint 1869 sovereigns are coined from 40 lbs. Troy of standard gold, which is 22 carats fine, and at the French Mint 155 twenty-franc pieces are coined from 2.2072 lbs. (avoirdupois) of gold 90 % fine. The value of the alloy being neglected, find the number of francs in a sovereign, correct to three places of decimals.

4. Two men form a partnership, A contributing \$5500, and B \$4500; it is agreed that each shall receive $7\frac{1}{2}$ % of the profits for managing the business, and that the

remainder shall be divided according to the stocks and times of investment; at the end of 10 months B puts in \$2000 additional capital, but ceases to aid in the management, and agrees that A shall thenceforth receive 15 % of the profits for managing the business; at the end of 12 months from the time of starting, the profits are found to be \$4000: how much of this should each receive?

5. $\log 2 = .3010300$, $\log 3 = .4771213$, find log of .0000025.

In how many years will \$100 exceed \$1000 at 8 % per annum, compound interest?

6. A grocer sells coffee at a cash price which is $33\frac{1}{3}$ % above cost; he also sells on credit, giving 8 lbs. for what would buy 9 lbs. if paid in cash: how much % above cost is his credit price?

7. Assuming 19 as the specific gravity of gold, and 2.6 as the s. g. of quartz, find the quantity of gold per oz. in a mixture whose s. g. is 7.

8. A dealer purchased, on six months' credit, goods to the amount of \$520; after keeping them three months he sold them on credit for \$577.70, and allowing money to be worth 8 %, he found that he had made $16\frac{3}{4}$ % on the transaction; on what term of credit did he sell the goods?

9. A broker sold a farm for \$6000, charging a certain rate of commission, and invested the proceeds less his charges on both transactions in city property, receiving on the latter a commission of 4 % on the price paid; his entire commission was \$375: what rate did he charge on the sale of the farm?

10. (I.) A field in the form of a sector of a circle has its radius 80 yards, and its angle $112^\circ 30'$: find its area and the length of its arc.

(II.) The sides of a quadrilateral are 3, 4, 5, and 6, the first and last being parallel: find its area.

ALGEBRA.

1. Prove that $2[(a-b)^2 + (b-c)^2 + (c-a)^2] = 7(a-b)(b-c)(c-a)[(a-b)^2 + (b-c)^2 + (c-a)^2]$.

EUCLID.

2. Extract the square root of $ab - 2a\sqrt{ab - a^2}$, and find the simplest real forms of the expression

$$\sqrt{3 + 4\sqrt{-1}} + \sqrt{3 - 4\sqrt{-1}}.$$

3. Solve the equations :

(1). $2x^4 + x^3 - 11x^2 + x + 2 = 0.$

(2). $x^2 + y^2 + z^2 = a^2$

$yz + zx + xy = b^2$

$x + y - z = c.$

(3). $\sqrt{x^2 + 5x + 4} + \sqrt{x^2 + 3x - 4} = x + 4.$

4. Prove that the number of positive integral solutions of the equation $ax + by = c$ cannot exceed $\frac{c}{ab} + 1.$

In how many ways may £11 15s. be paid in half-guineas and half-crowns?

If $xy = ab(a+b)$, and $x^2 - xy + y^2 = a^3 + b^3$, shew that $\left(\frac{x}{a} - \frac{y}{b}\right)\left(\frac{x}{b} - \frac{y}{a}\right) = 0.$

6. Given the sum of an arithmetical series, the first term, and the common difference, shew how to find the number of terms. Explain the negative result. Ex. How many terms of the series 1, 10, 14, &c., amount to 96?

7. Find the relation between p and q , when $x^3 + px + q = 0$ has two equal roots, and determine the values of m which will make $x^2 + max + a^2$ a factor of $x^4 - ax^3 + a^2x^2 - a^3x + a^4.$

8. In the scale of relation in which the radix is r , shew that the sum of the digits divided by $r - 1$ gives the same remainder as the number itself divided by $r - 1.$

9. Assuming the Binomial Theorem for a positive integral index, prove it in the case of the index being a positive fraction.

Shew that the sum of the squares of the co-efficients in the expansion of $(1 + x)^n$ is $2n + 1$, n being a positive integer.

10. Sum the following series:—

(1). $1 + 3x + 5x^2 + 7x^3 + \dots$ to n terms.

(2). $\frac{1}{3 \times 8} + \frac{1}{8 \times 13} + \dots$ to n terms and to infinity.

11. Shew that $\begin{vmatrix} bc, & -ac, & -ab \\ b^2 - c^2, & a^2 + 2ac, & -a^2 - 2ab \\ c^2, & c^2, & (a+b)^2 \end{vmatrix}$ is divisible by $abc(a+b+c).$

[N.B.—Sixty marks to each question: 225 marks to count a full paper.]

1. In any right-angled triangle, the square which is described on the side subtending the right angle, is equal to the square described on the sides which contain the right angle.

AB, AC are two finite straight lines, from *B* a perpendicular *BD* is let fall on *AC* (produced if necessary), and from *C* a perpendicular *CE* is let fall on *AB* (produced if necessary). The rectangle contained by *AB* and *AE* is equal to the rectangle contained by *AC* and *AD*. (To be proved by Book I.)

2. The angles in the same segment of a circle are equal to one another.

In a right-angled triangle, the straight line joining the right angle to the point of intersection of the diagonals of the square described on the hypotenuse (on the side remote from the right angle) will bisect the right angle.

3. In a circle, the angle in a semi-circle is a right angle; and the angle in a segment greater than a semi-circle is less than a right angle; and the angle in a segment less than a semi-circle is greater than a right angle.

ABC is a triangle and *O* is the centre of its inscribed circle. Show that *AO* passes through the centre of the circle described about *BOC*.

4. If two triangles have one angle of the one equal to one angle of the other, and the sides about the equal angles proportionals, the triangles must be equi-angular to one another and must have those angles equal, which are opposite to the homologous sides.

The side *BC* of a triangle *ABC* is produced to *D* so that *AD* is a mean proportional to *BD* and *DC*, show how to determine the position of the point *D*.

5. The sides about the equal angles of triangles which are equi-angular to one another, are proportionals; and those which are opposite to the equal angles, are homologous sides.

From the angular points, *A, B, C*, of a triangle straight lines are drawn through any the same point in the plane of the triangle and meet the sides *BC, CA, AB* (produced

if necessary) in a , b , and c respectively. AB and ca (produced if necessary) meet in b'' , prove that $Ab : bC :: Ab'' : Cb''$.

EDUCATION.

1. Distinguish between mental assimilation and *cram*.

2. Show how you would make questioning efficient as an instrument of teaching as well as testing.

3. Indicate fully the teacher's equipments as to the following: (a) Personal qualifications. (b) Habits. (c) Studies. (d) School Room and Furniture.

4. Show how you would teach Geography. (1) For mere information. (2) As an instrument of intellectual discipline.

5. Discuss the value of false Orthography as a means of teaching spelling, intimating whether you approve or disapprove, and why?

6. Distinguish between teaching Reading as a vocal art and a source of intellectual culture, indicating what is included in each division.

7. "Nature presents to the inquirer first the concrete then the abstract, first things then signs for words or things; first facts and phenomena then laws and principles; first wholes and then parts or collections of wholes."—*Wickersham*.

To the study of what subjects are these principles particularly applicable, and in what way? Answer fully.

SCHOOL LAW.

1. In what way may the office of School Trustee become vacant?

2. What Government and Municipal grants are given to schools, and how are these grants distributed?

3. What must be done (i.) in case of difference of opinion between School Auditors on any matter in the school accounts, (ii.) if both Auditors object to the lawfulness of any expenditure?

4. Give in full the law relating to the Superannuation of Teachers.

5. What powers are vested (i.) in Town-

ship Councils, (ii.) in County Councils, to change the boundaries of school sections?

6. What is the law relating to—

(i.) The collection of school rates?

(ii.) Attendance of non-resident children?

(iii.) Contract between a trustee and the corporation of which he is a member?

(iv.) Payment of teachers' salaries?

(v.) Expulsion of a child from school?

7. Give a short synopsis of the School Act of 1879.

CHEMISTRY.

1. Explain the principles on which the determination of atomic weights is based. One part by weight of hydrogen is combined with three parts by weight of carbon in marsh-gas, with six parts by weight of carbon in olefant-gas, and with twelve parts by weight of carbon in acetylene. Again, one part by weight of hydrogen is combined with eight parts by weight of oxygen in water, and eight parts by weight of oxygen are combined with three parts by weight of carbon in carbonic anhydride, and with six parts by weight of carbon in carbonic oxide. Why is the atomic weight of carbon taken as 12 instead of as 6 or as 3?

2. What is understood by the theory of atomicity? What atomicity or quantivalence do you assign to nitrogen, arsenic, iron, and copper respectively, and why? Give the formulæ of the most important compounds which these elements form with hydrogen, chlorine, oxygen, and sulphur respectively.

3. What is a *compound radicle*? Give examples. Select the compound radicles from among the following: KCl , H_3N , H_4N , HO , KHO , SO_2 , SO_3 .

4. Ten grains of air are passed at a very high temperature over an excess of carbon. What product is formed, and what is the approximate weight of it?

5. What compounds of sulphur are there which in their constitution and general reactions resemble the corresponding compounds of oxygen? How is sulphur now recovered from alkali-waste? What are the

respective formulæ of iron pyrites, copper pyrites, zinc blende, realgar, galena, and cinnabar? What are the products furnished by these several minerals when heated in presence of air?

6. Draw a comparison between sodium and potassium compounds in respect of their occurrence in nature, and in respect of the difference of properties manifested by corresponding potassium and sodium compounds. Give illustrations of double decompositions taking place between potassium and sodium salts.

7. On testing a certain liquid you find that it reddens blue litmus-paper. What conclusion can you draw from this?

Had the liquid burned reddened litmus-paper blue, what conclusion could you have drawn?

8. What chemical changes occur when an aqueous solution of potassium iodide is added to an aqueous solution of each of the following salts:—Mercuric chloride, lead nitrate, sodium sulphate, silver nitrate, and sodium sulphite?

9. You are given seven test tubes, and are told that in one there is pure water, and in the other six there are respectively aqueous solutions of silver nitrate, copper nitrate, zinc sulphate, calcium chloride, magnesium sulphate, and potassium nitrate. How could you determine which test tube contained the pure water, which the silver nitrate, which the copper nitrate, &c.?

SECOND-CLASS TEACHERS:

ARITHMETIC.

1. (a) Divide $84'332476$ by 12.734 .

(b) The circumference of a circle divided by 3.1415926 gives the diameter nearly; what multiplier of five decimal places may be used instead of this divisor?

2. Show how to find the G.C.M. and the L.C.M. of two or more fractional numbers.

The G.C.M. of two fractional numbers is $\frac{1}{80}$, and their L.C.M. is $3\frac{1}{2}$; one of the numbers is $2\frac{1}{8}$, find the other.

3. Sterling exchange is quoted in Toronto

at $109\frac{1}{2}$ for 60-day bills; what must be paid for a 60-day bill for £45 8s. 6d.?

4. The old wine gallon is 231 cubic inches; the cubic inch is $.000016386$ cubic metres, and the imperial gallon is $4'54102$ litres; how many imperial gallons are there in 157 wine gallons?

5. There are two clocks, one of which loses $3\frac{1}{2}$ minutes a day, and the other gains $3\frac{1}{2}$ minutes a day; the latter marks a time 25 minutes in advance of the former: when will both clocks mark the same time?

6. A person had stock of the Dominion Bank; he received a half-yearly dividend of $4\frac{1}{4}$ per cent., which he invested in the same stock at $113\frac{1}{2}$, and his entire stock was now \$16,600; how much stock had he at first?

7. If 5 men earn as much in a day as 8 women, and 2 women as much as 3 boys, and if 7 men, 12 women, and 20 boys earn \$205.50 in 6 days, what amount will be earned in 8 days by 6 men, 10 women, and 24 boys?

8. If 12 lbs. avoirdupois of American standard silver, which is 90 per cent. fine, be coined into 175 dollars; and if the value of the alloy be $37\frac{1}{2}$ per cent. of that of pure silver, find the value of one pound Troy of the alloy.

9. A merchant imported 700 yards of silk and marked it to gain, as he supposed, 25 per cent.; but having neglected to take into account a charge of \$125 for freight and duty, he made only $6\frac{2}{3}$ per cent. profit: find the invoice price of the silk.

10. (1) How many yards of painting are there in the walls of a room 20 ft. long, 14 ft. 6 in. wide, and 10 ft. 4 in. high, allowing for a fire-place 4 ft. by 4 ft. 4 in., and two windows each 6 ft. by 3 ft. 2 in.?

(2) Find the number of cubic feet in a hollow cylinder, the external circumference of which is 5 ft. 6 in., the internal circumference 3 ft. 8 in., and the length 18 feet.

EUCLID.

1. (a) Define straight line, segment of a circle, rectilineal angle, trapezium, superficies.

(b) From the XVIII. and XXXII. propositions, Book I., deduce, respectively, the

proof of the VI. and of the XVII. propositions.

2. To make a triangle of which the sides shall be equal to three straight lines, but any two of these must be greater than the third.

3. If a straight line fall upon two parallel straight lines it makes the two interior angles upon the same side together equal to two right angles, and also the alternate angles equal to each other, and also the exterior angle equal to the interior and opposite angle upon the same side.

4. In any right-angled triangle the square which is described on the side subtending the right angle is equal to the squares described on the sides containing the right angle.

5. If a straight line be divided into any two parts the squares on the whole line and on one of the parts are equal to twice the rectangle contained by the whole and that part together with the square on the other part.

6. To describe a square that shall be equal to a given rectilinear figure.

7. In the ordinary figure of the 47th proposition, Book I., if the corners of the squares be joined externally, prove that the three triangles thus formed are equal to one another.

8. If ABCD be a quadrilateral, and E the bisection of the diagonal BD, and if through E a line, FEG, be drawn parallel to AC, and meeting AB in F and BC in G, shew that AG will bisect the given figure.

9. If A be the vertex of an isoscles triangle ABC, and CD be drawn perpendicular to AB, prove that the squares upon the three sides are together equal to the square on BD, and twice the square on AD and thrice the square on CD.

10. Any rectangle is half the rectangle contained by the diameters of the squares upon its two sides.

ALGEBRA.

1. Simplify.

$$\left(\frac{ax^2 - ay^2 + 2bxy}{x^2 + y^2}\right)^2 + \left(\frac{by^2 - bx^2 + 2axy}{x^2 + y^2}\right)^2$$

2. Divide $a^3 - b^3 - c^3 - 3abc$ by $a - b - c$, and show, without expansion, that

$$(1 + x + x^2)^3 - (1 - x + x^2)^3 - 6x(x^4 + x^2 + 1) - 8x^3 = 0.$$

3. Resolve into factors $x^4 - \frac{1}{4}x^2y^2 + y^4$, and

$7x^2 - 6y^2 - xy + 19x + 33y - 36$; and prove that

$b^2(c+a) + c^2(a+b) - a^2(b+c) + abc$ is exactly divisible by $b + c - a$.

4. Apply Horner's method of division to find the value of $5x^5 + 497x^4 + 200x^3 + 196x^2 - 218x - 2000$ when $x = -99$, and the value of $6x^5 + 5x^4 - 17x^3 - 6x^2 + 10x - 2$ when $2x^2 = -3x + 1$.

5. Find what

$$\frac{\sqrt{(a+x)} + \sqrt{(a-x)}}{\sqrt{(a+x)} - \sqrt{(a-x)}} \text{ becomes when } x = \frac{2ab}{1+b^2}.$$

6. If a and b be any positive numbers, prove that

$$\frac{1}{a} + \frac{a}{1+a} > 1, \quad \frac{a}{b} + \frac{b}{a} > 2.$$

7. Solve the equations—

$$(1) \quad x^{\frac{1}{2}} + y^{\frac{1}{2}} = 5$$

$$\frac{-\frac{1}{2}}{x} + \frac{-\frac{1}{2}}{y} = \frac{1}{8}.$$

$$(2) \quad x + 2y + 3z = 14$$

$$2x + 3y + z = 11$$

$$3x + y + 2z = 11.$$

$$(3) \quad (x+1)(x+3)(x+4)(x+6) = 16.$$

8. There are three consecutive numbers such that the sum of their cubes is equal to $16\frac{2}{3}$ times the product of the two higher numbers: find the numbers.

9. (1) Form an equation three of whose roots are 0, $\sqrt{-3}$, and $1 - \sqrt{2}$.

(2) If one of the roots of the equation $x^2 + px + q = 0$, is a mean proportional between p and q , prove that $p^3 = q(1+p)^2$.

10. Two trains start at the same instant, the one from B to A, the other from A to B; they meet in $1\frac{1}{2}$ hours; and the train for A reaches its destination $52\frac{1}{2}$ minutes before the other train reaches B: compare the rates of the trains.

NATURAL PHILOSOPHY.

1. How are static forces measured?

State the principle of the transmissibility of force.

By what experiments could this principle be illustrated, (1) for pressures, (2) for tensions?

A string, $ABCD$, is suspended from the point A . At the point B , a weight of 8 oz. is attached, at C a weight of 6 oz. is attached, and at D a weight of 2 oz. is attached. Find the tension of the string between A and B , between B and C , and between C and D .

2. Enunciate the Triangle of Forces, explaining your enunciation by means of a diagram in which the directions of action of the forces are marked by arrows. Mark also the point of application of the forces.

Show that *perpendicular* may be substituted for *parallel* in the enunciation.

A weight of 51 lbs. hangs by two cords, AB 8 feet long and AC 15 feet long. The cords, which act at right angles to one another, are fastened to the points B and C , BC being horizontal. Find the tension of the cords. (Explain your solution by means of a diagram.)

3. The moment of a given force about a given point is the same, no matter at what point in its line of action the force is supposed to act.

Two boys carry a pail of water weighing 21 lbs., by means of a stick weighing one pound. What weight does each boy support, the pail being hung 15 inches from one boy and 21 inches from the other, the centre of gravity of the stick being mid-way between the boys.

4. Show how to determine (whenever possible) the position of the centre of two parallel forces.

How can the centre of gravity of a body be determined experimentally?

A uniform rectangular board, $ABCD$, is suspended from the angular point A . To the angular point B is suspended a weight of 7 oz. Given that AB is 5 inches and BC 12 inches, and that the weight of the board is 6 oz., find where the vertical line through A will cut the diagonal BD .

5. State the principle of virtual velocities. Define the term virtual velocity.

With what force must a horse pull in order to draw a load of 1105 lbs. up an incline of 21 in 221 (measured along the plane), the

traction being parallel to the plane? (Solve by virtual velocities.)

6. "Any force, however small, may, by the transmission of its pressure through a fluid, be made to support any weight however large." Explain how this is possible.

Describe any machine constructed to take advantage of this principle.

A tube whose internal cross-section is one square inch opens freely into a water-tank whose internal horizontal section is 5 square feet. In the tube there works a piston. What pressure would be exerted on the piston by the water in the tank rising to a height of 12 feet above the level of the piston. (A cubic foot of water weighs 1000 oz.)

7. Describe the siphon and explain the principle of its action.

A siphon filled with water has its ends inserted into water contained in two reservoirs of equal dimensions, the level of the surface of the water in one reservoir being 20 feet below the surface of the water in the other. State what would take place were the vertical distance of the highest point of the siphon i. 20, ii. 30, iii. 35 feet above the surface of the water in the upper reservoir. Given the specific gravity of mercury 13.57, and assuming the mercury-barometer to be standing at 30 inches.

CHEMISTRY.

1. What is understood in chemistry by the expression an "element" or an "elementary body?"

How could you show that air is not an element?

What is the difference between a mechanical mixture and a chemical compound?

How could you show that Nitrogen Monoxide is a chemical compound?

2. Describe any method of preparing Oxygen.

Write in symbols the reaction that occurs when Oxygen is prepared from Potassium Chlorate.

You are given three vessels, and are told that one contains Oxygen; one, Nitrogen Monoxide; and one, Common Air: how would you determine which vessel contains the Oxygen?

What volume of Oxygen will 8 ounces of Potassium Chlorate yield; a cubic foot of Hydrogen at 60° F. and 30 ins. Bar. weighing 37 grains? ($K=39$, 1.)

3. How may Nitrogen, Nitric Oxide (NO), Nitrous Anhydride (N_2O_3), and Nitrogen Peroxide (NO_2) be severally obtained from Nitric Acid or a Nitrate?

4. How could you distinguish Carbon Dioxide from Nitrogen?

The gas that sometimes collects at the bottom of deep wells is said to be Carbon Dioxide. By what experiments could you test the correctness of this statement?

How could you distinguish between Marsh Gas and Hydrogen?

Between Olefiant Gas and Carbon Monoxide.

5. In what respects does Sulphur resemble Oxygen?

By what other means, besides burning Sulphur, can Sulphur Dioxide be prepared?

Explain its action with solutions (1) of Potash, (2) of Chlorine.

6. How much Phosphorus is contained in 120 lbs. of bone-ash consisting of 88.4 per cent. of $Ca_3(PO_4)_2$ and 11.5 per cent. of $CaCO_3$? ($Ca=40$.)

What volume of Hydrogen is contained in one ounce of Microcosmic Salt $NaNH_4HPO_4 \cdot 4H_2O$? (37 grains of hydrogen to the cubic foot; $Na=23$.)

7. What is the simplest formula that can be assigned to a substance containing

Carbon, 54.5 }
Hydrogen, 9.2 } per cent ?
Oxygen, 36.3 }

8. The chimney-glass increases the brightness of the flame of the common coal-oil lamp; why does it do so?

If you drive a current of air *into* the flame of an ordinary candle, the flame appears less bright than it did before the introduction of the air. Explain why this is the case.

THIRD-CLASS TEACHERS.

ARITHMETIC.

1. Show that $\frac{3}{8} = \frac{1}{\frac{8}{3}}$ and that $\frac{5}{9} = 9 \div 5$. Simplify

$$\left\{ 2\frac{1}{4} \times 4.75 \div \frac{2}{3} \text{ of } (4\frac{1}{2} - 3\frac{1}{2}) + \frac{1.75}{3\frac{1}{2}} + \frac{4\frac{1}{2} \times}{21.5 \times} \right. \\ \left. \frac{2\frac{7}{8}}{13\frac{3}{4} \div .25} \right\} \text{ of } (3\frac{1}{2} \times \frac{2}{3} \div .9) \text{ of } (\text{£}5 \text{ 16s. 8d.})$$

2. Explain the rule for "pointing" in division of decimal numbers.

Divide 31.47 by 839.2765 correct to five decimal places, and find the product of 3.706205 by .0034005 correct to six decimal places. [20 marks if done by contracted methods, otherwise 10 marks.]

3. Extract the square root of .097199881 to six decimal places.

Simplify $(\text{₹} .54 - 23\text{₹} .0000390625) \div (\text{₹} .16 + \text{₹} .02)$.

4. A rectangular courtyard, 180 feet long and 135 feet wide, has a path running round it of the uniform width of 10 feet 6 inches; the path is covered with gravel at a cost of 22½ cents a square yard, and the remainder of the courtyard is covered with turf at a cost of 17½ cents per 100 square feet: find the entire cost.

5. The amount at simple interest, of a sum of money at a certain rate per cent. is \$693.33 for 8 years, and \$640.80½ for 5½ years: find the principal and the rate per cent.

6. A grocer mixed two kinds of wine, worth, respectively, \$2.40 and \$3.20 a gallon, in such proportion that by selling the mixture at \$2.80 a gallon he made a profit of 10%: find the proportion in which the wines were mixed.

7. A merchant invested a sum of money in Federal Bank stock at 112, and after receiving a half-year's dividend at 4 per cent., he immediately sold out at 115¾; he received altogether (*i.e.* from dividend and profit on sale of stock) \$310 more than he had invested. Find the amount originally invested.

8. A and B form a partnership, A's capital being to B's as 5:8; at the end of 6½ months A withdraws 20 per cent. of his capital, and a month after, B withdraws 33½% of his capital; at the end of the year the profits are found to be \$3047: how should this be divided?

9. A note drawn at 135 days, with interest at 8 per cent. per annum, is discounted by a broker 75 days before maturity; the broker gives \$375.80 for the note and makes at the rate of 10 per cent. per annum on his money. Find the amount for which the note was drawn.

10. Ascertain the cost, at \$35.10 per ton of 2000 lbs., of 864 yards of iron piping, 25 inches internal diameter and half an inch thick, assuming the specific gravity of iron to be 7.77 and a cubic foot of water to weigh $62\frac{1}{2}$ lbs. ($\pi=3\frac{1}{2}$).

ANSWERS.

1. £8 15s. 7d.
2. (1) .072603; (2) .03750.
3. (1) .311769; (2) .0416.
4. \$186.07 +.
5. \$525.25; 4 per cent.
6. 9 of cheaper to 2 of dearer.
7. \$4480.
8. \$1199, \$1848.
9. \$372.50.
10. \$6147.31 +.

ALGEBRA.

1. Find the value of $3x^3 + 54x^2 + 50x^3 - 19x^2 - 35x - 18$ when $x = -17$.
2. Demonstrate the identities :
 - (a) $(5m^2 + 4mn + n^2)^2 - (3m^2 + 4mn + n^2)^2 = 4m^2(2m + n)^2$.
 - (b) $(a + b + c)(ab + bc + ca) - abc = (a + b)(b + c)(c + a)$.
 - (c) $(a - b)(c - d) + (b - c)(a - d) + (c - a)(b + d) = 0$.
3. Divide $(m^2 + an^2)(x^2 + ay^2) - a(nx - my)^2$ by $mx + any$.
4. Prove that if from the square of the sum of two numbers there be taken four times their product, the remainder is a square.
5. Solve.
 - (a). $(x - 1)(x - 2) - (x - 3)(x - 4) = 3$.
 - (b). $\frac{2}{x - 1} + \frac{3}{x - 2} = \frac{8}{x^2 - 3x + 2}$.
 - (c). $(x - a)(b - c) + (x - b)(c - a) + (x - c)(a - b) = x - a - b - c$.
6. What value of x will make $x^2 + 2ax + b^2$ the square of $x + c$? What is the result when $a = b = c$?

7. A man is thrice as old as his son, five years ago he was four times as old; how old is he?

ANSWERS.

1. - 1.
3. $mx + any$.
5. (a), $3\frac{1}{4}$; (b), 3; (c), $a + b + c$.
6. $\frac{c^2 - b^2}{2(a - c)}$.
7. 45 years.

EUCLID.

[N.B.—Eight questions to count a full paper; value, $12\frac{1}{2}$ for each.]

1. [a] Define Scalene Triangle, Point, Straight Line, Square, and distinguish between Problem and Theorem, Direct and Indirect demonstrations.

[b] What propositions in Euclid, Book I, are proved by the latter method?

2. If one side of a triangle be produced the exterior angle is greater than either of the interior opposite angles. Give full proof for one exterior angle.

3. The greater angle of every triangle has the greater side opposite to it.

4. The straight lines which join the extremities of two equal and parallel straight lines towards the same parts, are also themselves equal and parallel.

5. Equal triangles on the same base and on the same side of it are between the same parallels.

6. To describe a parallelogram equal to a given rectilinear figure, and having one of its angles equal to a given rectilinear angle.

7. The difference between any two sides of a triangle is less than the third side.

8. From a given point draw a line making equal angles with two given lines.

9. Straight lines bisecting two adjacent angles of a parallelogram intersect at right angles.

ENGLISH GRAMMAR AND ETYMOLOGY.

1. Explain the terms Apposition, Intransitive Verb, Distributive Pronoun, Pluperfect Tense, Compound Sentence, strong and weak Conjugation, giving an example of each.

2. Write the singular of kine, banditti, virtuosi, Messrs., genera, phenomena; the

other degrees of comparison of silly, particular, ill, utmost; the masculine of countess, hind, madam; also the present participle, the past tense, and the past participle of bid, eat, spy, lay, see, fetch, confer, pay.

3. Construct sentences showing how *but* and *as* are sometimes used like relative pronouns.

4. Of the italicised words or phrases in the following, which is the more correct, and why?

(a) I am the person that *am* . . . *is* responsible.

(b) The rose smells *sweet* . . . *sweetly*.

(c) I had hoped to *see* you . . . *to have seen* you before.

(d) *Whom* . . . *Who* do you take me to be?

(e) *John's* . . . *John* having been imprudent led to his ruin.

(f) Four times six *are* . . . *is* twenty-four.

5. Criticize these passages, and suggest improvements where necessary:

(a) He seemed sort of discouraged like and said he had never succeeded and never expected to.

(b) I thought I would have died with hunger.

(c) One may accomplish almost anything if only they give their mind to it.

(d) He has not been here neither last week or this.

(e) I never have, and never will consent to the scheme, though it possesses some features which are far more preferable than the present.

6. Parse the italicised words in the following:

(a) *The more* he reads, *the less* he reflects.

(b) He has forty pounds *a* year.

(c) "*News of battle*! who *hath* brought it!
All *are* thronging to the gate;
Warder, warder! *open* quickly!
Man, is *this* a time to wait!"

(d) "*Down* they push into *that* narrow valley, conquerors and *conquered*; but his clear eye *sees* when to stay the pursuit. He drives them *fairly* from the field, *far enough* to prevent them rallying, then he *as* quickly returns to it."

Explain accurately the meaning of 'fairly' and 'as' in the last passage.

7. Divide into propositions, stating the kind and relation of each: "The man who will go into a cotton mill, and contemplate it from the great water-wheel that gives the first movement, (and still more from the steam engine, should that be the moving power,) who will observe the parts of the machinery, and the various processes of the fabric, till he reaches the hydraulic press with which it is made into a ball, and the canal or railroad by which it is sent to market, may find every branch of trade, and every department of science, literally crossed, intertwined, interwoven with every other, like the wool and the warp of the article manufactured."

Give the full analysis of any *two* of the subordinate propositions.

8. Write the Latin words meaning 'send,' 'take,' 'head,' 'lead,' 'come,' 'flower,' 'sit,' 'death,' 'live,' 'place,' and give a list of English derivatives from each.

9. Show the origin and meaning of the prefix in 'ashore,' 'intrude,' 'benumb,' 'forget,' 'misconceive,' 'subterfuge,' 'retrograde,' 'effervesce.'

SCIENCE DEPARTMENT.

[A series of notes prepared for the Monthly, by Henry Montgomery, M.A., Coll. Inst., Toronto].

THE *Megaceros Hibernicus* or *Cervus Megaceros* is familiar to our readers under the name of the "Irish elk." This extinct animal, related to the stag, was of great bulk, and possessed enormous palmated antlers, measuring ten or twelve feet from tip to tip. It has been found in Ireland, on the Isle of Man, in the South of England, in Scotland, and in many parts of Europe. A few years ago Mr. A. Pride, of Toronto University Museum, brought to this country from the county of Limerick, three skeletons of this so-called elk, two of which were afterwards purchased by museums in New York and Cambridge (Massachusetts). Dr. Wilson called attention to the *Megaceros* last year in a paper written after a visit to Ballybetagh bog in the vicinity of Dublin, where many remains of this extinct gigantic stag have from time to time been discovered.

That gentleman stated, what has for years been generally held, that the *Megaceros Hibernicus* had died out in Ireland before man appeared on that island. He also suggested two probable causes for its disappearance, viz.: (1) the restriction of its habitat by the encroachment of the ocean in the post-glacial period, and (2) the great disproportion which existed between the size and weight of its antlers and the size of its body. With respect to the belief in its extinction in Ireland before the arrival of man, it may be observed that there is good reason for believing it to have been co-existent with man during the early stone age in England and France, and also that there has been some dispute about certain markings on bones found in Ireland. The markings and incisions alluded to were shown by Mr. Jukes, before the British As-

sociation, and afterwards by Dr. Carte, before the Royal Geological Society for Ireland, to be markings not made by the hand of man, but produced by the pressure and friction of the bones and horns against one another, in conjunction with the movements of the bogs and their other contents. Most assuredly the marks which we have had the opportunity of examining, and which are very distinctly shown on elk bones in Mr. Pride's possession, do not present indications of having been formed by man. Their smooth, polished, and occasionally wavy surface presents rather the appearance of what might be produced by the grinding action of one bone upon another. Quite recently, however, it has been claimed that new evidence has been gained by the discovery of a cave in the south of Ireland, at Cappoquin, Waterford Co., about seven miles distant from the famous Shandon cave found more than twenty years ago near Dungarvan. Bones of other deer and of bears also occur in both these caves; but the important point to be noticed is that many of the elk bones removed from this cave, according to Prof. Adams, "were evidently split for their marrow, and several of the cannon-bones were fashioned into awls and gauges, showing that man was contemporaneous with the *Megaceros*, and also may have in some measure helped to exterminate it."

WITH the exception of some fungi, all plants take carbonic acid gas into their bodies through the stomata of the leaves, decompose it, emit the oxygen, and retain the carbon, which, with water, they form into starch. This is a *digestive* process. Plants also have a *respiratory* process, inhaling oxygen and

giving out carbonic acid gas in much the same way as animals respire, only not to the same extent. On the other hand, in the animal kingdom the cellulose form of starch is to be found in the "test" or shell of the "Sca-squirt," or Ascidian Mollusc; and glycogen is produced by the liver; but no animal has hitherto been known to take in any considerable quantity of carbonic acid gas, separate it into its elements, keep the carbon and emit a stream of oxygen gas. Hence this function, which belongs to the great majority of plants and up to the present time has been thought to be completely wanting in all animals, has long been made use of as a distinguishing characteristic in the separation of the lower forms of life. Yet such a condition seems actually to exist in certain animals. Mr. Geddes has laid before the Royal Society the results of a series of experiments undertaken by him upon *Convoluta Schultzii*, one of the Planarians, ciliated aquatic flat worms allied to the "flukes." It was shown that this marine worm, when exposed to sunlight, acted in a manner similar to plants, drawing in carbonic acid gas, and sending out gaseous bubbles, more than half of which consisted of free oxygen. Mr. Geddes also analysed the bodies of convolutæ and obtained vegetable starch therefrom. In consequence he has termed them Vegetating Animals.

THE advisability of making a canal across Central America, so as to connect the two great oceans, has been under discussion during the past thirty years, and at length its construction has been determined upon. Four years ago Lieutenant Wyse, of the French Navy, suggested the propriety of appointing an international jury or committee to examine all the reports and various schemes submitted, and report their decision as to the most profitable and least expensive route to be taken. This committee or international congress was appointed, with M. De Lesseps as president; and at its meeting in Paris seven different routes were considered. Lieut. Wyse, assisted by an able staff of engineers and surveyors, has explored five routes, four of which are in Panama and the northern part of

Columbia, and one in the north, running from Greytown on the Atlantic, by San Juan River and Lake Nicaragua to Brito Bay on the Pacific. The last mentioned route does not appear to have received much favour, the chief objections to it being the absence of ports, the unhealthiness of the climate in the greater part of its length, and the fact that it would require twenty-one locks. The route recommended by Lieut. Wyse, and, we understand, adopted by the committee, is about 47 miles in length, and requiring no locks, and less than four miles of tunnel. It is provided with good ports, will pass through Panama near its centre—a thickly inhabited district, and will cost little more than 50,000,000 dollars. The concession for the canal has been transferred to M. De Lesseps, who is enthusiastic over this vast commercial enterprise, and regards its difficulties as far less formidable than those of the Suez.

IN the present age, when iron has come to be a *sine qua non* in civilized nations, it is very assuring to learn that the sources of that invaluable metal are so numerous and immense as to preclude all possibility of their being exhausted by man for many ages to come. Besides the various British, Swedish, and other iron mines which are or have been in operation, yielding hundreds of thousands of tons every year, many fields rich in iron ore are known to exist in different countries. For example, in the Province of Ontario, in the Laurentian rocks, there is a great abundance of excellent magnetic iron ore waiting to be mined by energetic capitalists; and lately intelligence has arrived of extensive masses of iron having been discovered in Greenland. At first the Greenland iron was conjectured to be of meteoric origin, but by recent investigation it has proved to be a geological, reduction of a great lava-field that extends over the northern part of that country.

IN a Report on the "Examination of Pork with Reference to Trichinæ," by Mr. H. F. Atwood, Vice-President of Illinois State

Microscopical Society, and Dr. Belfield, of the Cook County Hospital, it is stated that eight out of every hundred hogs examined were trichinous, and that trichinous pigs usually show no signs of being unhealthy. For the detection of trichinæ in pork the only certain means consist in its examination under a good microscope. In reply to the question, "Since eight per cent. of our hogs are trichinous, why are cases of trichinosis so rare?" it is said that "in most instances the meat is previously subjected to thorough cooking, whereby the worms are killed; and that in consequence of the close resemblance of the symptoms of trichinosis to those induced by other causes, notably typhoid fever, it is probable that in some instances it has been mistaken for other complaints." And again, in the conclusion of their report, the necessity for the thorough cooking of pork as a preparation for the table is emphasized. This caution is hardly needed by any one who has given even a little attention to the nature and habits of the parasitic worms referred to, or of the tape-worms (*Tæniadæ*); but it does seem necessary frequently to repeat it for the benefit of persons under the delusion that partially or wholly raw meat is more wholesome than that which has been carefully and properly cooked.

THE water supply is a question that demands the serious consideration of all good citizens. It is indeed a great and a world-wide question; one that is agitating the public mind of the most civilized nations of the day,—Great Britain, Canada, the United States, and Germany. There are, of course, many natural causes leading to the impurity of water. Instances of naturally impure water-supplies occur in the cases of those towns which are situated above saline or alkaline deposits. Leamington, in England, may be taken as an example. The corporation at the depth of three hundred and forty-six feet found the water to contain such a quantity of salt as to be totally unfit for ordinary use. On the advice of Professor Ramsay, Director-General of the Geological Survey, they sought for spring water at the foot of a hill a mile

distant, and obtained the large supply of two million gallons per day of pure healthful water. At Rugby, after 1000 feet, nothing but salt water could be obtained. But in addition to natural causes there are others attributable to man. The rate at which towns and cities multiply in number and increase in population, the rapid growth of industries, as well as certain habits and tendencies of modern society, all combine together to produce a deterioration of the waters of wells, rivers, and, in some instances, even lakes. Dr. Holt, Sanitary Inspector of the Fourth District of New Orleans, in his report for the year 1878—a year never to be forgotten in the history of that city, the mortality being 10,318, and of these 4,046 having died of yellow fever,—shows clearly that the well-water there is in a filthy condition. He says, "specimens of subsoil water taken from different depths, as low as ninety-five feet, and from different parts of the city, have been carefully analysed by Prof. Joseph Jones, and have yielded a large percentage of urea and organic matters the products of animal excretion, fully fifty-three grains to every gallon." Hear also what Prof. Joseph Jones says concerning the same waters:—"these waters are suitable neither for drinking, nor for washing, nor for cooking. In fact they are as bad as, if not worse than, the drainings of grave-yards." Another illustration is afforded by the village of Geneva, on the shore of Seneca Lake, N. Y. It has heretofore been regarded as delightfully healthy, and peculiarly free from epidemics; but during the past winter it was visited by a terrible pestilence in the form of diphtheria. Prof. Breneman, of Cornell University, investigated the matter and found the water supplied to a portion of the village to be of good quality, but that to the larger portion of the inhabitants was very impure, yielding a quantity of albuminoid ammonia and nitrates, with nine, twelve, fourteen, and as high as twenty-one grains of Chlorine to the gallon. He examined water from eighteen sources, and condemned thirteen of them. Although the epidemic was not confined to the localities supplied with the bad water, yet it prevailed

and was much more virulent there than in the parts provided with good water. Prof. Breneman observes, "It shows the extent of soil saturation and indicates the condition of the ground, the emanations and exhalations from which taint the air in which the families are obliged to live, and expose them to a constant morbid agency." Just so; not only is the water injuriously affected, but the air above the saturated soil is also tainted with the vapours emitted therefrom.

Then we read of the Crown Prince of the German Empire calling Prince Bismarck's attention to this subject, with a view of appointing a Royal Commission thereon. But, to come nearer home, a couple of years ago, Dr. Ellis made known the results of the analysis of water drawn from wells in every quarter of the City of Toronto. By the figures given it was distinctly shown that the waters examined held in solution a dangerous amount of chlorides, ammonia and organic substances. If then, it is an established fact that underground sources which formerly supplied fresh, pure, health-giving water, are now strongly impregnated with unwholesome matters derived from the accumulations of organic and inorganic refuse upon the surface of the ground, is it probable that rivers and bays in the vicinity of this refuse can remain for any considerable period, entirely or moderately free from a similar contamination? Certainly not. And much less likely is it that such rivers or bays can long continue pure when multitudes of city sewers directly convey their discharge into them. One would scarcely deem it needful to have such water

analysed in order to be convinced of its impurity. But should it be desired, the determination of injurious impurities in water, at all events for ordinary practical purposes, is a process so simple that the individual, if of average intelligence, with a few hours' study, may readily perform it for himself; and in this way he would avoid the necessity of being obliged to depend upon the decision of persons financially interested, or of importing outside experts to make the tests. It is freely admitted that there may be exaggeration in this as in other things. Perhaps impure water-supply is credited with more evils than rightly belong to it. Still, that foul water gives rise to many diseases, *e.g.*, typhoid fever, diphtheria, etc., both by its direct use and by inhalation of its gases, cannot be denied; and that it greatly encourages and intensifies diseases arising from other causes is equally undeniable. In dealing with this difficulty—the supply of water for cities—the civic authorities ought never to neglect the disinfection of all sewage before its discharge into a neighbouring body of water, especially if the latter be the source from which the "City water" is procured. For this purpose it may be passed into tanks and there completely disinfected before its entrance into the lake or other body of water. This is successfully practised in some parts of England (*e.g.*, Coventry), where the companies, termed Precipitation Associations, purify the sewage by means of sulphate of alumina, lime, proto-sulphate of iron, and other chemical agencies, forming precipitates to be afterwards used in fertilizing the soils.

TEACHERS' ASSOCIATIONS.

CHRONICLE OF THE MONTH

ONTARIO TEACHERS' ASSOCIATION. — The Annual Convention of this Association was held during the second week in August, in the rooms of the Education Department which were kindly placed at the disposal of the teachers by the Minister of Education. The first session was merely a formal opening of the proceedings, the only business done being the reading of the Treasurer's Report, which was satisfactory from the fact that it showed an increased balance on hand. The afternoon session was spent in receiving the reports of committees, and of delegates from local Associations. The report in favour of making the Association representative received a good deal of discussion, which brought out the fact that there was considerable difficulty in the way so far as the High School Masters and the Public School Inspectors are concerned; this, together with obstacles in the way of making the representation according to numbers, caused the question to be left over for another year. The report of the committee on the distribution of the Legislative and Municipal grants was, after some discussion, disposed of by a resolution re-affirming that the establishment of Township Boards is the only effective way to redress the grievances that are inevitable in the distribution of money grants under the present system of school sections which the country has outgrown. There is no doubt the Association is right on this question, and if its members, particularly the Inspectors, will only persist in keeping the advantages of the township system before the people of their districts, they will all the sooner bring about a reform that must eventually take place.

The evening of the first day was devoted to the President's address. It is to be re-

gretted, for Dr. McLellan's own sake, that the subject he at first intended to address the Association upon had to be set aside, from its similarity, as he declared, to that selected by Professor Young. The subject he did choose — Mathematics as an Instrument of Culture — is one that harmonizes with his own bent of mind, and, therefore, one that he may be supposed to have matured opinions upon; but he brought it before his audience with the warmth of an advocate, rather than with the deliberation of a judge. This provoked an invidious comparison between his effusion and the very able and philosophical address of Professor Young the preceding evening. But Dr. McLellan's explanation of the circumstances attending its preparation should bespeak our charity, if not our sympathy. Besides, whether from habit or from temporary excitement, his delivery was very rapid, and parts that appeared to the most careful listener a mere "rhapsody of words" may, upon studious reading, be found to contain some evidences of thought. While we thus bespeak indulgent consideration for his address, we cannot go so far as to condone the vulgarisms that accompanied it. "How is that for high?" as an *aside* to the lecturer's friends, might do very well before a stump audience, but it was disrespectful, and shockingly out of place when uttered in the Normal School buildings before such an assembly as the President had around him, and in connection with what was intended to be a philosophical discourse. We should be sorry to take such a lack of good taste as the result of mathematical culture on Dr. McLellan himself.

Mr. McHenry, Head Master of the Cobourg Collegiate Institute, read a scholarly paper on the "Higher Education of Women,"

which, with the short discussion that followed, and the resolutions afterwards passed in connection with it, shows that the teaching profession is thoroughly alive to the importance of this subject, and is quite prepared to go to all reasonable lengths in advancing it.

The subject of Uniform Examinations for Promotion in our Public Schools was, in the absence of Dr. Kelly, Inspector of Brant, who was to have read a paper on it, brought before the Association in a neat address by Mr. Carson, one of the Inspectors of Middlesex; the chief outcome of the discussion upon it was the passage of a resolution declaring the fitness of the entrance examination to the High Schools as a means of promotion from the fourth to the fifth classes in the public schools. This is the extent to which the meeting was prepared to go in the way of uniform provincial examinations for promotion, a very decided opinion being expressed against uniformity for other classes being extended beyond each Inspectoral district—the bugbear, centralization, standing in the way of provincial uniformity. In the evening Professor Young read carefully prepared lecture on the “Order of the Development of the Faculties in Relation to Education” before a crowded and very appreciative audience. His opinions in the main run parallel with those of Bain, as enunciated in his book on “Education as a Science;” in several minor points he differs from him, however, as for instance in the age when ordinary school work should commence, the much less importance he attaches to the cultivation of the memory, and in his higher estimate of Kindergarten teaching. His opinion diverges widely from that of Dr. McLellan in regard to the value of mathematical studies, and he made a full tilt at his hobby, the “Unitary Method in Arithmetic,” upholding the value of proportion which it is intended to displace.

The Thursday afternoon session was devoted to a humorous paper by Mr. Brown, Inspector of Peterborough, on Physical Education in Schools; and to a paper read by Mr. Hughes, Inspector of Toronto, on the question—Is Compulsory Uniformity of Text-

Books desirable? His answer was that it is not. He argued that by throwing the supply of text-books open to competition, greater excellence would be secured in their preparation, and the cost would be diminished, amongst other ways, by binding up as much of the contents of a book, an arithmetic for instance, as a class has to study. Thus the public would be benefited, and, what he apparently forgot, though the tenor of his discourse indicated that it was present to his mind, the enterprising and pushing publisher would prosper.

The evening of Thursday was devoted to an address, eloquent and edifying in its character, by Dr. McVicar, of Montreal.

During each morning of the Convention the High School Masters, the Inspectors, and the Public School Teachers met in their respective rooms, and discussed matters pertaining to their sections. In these, perhaps, the most useful business is done, because it is business that intimately concerns the successful working of each part of our school machinery. The High School Programme of Study, Modifications of the Intermediate, Model School Work, Phonic Reading—these are the titles of some of the subjects laid down in the programme for Section work.

The meeting was, on the whole, a harmonious one,—the only decided difference of opinion appearing on the election of President. It has hitherto been customary for the Association to select some distinguished educationist outside of its own ranks to act as President. It was determined this year to choose one from the members of the Association itself, and the choice of the meeting, contrary to the recommendation of the nominating committee, fell upon Mr. R. Alexander, Principal of the Galt Model School. We think no better selection could have been made. Mr. Alexander, twenty years ago, was mainly instrumental in founding the Association; he has been a most useful member of it ever since, and has proved himself an excellent man of business in the conduct of its meetings; he is besides a man of good standing as a public school teacher in the country.

The Convention, which must be looked

back to by those who attended it as affording pleasure as well as profit, was brought to a close on Thursday evening by singing, according to time-honoured custom, the National Anthem.

THE EDUCATION SOCIETY OF EASTERN ONTARIO.—The Annual Convention of this Society was held at Ottawa, on the 30th July and following days, but owing to some evident oversight on the part of its officers, we have received no report of its proceedings. Perhaps we will be able to give this in our next issue; meantime we learn that papers were read by the following gentlemen, on subjects enumerated as under, several of which elicited considerable and interesting discussion. The readers and their subjects were: Mr. A. C. Osborne, of Napanee Model School, "On the Position of our Model Schools in our Educational System;" Professor Workman, of Ottawa, on "Music in the Schools;" Mr. W. J. Summerby, of Kingston Model School, on "The Influence of Teachers-in-Training on Model School Pupils;" and Mr. T. O. Steele, Inspector of Public Schools, of L'Orignal, on "Model Schools, and Model School Influence." Professor Young, of Toronto, at one of the Sessions, delivered his Lecture on "Psychology in its relation to Education." Papers, we understand, were to have been read by Mr. Inspector Glashan, and by Mr. W. R. Riddell, B.A., of the

Ottawa Normal School, but were postponed on account of the inability of the Convention to take up all the work before it. Mr. T. M. Slack, B.A., Inspector of Public Schools, Lanark, was elected to the Presidency of the Society for the ensuing year.

The Midsummer Conventions of a number of County Teachers' Associations have been held during the past two or three months, the proceedings at which, from want of space, we are unable in the present number to record. Of these we can only here briefly acknowledge receipt of "Reports of Proceedings" of such as we have been advised. These are:—

Lincoln Teachers' Association, held at St. Catharines, on the 6th and 7th June.

North Wellington Teachers' Association, held at Arthur, on the 29th and 30th May; with presentation to Mr. A. Dingwall For-dyce.

East Victoria Teachers' Association, held at Lindsay, on the 30th and 31st May.

Durham Teachers' Association, held at Port Hope, on the 16th and 17th May.

West Huron Teachers' Association, held at Goderich, on the 20th and 21st June.

Leeds Teachers' Institute (Division I.), held at Gananoque, on the 29th and 30th May.

CONTEMPORARY OPINION ON EDUCATIONAL TOPICS.

WHAT IS POSSIBLE AND IMPOSSIBLE IN SPELLING REFORM.

The recent Conference on Spelling Reform brought out several suggestions that were reasonable and useful, and some that were as wild as the most disordered dreams. Let us try and discriminate what is possible and desirable from what is neither. In the first place, it is clearly possible and desirable for a competent body of men—which should consist of linguists or lexicographers—to make recommendations as to the best of the two alternatives of spelling words which custom spells in one of several ways. A list of words with two or more spellings, accompanied by advice as to which to prefer, and where it might be possible, the reason of such advice, would be a very important service rendered to the public,—though why it should be rendered by a Royal Commission, and not rather by a voluntary association of men, we cannot understand. A Royal Commission is not usually appointed without at least the intention of legislative or administrative reform. Nobody would think of appointing a Royal Commission to decide on the most economical sort of stove, or the best proportion between animal and vegetable food. What is wanted is, we suppose, that the mode of spelling authorized by the tribunal shall be subsequently enforced at all the Government primary schools, but then that might be just as well effected without a Royal Commission. The Inspectors of schools are really the final authorities in this matter, and they would follow, of course, the instructions laid down for them in the Department. All that is needed is that the Department should be guided by a reasonable amount of evidence as to the rule of spelling-orthodoxy they should prefer where various modes of spelling were in question, and we doubt exceedingly whether any Royal Commission nominated by the Government would do the work half as well

as a small Committee of lexicographers, appointed with reasonable judgment, and paid for their literary labours by a judicious publisher,—who would be well reimbursed in his turn by the large sale which a well-drawn-up report on the best mode of spelling words now habitually spelt in more than one way, would certainly secure from schools and teachers. The next suggestion which seems to us perfectly reasonable was that adopted by Sir Charles Reed, in his speech at Tuesday's evening meeting, that for the purpose of teaching children to spell, books should be used in which the unpronounced letters are printed differently, so that the child learns at once both that they are not sounded, and that they are to be found in the written language. For instance, in such words as "reign" and "deign," "resign," "assign," etc., the *g* would be printed in the peculiar type assigned to unpronounced letters. There may be many other suggestions as to the special books used for the teaching of spelling which would be equally useful, and equally mark at once the true pronunciation and the true mode of writing the word.

But what bewilders us in this Conference is, first, Sir Charles Reed's suggestion that "legislation" is to follow; and next Mr. Lowe's astounding proposal, insisting that fifteen new letters (a number reduced by a subsequent speaker to fourteen) should be somehow or other added to the English language, in order that every distinct sound might have a distinct letter to itself. As for Sir Charles Reed's suggestion, to what legislation does he point? Of course he means something beyond a mere Minute of the Education Department, or he would not speak of legislation. Does he want every newspaper which spells "honour" with or without a *u*,—it does not matter which,—after the authority appointed has decided for the opposite spelling, to be summoned before a Court of summary jurisdiction, and fined a shilling and costs? Or does he want to issue

a Spelling Code by authority of Parliament, and make all statutes invalid whose spelling deviates from it, so far as those provisions are concerned which contain words wrongly spelt? Of course Sir Charles Reed means nothing of that nonsensical kind, but what in the world does he mean by the "legislation" which is to follow? Still more surprising is Mr. Lowe's proposal to launch fifteen new letters on the English public, and interpolate them, we suppose,—nothing less can be meant, for nothing less would be of any use,—in all documents issued by the authority of the Government. Just imagine Members of Parliament conning their Blue-books with not only the Anglo-Saxon letter for "th" interspersed wherever that sound occurs, but fourteen other similar hieroglyphics staring them in the face whenever they come to the study of their favourite political hobby. It might be said that, of course, the new notation would only be introduced slowly, as the rising generation learned to understand it; but the truth is, that a people which has arrived at the mature stage of literary civilisation attained by Great Britain cannot suddenly change its language, either written or spoken, and interpose such a chasm as this between the literature of the past and the literature of the future. Indeed, even if the attempt were made,—which it never will be,—the only result would be that children, to be of any use, would have to learn two written languages instead of one,—one language to understand their own age, and another to understand all that had been written before the Right Hon. Robert Lowe carried his amazing plan for revolutionising the written language of Great Britain. It seems to us that these enthusiastic and fanatic spelling-reformers are so eager to help small children, that they imagine they can change the face of a great society by a mere decree. Nor even, if they could have their way, and society were really to obey them, to drop all these silent *b's* and *g's*, and make an end of all anomalies, to get in all the *dets* (as "debts" is to be spelt in future) which custom owes to reason, and so change the written and printed language at a stroke that the literature of the latter half of the Victorian period would differ from that of the first almost as much as the

written language of the Elizabethan age differed from that of the time of Chaucer,—not even so would the children have received the great benefit imagined. No enthusiasm, unfortunately, can transform the spelling of the millions of books already in existence, and the chief use of education in spelling is to enable people to read easily and correctly whatever it may be their duty to read in their discharge of ordinary functions. Yet how would children brought up on the patent system of reformed spelling stumble and blunder over the old spellings with which they would always be coming in contact! The silent *b's* and *g's*, the anomalous diphthongs that ought to be obsolete and yet declined to disappear, the 'troughs' and 'boughs' and 'coughs' which would always be running into them, or tripping them up, or obliging them to clear their throats, would soon compel any of them who were worth their salt to learn the whole lesson over again, so as to render the language of their fathers as familiar to them as their own. And so all that the reformers would have done would have been to make a great gap in the history of our literature, without having served anybody, except the few who would never use any system of spelling correctly, and might much better be allowed to spell badly in the few letters and bills it would be their duty to write, than have all this dust blown in the eyes of those who really know what the genius of a language is. But in truth, the whole thing is a mere dream. Where our modern spelling is doubtful, we may just as well be advised which spelling to prefer. But where it is fixed in the literature of the last century, you can no more alter it to please a few pedants and help a multitude of puzzled children, than you can get rid by a fiat of the trailing plants of a Scythian-American forest, in order to make the way easier to explorers who don't like the fatigue of cutting through them. It is a wise and sagacious proposal to teach spelling by any method which at once instructs the child which letters are to receive their natural sound, and which are to be silent or sounded in some conventional manner. But the ordinary literature of our day cannot be given in two, even to make it easier for children to learn to read.—*London Spectator*. (June 2, 1877).

CONTEMPORARY LITERATURE.

EDUCATION AS A SCIENCE. By Alex. Bain, LL.D. (Volume 25, International Science Series.) London: C. Kegan Paul & Co.; Toronto: James Campbell & Son; also, New York: D. Appleton & Co.; Toronto: Hart & Rawlinson and A. Piddington. (*Second Notice.*)

Perhaps, to the practical teacher, the most important chapter in this work is that on Methods. It will afford him much food for thought, and if this leads to self-examination, many instructive lessons will be derived from it. Our author thus introduces the subject:

"The Teaching method is arrived at in various ways. One principal mode is experience of the work; this is the inductive or practical source. Another mode is deduction from the laws of the human mind; this is the deductive or theoretical source. The third and best mode is to combine the two; to rectify empirical teaching by principles, and to qualify deductions from principles by practical experience."

He lays down the correct method of teaching the manual accomplishments of Drawing and Writing. First let children, as in the kindergarten, learn to mould objects from plastic material, then to cut figures out of paper; this leads to the making of regular figures in drawing, and finally the formation of the irregular characters of writing easily follows. The writing should be a plain, passable hand as "It is not the school-master's business to carry writing to the pitch of a work of art." p. 237. Mr. Bain further says, and we quite agree with him, that as perfection in any one aptitude should not be aimed at in the beginning of education, the drawing of symmetrical forms and designing should be kept in strict subordination to the general aims of education until the scholar has advanced far enough to gratify, with

safety, any special bent he may show as an artist, a designer, or a skilled musician. We cannot agree with our author, however, in excluding all notions of perspective from the pupil's curriculum, for the power of representing solid objects is one that is in frequent requisition in the daily walks of life. He views with indifference what is called in this country the phonic method of teaching reading, remarking that "after a few preliminary steps the old and new methods come to the same thing." This opinion is not fortified by any argument, and is consequently of little weight beyond what Mr. Bain's authority may give it. The new method has not been long enough in use to test its merits by results, but it must be confessed that the arguments in its favour are cogent. He has little faith in any short method of teaching spelling, believing rightly that good spelling results from careful reading, writing to dictation, extensive practice in writing under correction, and he might have added careful transcription of the work of any good author.

He would have the first lessons in reading taught principally for the sake of the words and with little or no regard to the meaning, believing that scarcely any composition excels both in teaching language, and in teaching knowledge. But why should not the principle that Mr. Bain so frequently insists upon, that separate subjects should have separate lessons, be recognized here; by making a reading lesson first a "language lesson," and subsequently a "knowledge lesson?" Above twenty pages are next devoted to an investigation of Object Lessons. He warns the professional reader against wasting time upon things children already know, and insists upon proceeding carefully in these lessons from the Known to the Un-

known, seeing that it is the essence of the object lesson to be empirical. To economise time, he strongly urges pre-arranging a set of lessons having a definite purpose, each being limited in scope, and a unit in itself, and the whole arranged in consecutive order. He clearly states the aim of these lessons to be "to guide, rectify, direct, and forward reasoning and observation," as well as to increase knowledge.

A careful selection of object lessons leads up to the study of Geography, which should be begun with a series of lessons of that character. Persistent care is urged in limiting the scope of each lesson so as not to confuse the minds of young pupils. "Separate the fact from the reason," urges our author, "and describe the fact first that it may be understood, and imbibed as such," before the reason that is based upon it is brought forward. Hence he advises caution in mixing up physical with descriptive Geography, believing that the former should succeed the latter.

He takes a very narrow view of History when he says, "In the lives of kings, statesmen, generals, and other great men we have the materials of history."—p. 281. History is the life of a nation, and we need more than the materials here enumerated to teach Sociology and the Science of Government, which are the phases of that life that render the subject of much value as a branch of education. He sets little value on it as a part of a school course, apparently because its bearings cannot be understood without much previous knowledge and some experience of the world. He thus justifies his position:—"The fact that history presents no difficulty to minds of ordinary education and experience, and is, moreover, an interesting form of literature, is a sufficient reason for not spending much time upon it in the curriculum of school or college. When there is any doubt we may settle the matter by leaving it out."

There is little to be learnt from the remarks on teaching Arithmetic, as our method is far in advance of anything Mr. Bain has to teach. We quite agree with him that questions should be utilized to convey useful information about the facts of nature or the conven-

tional usages of life, so that these might be incidentally implanted on the memory while the mind was engaged upon the question; but who is to decide what is useful information? We fear the Arithmetician is not the best judge. We well remember good Dr. Thomson's efforts in this direction, in giving in his book the distance of Georgium Sidus from the sun in one question, and the length of yarn Catherine Woods of Dunmore, thirteen years of age, spun in a certain time, in another; both pieces of information which only respect to Dr. Thomson's memory would lead us to characterize as useful. Professor Bain himself would be no safe guide, for on page 293 we find the following statement of the kind of useful information he would convey in this manner:—"Important geographical numbers could be stamped on the recollection by being manipulated in a variety of questions. The dimensions, area, and population of the three kingdoms, the proportion of cultivated and uncultivated land, the population of the largest cities, the productions, trade, taxation of the country,—all of which become the subject of reference and the groundwork of reasoning in politics,—could receive an increased hold on the mind by their iteration in the arithmetical sums." In fact our author would make each scholar a young statistician, and would cram him with a host of figures that would never be of any avail to himself, or any one else for purposes of either information or reasoning.

When we reach the pages devoted to oral teaching and text books, we tread on safer ground. Indeed, these are so good that we wish we could, for the benefit of our readers, transfer them entire. The necessity of a text book in some subjects is very properly recognized, but only as an auxiliary to oral teaching. Lecturing has the great advantage of the living voice in securing attention where a text book would fail. It is wisely suggested that when a lesson, which has been prescribed from the book, is found ill-prepared, it should be given again with the benefit of the intelligent catechising by the teacher to help in preparing it afresh. This assistance of the teacher's judgment and

voice is repeatedly insisted on. At page 306, for instance, he says: "A task may be of a kind to dispense with preliminary explanation, as in learning a string of words, or a verbatim statement. Even then it is well that the teacher should first recite it to the pupils; his doing so once will go further to fix it in the memory than their going over it by themselves six times. There is no harm, but good, in exacting a certain amount of independent preparation, especially with older pupils, but the teacher's first recitation, and the final iteration during the lessons, are the principal instrumentality whereby the lesson is fixed in the memory; the learner's own studies are the smallest contribution to the effect." Explanation is particularly necessary on lessons where the substance only is to be given, inasmuch as it cannot be expected that even the majority of scholars, with their immature judgments, will agree with the teacher as to what is important and what is worthless. Mr. Bain thus speaks of lessons of inordinate length:—"It is bad policy to prescribe lessons of excessive length, expecting only a part to be performed. If, for the sake of the better pupils, the lesson should exceed what the average can perform, the minimum should be a defined portion, to be exacted of everyone. The impossibility (to the teacher) of bringing every pupil in a class to book, on every occasion, is in itself a standing temptation (to them) to run the blockade; but when the quantity prescribed is beyond what can be reasonably required, the do-nothing habit receives positive encouragement."—p. 307.

We had hoped to have seen a positive utterance in this book on the vexed subject of examinations as a means of testing acquired knowledge, but this Mr. Bain cautiously shrinks from, being content to refer the reader to the work of another author upon the subject: we seek for bread and he gives us a stone. Surely the best method of testing the acquisition of knowledge should be clearly indicated in a work such as the one before us; and the merits and defects of examinations to this end deserve a careful investigation in

view of the fact that their efficacy has been questioned by persons whose opinions are eminently entitled to respect.

There are but few intelligent teachers who do not question the value of a good deal they are expected to impart, basing their estimate upon the future use that may be made of each subject in the curriculum. Professor Bain, applying this test, says:—"Such a criterion would attest the high value of the Experimental Sciences, such as Physics and Chemistry, the smaller but yet considerable value of Mineralogy and Botany, and the very small value of many things much more prominent in our education than any of these."—p. 322.

He has nothing very new to say of the method of teaching languages, he recommends, however, as in other subjects, that the teacher should assist and guide the labours of the scholars by a short prelection on each lesson prescribed. He points out clearly the difficulties of learning a foreign language out of the country in which it is spoken, and in the absence of the things the words stand for, and refers to the various expedients to decrease them, such as arranging the words to be learned into verses, making alphabetical lists of them, placing those together to commit to memory that are related in meaning, and copying out case, and conjugation forms, &c.

In dealing with the mother tongue, Mr. Bain has a good deal that is useful to say. He shows that owing to the close relation of names to the things they represent, language lessons at first should be really a series of object lessons. "The best form of introducing a fact to a child would be its real occurrence.

. . . But listening to talk and book-reading bring forward things without any reference to their actual presentation, and then some way of introducing them has to be found, the task in many instances being premature and impossible," without the presence of the things themselves. He points out that the teaching of correct grammatical utterance may precede the formal introduction of grammar, which he thinks should not take place before the child is ten years of age. We are in entire accord with him in this and also in the con-

viction as to the lasting benefit to be derived by young scholars from committing passages to memory, more especially of poetry. Though this is a recognised portion of the regular school work of all grades of schools in Britain, it has been but partially introduced in Ontario. It is but a few years since the Central Committee, after repeated representations, introduced anything worthy of the name of English Literature into the examination of public school teachers. Now we have got so far as to have the study of English classics form a part of the regular High School course, and we are not without hope that as fresh light breaks in upon that body from the minds of the more active members of the profession they will awake to the desirability of recommending an allotted portion of English Literature in some shape to the pupils of our Public Schools. Perhaps it may help them more speedily to an opinion if we quote what Professor Bain says:—"Committing passages to memory, having the great merit of being plain and manageable, is adapted to the lowest teaching capacity, and nobody can say that it is devoid of useful results. It certainly stamps upon the mind the material both of thought and of language, and they must be very hopeless subjects who cannot turn it to some account. . . . Poetry has a natural preference in this exercise. The impressiveness of the measure, and the elevation of the style, the awakening of emotion, favour its hold on the memory. Now a store of remembered poetry is a treasure in itself; its first effect is emotional, and its secondary uses are intellectual; it contains thoughts, images, and language of more or less worth, and such as are capable of taking part in our future intellectual constructions. Impassioned and rhythmical prose holds the next place; if it be inferior in form to poetry, it is yet more likely to be available in our own compositions. . . . If poetry is to be made a task it should be at an early age, when the despotic measures of the school are less taken to heart, and easily effaced. From seven to ten, the mind is in every respect more pliable to this particular work, than from ten to fifteen."—pp. 331-2. "At the age of critical understand-

ing, the committing of pieces at length should give place to the impressing of selected exemplars, in the shape of short sentences or short series of sentences made alive by critical exegesis, or the singling out of merits and defects."—p. 334.

Our author approves of and recommends extensive preliminary exercises in composition, somewhat similar, we should say, to those given in Swinton's "New Language Lessons," before beginning what he calls "the greatly vexed matter of grammar teaching." The uses he claims for Grammar are: 1. The avoidance of the grosser forms of grammatical impropriety. 2. The isolation of the pupil's attention upon the language itself as such. 3. Its aid to readiness, ease, correctness, and effectiveness of composition, since the scholar is led to examine the structure, arrangement, and constituents of the sentence by syntactical parsing, and the analysis of sentences. 4. Its advantage in the departments of Derivation and Inflection, in adding to the pupil's wealth in the vocables of the language. In this enumeration it will be observed, he does not make the slightest recognition of any benefit to the mind from the intellectual exercise involved in the study. He has no word of encouragement for those who would teach Grammar without a text book, and he supports his opinion by cogent arguments which he thus concludes:—"The grammar teacher working without books, either tacitly uses some actual grammar, or else works upon a crude, untested, irresponsible grammar of his own shaping."—p. 345. He gives but faint praise to the tracing of words to their ancient originals, observing that: "present meaning and use are the only guidance to the employment of the language; the reference to archaic forms may sometimes account for a usage but can never control it." In regard to the formal teaching of Composition, he does not approve of Theme writing for young pupils, remarking with much truth, "the finding of matter requires more than one-half of the student's attention, which is diverted from what is of far more importance—the style." He considers the

critical examination of good prose and verse passages, accompanied by a course of rhetorical instruction, as the best composition exercise.

The tenth chapter is devoted to an estimate of the Value of the Classics, and we may at once say Professor Bain uses all the force of his logic to show that they have no value at all as a mental exercise? The high estimate put upon them by eminent men of past ages and many of the present time; the treasures of thought and perfect diction they contain; the information they convey; the mental training that is claimed to result from their study; the accurate acquaintance with many words in our own language which a knowledge of them furnishes, have in his estimation little weight in counterbalancing the cost in time and strength which their study involves; the hindrance to the mental progress of the learner by the mixture of the conflicting efforts of mastering the words of a language while grasping at the meaning; the lack of interest which accompanies the study; and finally the slavishness to authority in matters of opinion brought about by long-continued study of them, as, for example, in the case of Aristotle.

It will not surprise our readers that Mr. Bain thinks a radical change should be made in our course of education, which, in a later chapter of the work before us, he proposes in the following "Renovated Curriculum of a High Education:"

1. Science, including the Mathematical, Physical and Natural History Sciences, and Geography.

2. The Humanities, including History, Political Economy, Jurisprudence, and General Literature.

3. English Composition and Literature.

Perhaps the chief merit of this scheme is that it could be made to apply to all grades of education, so that the training in our public schools would be as much entitled to be called a liberal education as that given in our universities, the two differing only in degree. We are glad to say the tendency of our own educational system is in this direc-

tion, and the more it is fostered the more will our public schools, high schools, and universities become successive steps to a complete education.

We have far exceeded the limits we had set for ourselves in reviewing this important work, but as it is an earnest attempt to put education on a scientific basis it deserves all the attention we have given to it. Our readers will have seen ere this that though it is not by any means all that a work treating on the Science of Education should be, we think it worthy of a careful and studious perusal, and as such should be found in the hands of every thoughtful, progressive teacher.

LECTURES ON THE HISTORY OF ENGLAND.
By M. J. Guest. London and New York :
Macmillan & Co. Toronto : Willing &
Williamson.

Our first thought on taking up this work was—What need is there for anyone to go over the same ground that has been so well trodden by Mr. Green in his two admirable works on English History? We had not scanned many pages, however, before we found that the book supplies a positive want. Who has not felt the need of a thoroughly reliable and readable book on English History to put into the hands of an intelligent boy or girl? Dickens's book, besides being too childish, is not reliable, and is too much in the novelist's style as a caricaturist; and the ordinary school history partakes too much of the character of a chronology to be of much use as a history. The present work, which is a book of nearly six hundred pages, has none of these defects. The author assures us the Lectures are genuine—"given week by week to a class of students in the College for Men and Women in Queen's Square." They bear internal evidence that no labour was spared in their preparation, and they make up a somewhat gossipy but thoroughly reliable book, written in a simple sober style, with a great deal of discrimination and judgment, and altogether well fitted for the purpose that we indicate. Take the following description of Alfred for example—"I do not believe there was ever a more truly religious man in the world than

Alfred; but he knew when he could serve God better by working than by praying. And this he kept in view all through his life. He loved prayer and reading the Bible as well as any saint, but he loved work and toil for his people too. His life and his mind were what we call well-balanced. And, still more he had one of those large wide sympathetic minds which can be keen and interested in many different ways, and on many different subjects. When there was fighting to be done, he showed himself a brave soldier and a clever commander; but when there was no fighting, he was equally ready as a law-giver, as a governor, and as a judge. He was like Bede in loving learning, and teaching. He loved music, poetry, and books; hunting, hawking, and building. He loved clever men and their company; he loved his family."—(p. 73)

Who will not recognize most of the characteristics we ascribe to the author in the following sketch of the Stuarts on page 463?—

"He (James I.) and all the Stuarts had as much love of arbitrary government as the Tudors, but they had not what the Tudors had, the gift of seeing and understanding when they might have their own way, and when they must yield. When the masterful Elizabeth saw that her will clashed with the will of the nation, she could be wise, and give in; but the Stuarts never did or could see that. It was in their time that the great struggle came, and once and for ever it was shown to all kings and to all people, that England was a free country, whose kings must rule according to the laws, and the will of the people, or they should not rule at all. It was a hard struggle, and cost one of the Stuarts his life and another his throne, but it was fought to the end, and will never have to be fought again."

A great deal of attention is given to the social condition of the people as well as to political institutions, and the author's wholesome opinions will prove a safe guide to the young reader in regard to those events which render history an important factor in modern education. We have never seen a better statement than this book contains of the benefits resulting to the English character from the

infusion of the Norman Element (p. 141), nor any that brings more clearly before us the causes that led to the signing of the Great Charter (pp. 207-9), and the establishment of Representative Government (pp. 228-31). The author is a little disposed to hero worship, and while showing a wholesome appreciation of the sterling qualities of our English Worthies; is very indulgent, if not altogether blind, to their faults. The heroic qualities of the first Edward, for instance, are extolled, but his relentless severity towards the Welsh is mentioned without a word of condemnation; and the only comment that is made on Bruce's sacrilegious murder of the Red Comyn is—that it was a terrible beginning to his exploits in his native land. The most serious fault of the work is the excessive space that is devoted to the earlier periods, only one third of the book being occupied with the Tudor, Stuart, and Brunswick dynasties. Hence we find several important omissions. We are told, for instance, that two thousand clergymen were turned out of their livings in the reign of Charles II., but we are not told that this was owing to their refusal to obey the Act of Uniformity.

No mention is made of the Bill of Rights or of the Act of Settlement, and there is but a meagre reference to the first Reform Bill. The author needs make no apology, as she does in her preface, for her quotations; they are so judiciously made that they form one of the greatest charms of the work. We hold that the true plan has been followed to let each age, as far as convenient, tell its own story. The sources drawn from are numerous—not the least fertile being Sir Roger de Coverley's great authority, Sir Richard Baker,—and no one can read the extracts from Fuller without a wish to read that quaint but sprightly author for himself.

We took the book up with a prejudice against it; we lay it down with a hearty commendation. Instead of supplanting other and greater works, it will serve as a handmaid to them, and in the hands of an intelligent boy or girl, it will accomplish as much as Green's History in those of a person of matured and cultivated intellect.

A MANUAL OF ETYMOLOGY; containing Latin and Greek Derivatives. By A. C. Webb. Philadelphia: Eldredge & Bro., 1879.

In its mechanical preparation this work seems to be all that could be desired, and if a book of Greek and Latin derivatives could be called a "Manual of Etymology," we would perhaps have comparatively little to complain of. Of course there would still remain the fact that the quotations, illustrating the use of the words, are almost exclusively taken from American authors, and not always from the masters of expression in the language; moreover, we may presumably be pardoned for objecting to a running fire of sentences which illustrate quite as fully the hostility of a certain section of the American people towards Britain, as they do the just employment of words. Nor are the examples selected always models of propriety. In the work before us the historical development of the English language is ignored altogether. All we have even of the Anglo-Saxon element is a short, inaccurate list of Anglo-Saxon pre-

fixes, and a few suffixes introduced among the Latin ones, no hint being given as to which are Latin and which Anglo-Saxon. The "Manual" was "entered according to Act of Congress" in the year 1879, and yet *publish* and *finish* are considered to have the same suffix as *blackish* and *boyish*. The book has some good features; in the classical words the stress is indicated by an accent or with marks of quantity, an advantage for those who know but little of the Classics; the idea, too, of giving examples of the employment of words is good, though we may have our own opinion of the quotations themselves. The work would be useful in supplying lists of words derived from Latin and Greek, but it must be used with caution, and verified in every doubtful case. Like so many others, the book betrays an almost total lack of special preparation for the work, which an Etymologist requires. A good knowledge of the Classical languages, and a superficial study of Anglo-Saxon, will not suffice to illustrate the niceties of words or to explain their origin.

EDITORIAL NOTES.

TOPICS OF THE TIME.

It is with pleasure that we announce that the call we made in this department in our last number, on behalf of *THE MONTHLY*, to secure for the publication increased aid and support, has met with a very gratifying response. Taking advantage of the Convention of the Teacher's Association of the Province, held a few weeks ago in Toronto, a number of friends of the Magazine took in hand the project, not only for extending its circulation, but of forming a Joint-Stock Company (Limited), with the view of placing *THE MONTHLY* upon a sound financial footing, and of securing the prosecution of the enterprise. This scheme met with the hearty and substantial support of many influential members of the profession present at the Convention, while others, absent from the gathering, have, since learning of the project, signified their willingness to take shares in the Company. This action is exceedingly encouraging to the promoters of the undertaking, and will no doubt be gratifying to many in the profession who, looking with favour upon the work *THE MONTHLY* was accomplishing, desired its permanent and satisfactory establishment. These practical evidences of sympathy and favour in the *MONTHLY*'s behalf, will now enable its originators to carry on the publication with vigour and with heart, while the extended range of proprietorship will assure it such further literary and professional assistance as should greatly increase its claims upon general support.

THE University of Toronto will part with regret with two distinguished members of the faculty, the President of the College, Dr. McCaul, and the occupant of the Chair of Chemistry, Prof. Croft. Both gentlemen

have been long connected with University College, have signally contributed to its renown, and now well earn what we hope will be a lengthened season of honoured repose. In many respects their superannuation is to be regretted, for it deprives the University, on which their rich scholarship and ripe experience shed so much lustre, of services it will be difficult to replace. Their retirement leaves vacant the Presidency and the Chairs of Classical Literature and Chemistry. To fill the first of these vacancies a name readily suggests itself—that of Dr. Wilson—whose claims to the Presidency should be favourably considered by the Government. The names of many graduates of the Institution also suggest themselves to supply the Professorial Chairs. But in appointments so important as those to be made, no considerations should weigh with the appointing power but those of pre-eminent fitness, whatever the quarter in which it may be found. At present a great deal is being said of the qualifications of Canadian aspirants to the Chairs, and the spirit of nationalism is invoked to advance their interests. True patriotism, however, will, in this case, subordinate sentiment to duty, and will seek the men we want whatever their nation. At any time the responsibility would be great of filling the vacancies that have occurred; at the present, no appointments call for the exercise of graver deliberation. We trust that Mr. Crooks and his Government may, in the interest of the University, be fortunate in the men on whom their choice will fall.

BRIEFS ON NEW BOOKS.

Manuals for Teachers: No. 1. The Cultivation of the Senses. Philadelphia: Eldredge & Bro. This is an American reprint of the first of a series of "Manuals on the Science

and Art of Teaching," published in England under the auspices of the National Educational Society. In the first five chapters, the titles of which, after the introduction, are: "The Senses," "How the Child gets his First Ideas," "How the Child Perceives," "How the Child forms Conceptions," we have a well-considered effort to place the education of the senses on a psychological basis. So far as these go into the matter, they are valuable to the young teacher; for the author certainly affords in them a very good exemplification of a remark of his own, that "Our Language is precise as our conceptions are distinct." The remaining chapters, which are devoted to the practical work of training the senses, are, however, the most valuable. They contain the suggestions of a man of highly cultivated intellect and of acute observation, who, to use his own words, "looks till he sees." In the sixth chapter he speaks of his subject thus:—"In cultivating the senses, our aim should be not so much to bring them to their highest possible acuteness, as to fit them for the duties of life, as efficient and ready instruments of the mind." Take the following as evidence of the sound sense this little book contains; it is upon Object Lessons: "As far as possible, even in the primary school, lessons relating to connected and kindred subjects should be given in a series, so that the relations between things may be perceived, and in order that new knowledge may be linked on to the old." It surely must be in Utopia, however, that our author expects "actual weighing, measuring, and exchanging," to be practised in teaching the arithmetical tables, and not even Utopia could expect the time of either teachers or children to be wasted in making "clay models of battle-fields, sieges, etc.," to illustrate a history lesson. The book is very well got up in typography, paper and binding.

LITERARY AND SCIENTIFIC JOTTINGS.

THE first volume on "The Data of Ethics," of Mr. Herbert Spencer's new work, on the

"Principles of Morality," has just been published. The author's purpose, we learn, is to ascertain and describe the objective qualities of right conduct, the external signs of the highest virtue, and to show their coincidence with the results of progressive evolution.

THE Messrs. Blackie have added to their comprehensive School Series a volume entitled, "The Newspaper Reader," comprising selections from the journals of the present century, on events of the day. The compilation is chronologically arranged, and while furnishing interesting extracts for class reading, it capitally epitomises the leading events in modern history.

THOSE practically interested in the question of the higher education of women should make the acquaintance of a handbook of middle-class female education in England, which has recently appeared from the pen of a Mr. C. E. Pascoe. The book is entitled "Schools for Girls and Colleges for Women."

A LITTLE volume entitled, "Easy Lessons in Natural Philosophy for Young Children," has just been sent us by Messrs. Eldredge & Bro., Educational Publishers, of Philadelphia. Its contents appear in the form of Question and Answer, after the style of the "Reason Why" series.

FROM Messrs. Willing & Williamson, Toronto, we are in receipt of Book VI. of Chambers's National Readers, comprising an excellent collection, in attractive form, of extracts from British representative authors in chronological order from Beowulf to the present day.

MESSRS. DAWSON BROS., Montreal, send us "A Complete Arithmetic, oral and written, designed for the use of Common and High Schools and Collegiate Institutes," by the Rev. D. H. MacVicar, LL.D., Principal, Presbyterian College, Montreal. The volume, typographically, is an excellent specimen of book-making; and to those in search of a text-book in Arithmetic, on the science-made-easy principle, the work will be found exceedingly rich in matter.

EDUCATIONAL INTELLIGENCE.

THE Hon. the Minister of Education has returned from Europe.

DR. HODGINS, the Deputy Minister, has been holding an Educational Convention in Parry Sound, and conferring with those interested in school matters in the Muskoka and Parry Sound districts.

THE Education Department, it is said, is preparing a new and enlarged map of the Dominion, of the dimensions of nine feet by five. This is much wanted by the schools, and it would be a boon to the public, while contributing to the cause of popular education, if the map could be had by anyone who desired to possess a copy.

WE notice with regret that a resolution has been passed by the Toronto School Board urging the Minister of Education to shorten the summer vacation by two weeks. We hope that Mr. Crooks will not agree to any such change, as the summer holidays are quite brief enough.

THE Matriculation Examination in Medicine for the College of Physicians and Surgeons, Ontario, was held in Ontario Hall, Kingston, on Tuesday and Wednesday, the 19th and 20th August. Only fifty candidates presented themselves, very few of them being of those who failed in April last at the examination which was held at Toronto. The explanation probably is to be found in the important changes made by the Council of the College last year, which took effect at this examination for the first time. These changes are (1) that no part of the matriculation fee (\$10) is to be returned to any candidate who may have the ill-luck to fail; and (2) that any candidate who fails in one of the branches of examination is regarded as having failed in the whole, *i.e.*, he has to be re-examined in all of the branches. We understand that the practice which obtained hitherto, was to give credit to any candidate for every subject in which he passed. There is no doubt that the tendency of this mode of conducting the examination will be to secure a better class of candidates and to prevent those from presenting themselves for

examination until well prepared for it. The examiners were Archibald MacMurchy, M.A., and Archibald P. Knight, M.A., Rectors of the Collegiate Institutes at Toronto and Kingston.

THE MERCANTILE GRADED COPY-BOOKS.

To the Editor, *Canada Educational Monthly*.

SIR,—We have to thank you for your appreciative notice of our series of "Mercantile Graded Copy-Books" in the last number of your Monthly, and to say that the defects you pointed out have been remedied in a new edition now in press. Slight as those defects comparatively were, we set about removing them when indicated, and we will make any other improvements which may be needed to maintain our series of Copy-Books in the position of being the very best in the market.

Yours obediently,

COPP, CLARK & CO.

Toronto, 28th August, 1879.

[The above note, received from the publishers of the "Mercantile Graded Copy Books," is gratifying to us as an indication that the critical department of THE MONTHLY is helpful to the trade, and, with the Publishers' own enterprise, is instrumental in effecting improvements in the productions designed for school use, which cannot be too carefully nor too intelligently prepared in aiding the great work of education. Since the publication of our *critique* on the Copy-Books, Mr. Clare has added two new issues, Nos. X. and XI., to the series, which greatly increase its value and give it further variety. No. X. contains specimens of a free but near angular hand for young ladies who prefer this style to that given in No. IX. No. XI. presents a variety of elegantly-written notes, formal invitations, etc., made to run down the side of each page—as in actual correspondence—and not along the top, after the fashion of a head-line. The examples in this style make the number a very attractive and useful one, and it therefore promises to be in good demand. If the head-line in No. X., "Fame commonly accompanies merit," be a trustworthy maxim, Mr. Clare and the publishers stand a good chance of celebrity through their excellent series.]

UNIVERSITY OF TORONTO.

We publish as under the results of the June Matriculation Examinations in connection with the University of Toronto. As will be seen from the lists, one hundred and thirty-one candidates passed the Examination. The SCHOLARSHIPS were awarded as follows:

Classics.—Alex. Crichton, St. Catharines Collegiate Institute.

Mathematics.—George Ross, Hamilton Collegiate Institute; John McKay, St. Catharines Collegiate Institute, 4 months; Brantford Collegiate Institute, 9 months.

General Proficiency.—1. H. H. Langton, Upper Canada College; 2. E. W. Hagarty, Toronto Collegiate Institute; 3. J. C. Robertson, Goderich High School; 4. H. Bois, St. Mary's High School.

Modern Languages.—Alice Cummings, Hamilton Collegiate Institute.

Alexander Crichton stood first in general proficiency, but was not entitled to hold a scholarship, having gained one in classics. John Squair (from Bowmanville High School) was ranked third in general proficiency, but could not take the scholarship because he is over the age prescribed by the statute—23.

A number of young ladies passed in different groups at the local examinations in Brantford, Port Burwell, and Toronto.

HONOUR LIST.—ARTS.

Classics.—Class I.—1. Crichton, A.; 2. Fairclough, H. B.; 3. Mayberry, C.; 4. Squair, J.; Hudson, A. B., Langton, H. H.; 7. Hagarty, E. W.; 8. Fotheringham, J. T.; 9. Robertson, J. C.

Class II.—1. Wilgress, G. S.; 2. Trull, F. W.; 3. Bonis, H.; 4. Kerr, R.; 5. Lawson, A.; 6. Ormiston, W. S.; 7. Campbell, J. (St. Catharines); 8. Scott, W.; 9. Osler, H. S.; 10. Cameron, A. B.; 11. Dewart, H. H.; 12. Goodwillie, A. W.

Latin Only.—Class I.—Cummings, A.

Mathematics.—Class I.—1. Ross, G. McKay, J.; 3. Donald, R. C.; 4. McKay, A. C.; 5. Philip, J. H.; 6. Riddell, G. J.; 7. Weir, A.; 8. Cochrane, R. R., Kerr, R.; 10. Boulton, F.; 11. Middleton, W. E.; 12. Campbell, T. G., Cook, J. W.; 14. Charles, H.; 15. Crichton, A.; 16. Hunt, E. L.; 17. Scott, W.; 18. Hagarty, E. W., Little, J. G.; 20. Farquharson, W.; 21. Lawson, A.; 22. Robertson, J. C.; 23. Cody, W. S.; 24. Bonis, H.; 25. Wedin, A.; 26. Grant, D. M., King, F. J.; 28. Squair, J.; 29. Langton, H. H.; 30. Phair, E.; 31. Dewart, H. H.; 32. Playter, J. E.; 33. Maughan, M.

Class II.—1. Montgomery, W.; 2. Johnson, T., McCalman, D. H.; 4. Woodhull, F.; 5. Robertson, J. S.; 6. Ormiston, W. S., Shaw, J.; 8. Duggan, J. M.; 9. Mayberry, C.; 10. Balmer, R.; 11. Potter, C.; 12. Smith, C. J.; 13. Richardson, J. A.; 14. Campbell, John (Uxbridge).

English.—Class I.—1. Dewart, H. H., Fitzgerald, L., Lawson, A.; 4. Wedin, A.; 5. Langton, H. H.; 6. Cummings, A., Weir, A.; 8. Fairclough, H. R., Henderson, M. E., Phair, E., Simon, E. H.; 12. Attwood, E., Campbell, J. (Uxbridge), Crichton, A., Hume, J. G.; 16. Campbell, J. (St. Catharines), Middleton, W. E., McKay, J., Palmer, J. F.; 20. Cook, J. W., King, F. J., Mayberry, C., Riddell, G. J., Ross, G.; 25. Bonis, H.; Cameron, A. B., Fotheringham, J. T. Gross, A. H., Hudson, A. B., Playter, J. E., Robertson, J. H., Squair, J.; 33. Balmer, R., Charles, H., Robertson, J. C., Tibb, R. C.

Class II.—1. Lee, L., Ormiston, W. S., Kead, J. W., Wilgress, G. S.; 5. Grant, D. M.; 6. Luke, M. E.; 7. Creasor, A. D., Farquharson, W.; 9. Hagarty, E. W., Hunt, E. L., Raiser, J. B., Smith, C. P.; 13. Richardson, J. A., Trull, F. W.; 15. Barber, W.

Stevenson, A.; 17. McCatman, D. H., McCormack, E.; 19. Montgomery, W.; 20. Donald, R. C.; 21. Carswell, A., Donovan, A. M.; 23. Collins, A.; 24. Carter, J.; 25. Maughan, M.; 26. Campbell, T. G.; Scott, W.; 28. Mackay, E.; 29. Goodwillie, A. M.; 30. Hodgins, J. P.

French.—Class I.—1. Cummings, A., Langton, H. H.; 3. Wedin, A.; 4. Hagarty, E. W.; Squair, J.; 6. Balmer, R., Charles, H.; 8. Luke, M. E., Trull, F. W.; 10. Carter, J., Crichton, A., Fitzgerald, L., Henderson, M. E., Hudson, A. B., Maughan, M., Wilgress, G. S.

Class II.—1. Phair, E.; 2. Ormiston, W. S.; 3. Dewart, H. H., Robertson, J. C.; 5. Attwood, E.; 6. Barrie, R., Hunt, E. L.; 8. Campbell, J. (St. Catharines), Fotheringham, J. T., McCormack, E.; 11. Gairdner, T., Mayberry, C.; 13. Read, J. W.; 14. Cameron, A. B., Hodgins, J. P., Middleton, W. E., Smith, C. P., Vanstone, A. L.

German.—Class I.—1. Wedin, A.; 2. Cummings, A.; 3. Squair, J.; 4. Charles, H.; 5. Kraft, A. A.; Phair, E.; 7. Langton, H. H., Trull, F. W.; 9. Carter, J.; Luke, M. E.

Class II.—1. Barrie, R.; Wilgress, G. S.; 3. Balmer, R.; Collins, A.; Gairdner, T.; 6. Read, J. W.; 7. Lee, L.; Smith, C. P.; 9. Attwood, E.; Hodgins, J. P.; Hunt, E. L.

History.—Class I.—1. Fitzgerald, L.; 2. Crichton, A.; 3. Ormiston, W. S.; 4. Langton, H. H.; 5. Lee, L.; 6. Farquharson, W.; Gross, A. H.; Stevenson, A.; 9. Smith, C. P.; 10. Charles, H.; 11. Cummings, A.; 12. Simon, E. H.; 13. Carswell, A.; 14. Balmer, R.; 15. Read, J. W.

Class II.—1. Palmer, J. F.; 2. McCormack, E.; Robertson, J. H.; 4. Squair, J.; 5. Fotheringham, J. T.; Grant, D. M.; Mayberry, C.; 8. Campbell, J. (St. Cath.); 9. Attwood, E.; 10. Henderson, M. E.; Smith, C. J.; 12. Cody, W. S., Tibb, R. C.; 14. Carter, J.; Hume, J. G.; 16. Hudson, A. B.; Wilgress, G. S.; 18. Dewart, H. H.; McCall, D., McKay, J.; 21. Campbell, T. G., Donovan, A. M.; 23. Bonis, H.; 24. Hagarty, E. W.; 25. Kraft, A. A.; 26. Barrie, R., Birks, A. K., Hodgins, J. P., Lawson, A., Shaw, J.

MEDICINE.

Classics.—Class II.—1. Sutherland, J. G.; 2. Collier, M. K.

Mathematics.—Class II.—Sutherland.

English.—Class I.—Sutherland.

Class II.—Kinsley, A. B.

French.—Class II.—Sutherland.

History.—Class II.—Sutherland.

The following is a list of the Matriculants, arranged under the schools at which they received their training:

Upper Canada College, Toronto.—A. B. Cameron, J. Carter, R. Balmer, H. M. Field, J. P. Higgins, H. H. Langton, A. F. Lobb, E. McKay, J. Picken, C. P. Smith, W. E. Thompson, G. S. Wilgress.

Barrie High School.—J. G. Hume, T. Johnston, D. H. McCatman, J. A. Richardson.

Beamsville High School.—A. C. McKay.

Bowmanville High School.—J. Squair, F. W. Trull, Maggie A. Walsh, A. L. Vanstone.

Brantford Coll. Inst.—G. J. Gibb, Andrew Kerr, Chas. Mayberry, Emily E. Phair, J. H. Robertson, E. H. Simon, Augusta Wedin, J. McKay.

Brockville High School.—J. A. Page, A. M. Donavon.

Clinton High School.—J. H. Philp, A. Weir, A. Jackson, H. Buie, R. Lees.

Chatham High School.—W. Farquharson.

Wilberforce Educatl. Institute.—Fredrica F. Jones, Sophia B. Jones.

Collingwood Coll. Inst.—Robert Kerr.

Elora High School.—C. J. McCabe, T. A. Brough.

Fergus High School.—A. W. Wright.

Galt Coll. Inst.—T. R. Baldwin, R. Barrie, W. K. George, T. Gairdner, W. J. Millican, H. S. Osler, J. A. Meldrum, (in Med.)

Guelph High School.—W. J. Millican.

Goderich High School.—J. C. Robertson.

Hamilton Coll. Inst.—J. Coutts, T. Crawford, Alice Cummings, Edith I. Durdan, H. R. Fairclough, W. Farquharson, A. A. Kraft, A. Lawson, W. F. Mills, D. McCall, G. Ross, J. A. Ross, R. C. Tibb.

Ingersoll High School.—R. W. Smith, J. Watt, J. S. Cuthbert.

Iroquis High School.—A. E. Grier.

Kincardine High School.—R. Johnston.

Lindsay High School.—J. M. Knowlton.

London Coll. Inst.—L. Lee, A. C. McKay, Emma M. Attwood, Agnes Collins, O. Weld.

Newmarket High School.—W. T. Allan, W. S. Cody, A. F. Lobb, J. D. Robertson, C. J. Smith, H. S. Turner.

Napanee High School.—J. E. Playter.

Owen Sound High School.—A. D. Creasor, Maria Maughan.

Oshawa High School.—Margt. E. Henderson, C. Potter, Mary E. Luke, A. Carswell.

Ottawa Coll. Inst.—A. B. Hudson, A. S. Johnson.

Ottawa Normal School.—T. G. Campbell.

Port Hope High School.—C. Potter, Florence J. King, W. Montgomery, J. Shaw, F. C. Tisdell, A. S. Campbell.

Peterboro' Coll. Inst.—W. Scott, E. L. Hunt.

Richmond Hill High School.—J. J. Bell.

Rockwood Academy.—D. O. Cameron.

St. Michael's Coll., Toronto.—F. McEvay, J. M. Duggan.

St. Mary's High School.—J. T. Fotheringham, H. Bois, Ella McCormack.

St. Thomas High School.—A. K. Birks, T. R. Baldwin.

Strathroy High School.—D. M. Grant, F. Woodhull, W. F. Mills, A. McKellar, G. J. Gibb.

St. Catharines Coll. Inst.—J. S. Campbell, Henrietta Charles, A. Crichton, Lizzie Fitzgerald, J. Hansler, J. McKay, M. K. Collier, (in Med.)

Thorold High School.—A. Frazer.

Toronto Coll. Inst.—F. Boulton, A. M. Donovan, H. H. Dewart, R. C. Donald, E. W. Hagarty, W. E. Middleton, G. J. Riddell, J. G. Sutherland (in Med.), W. C. Barber.

Uxbridge High School.—J. Campbell, J. E. Playter.

Welland High School.—Ada M. Goodwillie, A. B. Kinsley, (in Med.)

Whitby High School.—A. H. Gross, W. S. Ormiston, A. Stevenson, J. F. Palmer.

Waterdown High School.—J. G. Little.

Weston High School.—Jessie B. Kaiser.

Windsor High School.—A. G. Smith.

Yarmouth Seminary, N. S.—J. W. Read.

Private Tuition.—T. R. Baldwin, H. Buie, R. R. Cochrane, J. W. Cook, J. B. Hammond.

[NOTE.—We have endeavoured to make the above list as accurate as possible, but should any errors or omissions be pointed out, we will gladly correct or supply them in our next number.—Ed. C.E.M.]