

THE CANADA EDUCATIONAL MONTHLY.

THE CANADA
EDUCATIONAL
MONTHLY

AND

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THE CANADA
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JANUARY, 1882.

THE JOHNS-HOPKINS UNIVERSITY OF BALTIMORE,
MARYLAND, U.S. *

BY T. WESLEY MILLS, M.A., M.D., L.R.C.P. ENG., ASSISTANT TO THE PROFESSOR
OF PHYSIOLOGY, M'GILL UNIVERSITY.

Mr. President and Gentlemen:—

HAVING recently had an opportunity of spending some weeks at this notable seat of learning, I have felt it a duty to take some means of making better known and appreciated an institution which, for some reason or other, appears to be either unheard of or little understood in this country. As this Society includes among its members a large number of the medical men of this city who are engaged in teaching, and as the rest probably take considerable interest in the progress of learning in general, and of science in particular, I hope no apology is necessary for bringing the subject before you.

Johns-Hopkins, of Baltimore, I gather, was a man of peculiar, almost eccentric ways of life, who, by great

energy, steadiness of purpose, and unusual aptitude for business, amassed an immense fortune. Whether largely charitable during his career as a citizen, I do not know; but like Samson, he seems to have done at least vastly more at his death than during his life. He has not, however, pulled down, but raised up a great institution. The University which bears his name, bears also the impress of his peculiar views in regard to education; and that he was as far-seeing in this matter as in those by which he gained his wealth, the future, if not the present, will prove. In the main outlines of the grand scheme, the great donor's views are embodied, though the details have been planned and the whole executed by an enlightened Board of Trustees. I do not propose to dwell on every aspect of this University, but such, rather,

* Read before the Medico-Chirurgical Society of Montreal.

as specially impressed me, and seemed of interest and importance to us as Canadians. Full details may be obtained from one of the College "Registers," to be had on application.

The amount of money left by the founder for the endowment of the Institution was about three and a-half millions of dollars; and perhaps the aims and objects of the foundation cannot be better set forth than they are in the following extracts from the "Register" of 1880-81:

"Among the principles which have been observed from the foundation are these:—

"1. As to *Teachers*.—To select the ablest whose services can be secured; to keep them free from petty cares, and to encourage them to advance, by researches and publications, the sciences they profess.

"2. As to *Scholars*.—To care less for numbers than for merit; to maintain high standards of matriculation and graduation; to allow a wide latitude in respect to the choice of course of instruction, and to give special facilities (such as Fellowships and Scholarships) to those who show unusual ability in any department of study.

"3. As to *Material Aid*.—To provide, on a liberal scale, the halls and laboratories, the books and instruments called for by the actual progress of the work, and to defer, for the present, the formation of museums and the purchase of collections for remote and general purposes, and the construction of costly buildings.

"4. As to *Methods of Instruction*.—To employ whatever agencies are found efficient: lectures, recitations, laboratory exercises, seminaries, reading classes, field work, etc., at the discretion of the teachers, and according to the subjects taught.

"5. As to *Researches and Publications*.—To favour the prosecution of research in literature and science, and to aid in the publication of results.

"6. As to *Co-operation*.—To avoid rivalry with other institutions, to accept heartily all the assistance which can be secured from other foundations, and to aid generously in promoting the advancement of the public welfare, so far as it may depend upon University influences."

Who, upon reading this simple, unostentatious announcement, but is ready to exclaim: How broadly laid are the foundations; how liberal the provisions; how far-seeing the wisdom of the conception! But there is something more. Are we not struck with the originality of the scheme? Is not this Institution entirely unique among the Universities of this Continent? Indeed, it is probably the exact fellow of no seat of learning in the world, but is rather the noble embodiment of the most advanced and generous views on education that have yet had place in the mind of man. After looking somewhat closely into the nature and working of this school, or rather harmonious arrangement of schools, I am prepared to say that every statement in the six propositions just quoted is an actually realized fact; for nothing during my stay at the Johns-Hopkins University impressed me more than the quiet, unostentatious, modest bearing of all connected with the place. You may read through the announcement from beginning to end, and then visit the Institution and find all its statements more than realized. There is none of that spread-eagleism, with which we are not unfamiliar in Canada, even in connection with educational institutions; none of it either in the printed calendars, or in the language of professors or students; for spread-eagleism is the outgrowth of conceit, combined with shallowness, and such is wholly incompatible with the profound learning characterizing every department of this great school.

Personally I was, of course, most

interested in physiology, and spent most of my time in the biological laboratory, but I was enough associated with other departments to learn their method of working. The buildings are decidedly modest, of plain brick, and rivalled by many private houses in the vicinity; and all within goes on so quietly one might pass again and again and be unaware that the buildings were tenanted at all. But within these imposing structures there is *thirty-six thousand dollars worth* of apparatus devoted to scientific investigation! There are three laboratories, one for each of the departments of biology, chemistry and physics; and it is contemplated to add to these others, or substitute for them larger ones, shortly, as the present ones are beginning to be felt inadequate. Lectures, recitations, written examinations, and laboratory work, are the chief methods employed in teaching science. Perhaps illustrations of these methods, drawn from the Biological Department, may prove most interesting to you, gentlemen, as having such a close bearing on the scientific side of our profession. There are four teachers connected with this part of the Institution—viz., one for General Biology, one for Zoology, and two in connection with Physiology. These gentlemen have all distinguished themselves by successful original research; some of them, if not all, have made for themselves a Transatlantic reputation. The head of this department is Prof. Henry Newell Martin, hitherto best known in Canada, perhaps, by his association with Prof. Huxley in the authorship of a much-esteemed work on Biology. Dr. Martin was induced to leave an honourable position at Cambridge, England, in order to lead the as yet small band of physiologists in the New World. Though but a young man, his past career has been a very brilliant one, and during the preceding year he has

accomplished a feat which had up till then baffled all the attempts of physiologists. I refer to his *isolation of the mammalian heart*, and keeping it alive and in action for hours—an achievement which promises to be extremely fruitful of results, and which may possibly lead to many changes in the views now prevalent in the physiology of the circulation. But one thing it certainly will bring, and that is, fame for the young physiologist whom Americans may now claim as theirs. I found the students, one and all, rallying around Prof. Martin with an enthusiasm that was delightfully infectious; nor do I wonder—learning, ability, energy, enthusiasm, combined with great kindness of heart and a manner in the utmost degree simple and unassuming, must compel admiration—even affection. It is not in human nature to resist it. Dr. Sewell, the Assistant Professor, brings an extraordinary amount of energy and executive ability to bear on his subject. He is giving this year a course of lectures on General Physiology and Histology, while Prof. Martin devotes his lectures this session to the Circulation. Both these gentlemen, as well as Prof. Brooks and Dr. Sedgwick, of this department, adopt the conversational or quiet style of lecturing. It has many advantages, and this one, especially, as it seems to me, that the discreet teacher can, if he finds, by watching the countenances of his auditors, that he is not being easily comprehended, modify his matter or manner without in any way marring the general harmony or symmetry of his lecture. I attended a lecture on Human Osteology (part of a course on General Osteology), by Prof. Brooks, and noted that, in referring to certain workings on the bones, he simply stated that they were “for the attachment of muscles,” but did not name the latter. Dr. Sedgwick, a model of industry for his students to copy, takes them immedi-

ately after his lecture to the laboratory, to work out the subject of his teaching for that day in the lecture-room; indeed, this plan is followed by all the teachers. By such a course, it is at once evident that not only is Science rendered easy and attractive, but "cram" is unnecessary—in fact, banished. The students themselves, under guidance, work through a large field of experimental physiology, and the rest is put before them in the form of demonstrations, exemplifying how little they suffer from the lecturing—course, I had almost said—well, the lecturing misfortune. One of the professors remarked to me that he thought some of the men who sat through *three* consecutive lectures in one day were to be commiserated. What shall be said of medical students who sit through six, seven, and eight hours of lectures? How long, in the name of reason, shall such impositions be inflicted and tolerated? With such guides and such facilities for putting to the proof all statements made by his teachers, a student will not only learn—he must develop. But there are additional facilities. The advanced student has only to step down stairs, to find in the library almost every book of importance in any language he may wish to consult. The tables are covered by the hundred, too, with literary and scientific journals in many tongues.

But what of the material on which such teachers work? The *quantity* is small, but the *quality* is fine. A professor occasionally lectures to a class of four; but when it is remembered that each of these men may in turn himself become a professor, and lecture to hundreds, the case assumes another aspect. But a few words in regard to the other means by which students improve themselves will be welcome, I am sure, as some of them at least are peculiar to the Johns-Hopkins University. There are so-

cieties like those well-known to ourselves, yet conducted somewhat differently, and what are denominated "Seminaries." I visited the Greek Seminary, presided over by the learned Professor Gildersleeve, and had the good fortune to find the work "conducted" on that occasion by Mr. A——, hailing from Ontario. Mr. A—— was a Gilchrist scholar, and after graduating at University College, London, proceeded to the Johns-Hopkins school for the advanced study of the classics. He holds a Fellowship in Greek. The subject was Plato, and the handling critical in the highest degree, as will be evident when I state that about one hour was spent in critical discussion, chiefly by Mr. A—— himself, before his fellows, of about fifteen lines of Greek. Each member of the class, in turn, thus leads the others. I also visited the Mathematical Seminary, where I heard things incomprehensible and unutterable (by me). At a meeting of the Historical Society, I heard original papers on the foundation of Baltimore and of Salem, in which the notion that the motive for these foundations was wholly or mainly religious, was ably controverted.

But you will probably care most to hear of the Scientific Association. At this Society, which meets monthly, all branches of Science proper are open for discussion. In the evening I had the pleasure of attending; two papers were read, the one by a fellow in Science, on Prof. Langley's expedition to Mount Whitney; the other by Dr. Sewell, Associate Professor in Physiology, on the Equilibrating Function of the Semi-circular Canals. The Professor had, during the summer vacation, made a large number of experiments on one species of the cartilaginous fishes, with a view of settling the vexed question of the function of the canals. A Canadian graduate of Victoria University, at the same meet-

ing, presented a short communication on a peculiar form of galvanic battery on which he was working. This gentleman is a fellow in Physics. There is also in attendance another Canadian, a graduate of Victoria University, whose special courses are in History and Political Economy. Four compatriots greeted each other fraternally, and rejoiced that the doors of the Johns-Hopkins University were as freely open to us as to those born beneath the stars and stripes. And here I may mention that all that is offensive in the American character, especially the manners of a certain class of Americans, seemed absent—wholly wanting—in the men I met at the Johns-Hopkins University. Excepting some trifling peculiarities of speech, I would not have known that they were Americans at all, unless, indeed, by a warmth of kindliness I never in my experience have known surpassed. I find them, in a word, kindly gentlemen—not thrusting themselves upon one, but when made acquainted ready to do numerous kindnesses, and in a manner that made it appear as though they did them not. But to return to the Scientific Association. I was greatly surprised to find undergraduates, fellows and professors, all on equal terms, discussing science apparently regardless of everything except the attainment of truth. This setting aside of so-called dignity was to me a new experience, and seemed like the realization of an ideal which, in my chronology, I had placed a good way in the future, when mankind had advanced considerably in development. But, after all, is there any true dignity that is not founded on real worth? and do not students always appreciate this, whether they stand hat in hand or not? On the other hand, is it not the secret belief of many a student who lifts his hat to the holder of position, but not the

possessor of merit, that the man that expects—possibly exacts—this show of respect, is simply a pompous old fool?

One Saturday afternoon was delightfully spent with the Naturalist Club. During the fine weather it is the custom for this club to go weekly out into the country, or the vicinity of Baltimore, and work up its natural history. On this occasion we took rail to a little station six miles from the city, which brought us to the edge of a beautiful ravine. The party comprised Professors Martin, Brooks, and Sedgwick, several graduates, and some undergraduates. Upon reaching the exploring ground, the party separated a little, the better to attain the end each division of scientists had in view. For myself, I kept mostly with the people that looked after living things higher in the scale than plants, and I have a most pleasant and lively recollection of the patient study by Professor Brooks and his followers of the peculiar habits of some colonies of ants; and before all was over, I began to think with Mark Twain or the *Danbury News* man (I forget which), that the ant was an over-praised insect. In fighting, at least, they seem to rival Homer's heroes of old. Here again was the delightful mingling of student with professor,—no enforced reserve,—yet no lack even in the forms of respect. In speaking of lectures, I omitted to make mention of the teacher of Chemistry, Professor Remsen. But certainly neither in England nor in this country have I heard any lecturer who seemed to me to combine in a more eminent degree the qualities that make the entertaining lecturer and the successful teacher. There was perfect clearness and great simplicity, combined with elegant and scientific diction. He not only gets his ideas into the minds of others, but throws so strong a light upon them, so to speak, that the impression must be

lasting. I particularly noticed that he held up the negative aspects of his subject; kept his auditors out of pitfalls, guarded against fallacies, etc.; so that when he had finished, there seemed to be a lack of nothing; withal with such intonation and accent—in a word, with such delivery as charmed the ear, while his ideas enriched the mind.

Is it not wonderful how few teachers make any special study of the art of delivery? And yet, few efforts would bring in so large a recompense. It would really be worth a teacher's while to travel from Montreal to Baltimore to take a lesson in the art of lecturing by listening to Prof. Remsen. It is in the higher courses of study for graduates of Universities that the Johns-Hopkins possesses such attractions; and, by the system of fellowships and scholarships, many deserving men are helped to prosecute studies from which generations of students, to whom they will in turn act as teachers, will derive benefit, and learning be greatly advanced. As illustrating the class of students that avail themselves of this University, let me take as examples three men working at the table in the Biological Laboratory:

(1) Mr. W——, a fellow in Biology (Zoology), working from morning till night on the embryonic development of one of the lower forms of life. He sits all day, steadily cutting sections, so small that he is obliged to use a hand-lens to find them; yet in his enthusiastic delight he exclaims: "You cannot imagine how this work fascinates me."

(2) Mr. H——, B.A., of Johns-Hopkins University, holder of a scholarship—a most careful, thorough and studious Physiologist, to whom any failure owing to error of commission or omission in an experiment is

a source of self-accusing condemnation.

(3) Mr. D——, B.A., of Harvard; intending soon to join the ranks of the medical profession, but in the meantime considers some special preliminary studies in Biology in every way desirable.

And thus one might run through the list. It is true there are only about one hundred graduate students in attendance, but this is not to be wondered at, seeing that the highways of science are not yet crowded, much less those heights, the ascents to which are steep and rugged. There are many other aspects of this new foundation (only five years old) which might interest you, but I fear I already tire your patience.

But a word as to the new Johns-Hopkins Hospital. About three and a-half millions were left for its endowment. Several buildings are now in course of construction. When finished, it will probably be unrivalled in America. There will be a school attached to it for the prosecution of original researches in Pathology, Therapeutics, etc., as unique as the Johns-Hopkins University. You will all join with me, I am sure, in wishing it success.

Such an institution would be a great boon to the entire medical profession in America, and would doubtless receive their heartiest sympathy. Affiliation with the Johns-Hopkins University would probably come about; and with the assistance of the energetic and able President of that institution, and its staff of professors, part of the necessary executive and teaching power would be already at hand. In conclusion, the aptness of the poet's words in the case of Baltimore's far-seeing and generous citizen seem to me to have peculiar force: "*Exegi monumentum perennius ære.*"

A YEAR IN ENGLAND: WHAT I SAW, WHAT I HEARD, AND
WHAT I THOUGHT.

BY A CANADIAN.

I.—THE VOYAGE.

DEAR SAMMY,—

WHILE abroad, and since my return, you have ceased not, periodically, to urge me to write you a series of letters in reference to my thoughts and experiences of that grand old country, England, with whose historic greatness we so proudly associate ourselves as Canadians. So pressed was I amid the whirl of my engagements, business and other, that I could never find time to do more than write you a friendly line while away; but now at home once more beneath my native skies, and surrounded by influences purely Canadian, I have at last determined to let you know what manner of place and what sort of people I personally found England and the English to be. But first of all let me take you across—across that mighty ocean which has been, I am right sure, with you as it was with me before I saw it, one of those fields in which your imagination always found room enough to roam—a sort of boundless something, very ill-defined, in which and about which you thought wonderful nothings and somethings. Indeed, I do well remember one day on our return from school, as we two wandered quietly along, one of those talks, so sweet even in recollection, that grew out of that matchless description of Byron's which had fortunately found its way into our School Readers. Not bad books, Sammy, those last Canadian Readers! You don't fail to compare them with the

dry old "Sequel," with its frigid and forced moral lessons. But hold! I am away back instead of taking you across the Atlantic with me; but in passing, Sammy, let me say that our conversation on that masterpiece of Byron's so convinced me of your capability to enjoy the poetical that I have never since hesitated, without any fear of boring you, to insert in our correspondence some of my own poor sentiments on the divine essence of beauty those we call poets have extracted from nature's world, with all its perfections and imperfections.

Well, to get on board ship: I determined to patronize a Canadian line, being Canadian born, Canadian educated—indeed, a Canadian to the very core. I was going to say a Canadian in my peculiar conceits or conceitedness. Accordingly, I purchased a ticket in my own City of— from an agent of the Allan Line, and taking rail to Quebec, remained overnight in that quaint old place, and next morning, after an unnecessary amount of fussing about my baggage, was duly deposited by the "tender," baggage and all, on board the steamer. I had never been on board of a ship of this kind *when about to sail*, but I had heard times without number of the "noble ship, grandly indifferent to all dangers, making its smooth way through the ocean"—an ocean which aforetime had indeed frightened the old Greeks and Romans, but of which we moderns were complete masters. I had also contemplated, as doubtless you have done, the magnificent pictures

of these ships, which, as they are displayed in the passenger-agency windows, so captivated our boyish eyes. But as the vast machine lay quietly in the river, I was, indeed, very much impressed with her size, her neatness, the order that everywhere prevailed; in fact, the general preparedness for emergencies, should they arise. Said I to myself, with all my inexperience, "That man must indeed be a coward who would have any fears of the sea after contemplating such a grand and perfect piece of mechanism as this is."

I had heard, too, that the sea was sometimes "as smooth as a mirror;" wished that the greater part of the voyage might be over such a sea, and that just by way of variety I might have the opportunity of seeing and experiencing generally something of a good average storm for about two hours. For being, as you remember, all my life, Sammy, of a sceptical turn, I was disposed "to prove all things" for myself; and, as usual in this life, I found things are not as they seem on the pictures, nor even as we "read about," as you will learn later.

At Quebec a fair number of passengers embarked. It was the month of September; the weather was delightful. Precisely at 12 o'clock noon, the captain, on the bridge (I like to see the officers on that bridge), gave his orders to have the ship put under way. Slowly she swung around into the current; her engines gradually got into that steady motion which they had to maintain with unerring accuracy for a long week. The river was smooth, the sun bright; scores of beaming faces were seen on deck; all classes represented; and when the vast combination of apparatus worked harmoniously—all comprehended in the term 'ship'—we heard the words "Fire the gun!" It was fired, and produced that decided impression that we were really off for Old England, and

no mistake about it. Then came a brief interval in which everyone seemed emphatically to attend to his own business. The steerage passengers lugged their goods "down below," and stored them as they thought best for use during the voyage; the "intermediates" tried each to get the best berth for himself with a quiet and polite selfishness, or, if that be too strong a term, self-interest, that rather amused me; while the cabin passengers looked out that things aboard ship corresponded with the representations of agents on land. After this bustle was over, we all appeared on deck again to admire the scenery of our truly noble river. Every face was radiant with happiness, and the scene was one never to be forgotten by me—all the more as I had never had a similar experience. My eyes feasted on the unrivalled autumnal hues of our forests; and this picture was impressed so on my retina, that amid the dreary fogs of the London winter it recurred to me with a cheering comfort, Sammy, I cannot describe to you. With a short stop at Rimouski to take on the mails—so brief, indeed, that the sound of the machinery did not seem to leave my ears—we did not cease to "plough the watery waste," as you remember old Homer puts it—(Ah! Sammy, we can't improve very much on that old Greek, in descriptions of nature, at least, can we?)—till we cast anchor in the harbour of Merville, and the little Irish that was in me was melted up into my general composition as I beheld Ireland for the first time in the early morn, a country as interesting as it has ever been unfortunate and unhappy. But I know you will be inquiring even before this as to my companions, and how we spent our time at sea. In a word, we were a "motley crowd," and spent our time as best we could. But in a little more detail. Among the steerage passengers, with many of whom I had con-

versations, were some returning, after a variable period of years, to see friends and once more revisit home scenes. I always respect the man that retains a love for his past associations of place, etc., for in all of us that past, Sammy, must mean a good deal. We rise only so much above it. Others there were, and these I pitied, returning dissatisfied with Canada; they had either had bad luck, or had been injudicious, and were going home to tell a very sad story about the colony. Nor could all my arguments displace their views in some cases; for you know an Englishman is rather hard to convince, especially if he imagines his opinions are based on facts or experiences. It seems to me almost culpable to hold out a *gilded* picture to the view of intending emigrants, and such a course must in the end defeat itself. Besides, in consequence, we are denounced in the old land as "American sharpers," and the opinion in England of American fidelity in business relations is not yet too high; and as I shall have occasion to show later, we are, I found to my *intense disgust*, constantly being confounded with the Americans—in a word, we are not, in the majority of instances, I might perhaps say, accorded a distinct national existence at all. This may rather surprise you, Sammy, but I'll make my statements rest on facts on a future occasion, unpleasant as the facts may be.

There were, again, a wholly different class of people: English tourists with very varying views of our country. But of this also again: clergymen returning after discharging certain missions; and students, a particularly interesting class, as it seems to me. Among these were young men who had always been students—some of them theological, going to Scotland to attend the lectures delivered in the great seats of learning in Glasgow and Edinburgh; medical men about to become stu-

dents once more, and, after a period of absence varying from a few months to years, intending to return to their native land, bringing with them the most advanced knowledge for the benefit of their country. As a Canadian I felt rather proud to find a young fellow-countryman from Montreal on his way to Oxford, where he was taking an undergraduate course in arts, and acting as organist to the college of which he was a student. He won the Organist's scholarship (£100 per annum) against all competitors, English and others. All honour to him and to Canada. Such things do us great service abroad, and we need something to bring us out into a stronger light before the English, very much—very much.

But, Sammy, I must not, knowing the interest you take in the fair sex generally, fail to make mention of a young lady from Nova Scotia, going to England all alone. She looked the picture of health, self-reliance and hopefulness; and no matter what the weather, she might for hours each day be seen promenading the deck with her long, decided step; and if more of the ladies had resolutely followed her example they would have suffered less from sea-sickness.

Ah! I fancy I hear you muttering something to yourself, perhaps chuckling and 'guessing' like a Yankee, that Tommy "had a weakness somewhere about his heart," as you used to say. Nothing of the sort. No; upon my honour, sir, nothing of the sort.

No, I walked the deck, too, but somehow she would scarcely so much as favour me with a side glance of her independent optics. I tell you what, Sammy, I believe she was going to rejoin a lover in the old land somewhere; so you had better just take what I say on its merits from an unprejudiced observer.

You have asked me several times about the weather we had, and of sea-

sickness. The weather was so fine that even the old skipper could scarcely remember a finer voyage, and I was sorely disappointed on not being favoured with seeing even a small storm or "a blow." But as to the sea being ever "as smooth as glass," don't believe a word of it! It looks at times smooth on the surface, but there is always a swell, and I have noticed that this swell, even when the sailors say the sea is perfectly calm, is sufficient to turn some stomachs sick. Of sea-sickness, as I had more than enough on the return passage, I will tell you more in detail again. But of one incident which rather amused me you must hear. A thin, delicate-looking American gentleman, beyond middle age, came up to me on deck the second day we were out, and a dialogue about as follows passed:—"Good-morning." "Good-morning." "A fine morning." "It is very fine." "Have you ever been at sea before?" "No, I have not." "Do you expect to be sea-sick?" "Well, I hope not." After giving me a most doleful account of a trip he had across the Atlantic in a French ship when he was sea-sick, as he thought, almost "unto death," he wound up by assuring me that I would suffer severely, as I "resembled him in complexion." Sam-

my, just imagine my indignation! In the first place, compared to a whitish-yellow, washed-out, nervous, dyspeptic, faint-hearted Yankee; I, a youthful and wiry, if not actually robust Canadian. And then, how kind of him to thus comfort me in advance!

But I was avenged upon mine adversary. He was so sick nearly all the voyage that it was only towards its end that he could make an appearance on deck. I had felt the sea air chilling and unpleasant, but had been positively ill only for an hour or two. The poor little fellow at last came on deck looking white, melancholy and miserable, with but little of his face emerging from a shawl in which his neck and head were enveloped, and in a voice equally below standard inquired after my condition. Well, Sammy, Satan tempted me to glory over the poor Yankee, but I resisted, and my sympathy for his misery gained the victory. But if he had been on board on the return voyage we might have shaken hands in wretchedness. But of this again. I leave you now, to learn what you have to say to all this, and when you next hear from me you will get my impression of Old England upon landing.

Yours, in Canadian feeling,

TOMMY.

OVERWORKING THE UNDEVELOPED BRAIN—The excessive use of an immature organ arrests its development by diverting the energy which should be appropriated to its growth, and consuming it in work. What happens to horses, when allowed to run races too early, happens to boys and girls who are overworked at school. The competitive system as applied to youths has produced a most ruinous effect on the mental constitution which this generation has to hand down to the next, and particularly the next-but-one ensuing. School work should be purely and exclusively directed to development. "Cramming" the young for examination purposes is like compelling an infant in arms to sit up before the muscles of its back are strong

enough to support it in the upright position, or to sustain the weight of its body on its legs by standing while as yet the limbs are unable to bear the burden imposed on them. A crooked spine or weak or contorted legs is the inevitable penalty of such folly. Another blunder is committed when one of the organs of the body—to wit, the brain—is worked at the expense of the other parts of the organism, in face of the fact that the measure of general health is proportioned to the integrity of development, and the functional activity of the body as a whole in the harmony of its component systems. No one organ can be developed at the expense of the rest without a corresponding weakening of the whole.—*Lancet*.

A BOY'S BOOKS, THEN AND NOW—1818, 1881.—V.

BY HENRY SCADDING, D.D., TORONTO.

(Continued from page 387, Vol. III.)

PHÆDRUS, PUBLIUS SYRUS, ETC.

ANOTHER *vade-mecum* of practical wisdom and morals for the Eton school-boy was the "Phædrus" used in the junior forms. My copy bears the late date of 1824, but it represents much earlier impressions of the same book. It is stated in the title-page to be *editio altera, castigata, et prioribus correctior*. The peculiarity of this Eton "Phædrus" is that it has a proverbial heading prefixed to each fable, indicative of the drift of the coming story; and these headings are collected together at the beginning of the volume as a set of mottoes, with a free English rendering of each, generally in the form of a familiar proverb. We have thus placed before us a bouquet of popular aphorisms such as would have been satisfactory to "Sancho Panza" or John Bunyan, and which, I doubt not, have often been selected from by the Eton tyro for the enrichment of a "theme." "Save a thief from the gallows and he'll cut your throat" heads fable 8, book i., "The Wolf and the Crane," as the translation of "Malos tueri, haud tutum." "Brag is a good dog, but Holdfast is better" heads fable 21, book iv. "The Mountain in Labour," as the translation of "Magna ne jactes, sed præsta," etc., etc. In my other old copy of "Phædrus," Amsterdam, 1667, with a quaint copperplate illustration to each fable, the Eton headings do not occur. Johannes Laurentius, the editor, is content with the "moral"

prefixed or appended to each fable in the original. He has, however, with his notes and observations, contrived to expand "Phædrus" into an octavo of 462 pages, plus 200 pages of index-matter.

Following the fables in the Eton "Phædrus" are to be seen the notable "Sententiæ" of Publius Syrus. These consist of a selection of Gnostic lines, chiefly in Senarian iambic verse, taken from the common-place book of a famous satirical mimic or improvisatore at Rome, *temp.* Julius Cæsar—Publius Syrus. They are alphabetically arranged in groups, the lines in each group beginning with the same letter, like the sections of the 119th Psalm in the Hebrew. They contain shrewd reflections on the various relations and situations and experiences in human life. Strangely, in modern times with us English, the interest in Publius Syrus is chiefly, if not wholly, maintained by the quotation from his "Sentences" to be seen on the title-page of each volume of the *Edinburgh Review*. It is found in the "I" or "J" group: "Judex damnatur, cum nocens absolvitur." Sydney Smith informs us that he had ventured to suggest an excerpt from Virgil instead: "Tenui musam meditatur avena"—We cultivate literature on a little oatmeal; but this was too near the truth to be admitted, he says of himself and his friends Brougham and Jeffrey, at the moment when, in 1802, in the ninth flat of Buccleuch Place, Edinburgh, they were concocting their

scheme of a new periodical: "So we took our present grave motto from Publius Syrus, of whom," he remarks, "none of us, I am sure, had read a single line." It is probable, however, that the "Sententiæ" of Publius Syrus were as well known at Winchester, where Sydney Smith had been trained, as they were at Eton.

It may be added that although the "Sententiæ" of Publius Syrus are generally unknown to moderns, many of them have virtually become familiar through other channels. Thus, his caution, "Laus nova nisi oritur, etiam vetus amittitur," is transmitted to us in Shakspeare's "Perseverance, dear my lord, keeps honour bright: to have done, is to hang quite out of fashion, like a rusty mail in monumental mockery;" his maxim, "Diu apparandum est bellum, ut vincas celerius" is embodied in *dicta* of Napoleon and Wellington to the same effect; his doctrine, "Discipulus est prioris posterior dies" is heard in Tennyson's "I, the heir of all the ages," etc.

According to the old "Consuetudinarium," or Custom-book, well known at Eton, dating back to 1560, a collection of apophthegms by Sir Thomas More, and the "Introductio ad Veram Sapientiam" of Ludovicus Vives, were read as lesson-books there, in addition to the "Distichs" of Dionysius Cato, of which we have now doubtless heard enough. I content myself with a brief sample of Vives, who was a Spaniard, at one time preceptor to the Princess Mary, afterwards Queen, taken from my little copy of the "Introductio," which, by the way, was once the property of Basil Montagu, the editor of "Bacon," and contains his autograph. "Gloria crocodilus," Vives says: *i.e.*, Fame is like a crocodile. He then tells the reader why, thus: "Crocodilus animal est in Nilo, cujus hanc ferunt naturam, ut persequentes fugiat, fugientes persequatur. Sic gloria quærentes fugit,

negligentes sequitur." I have no example of the manuals in use at Eton during the provostship of Sir Henry Wotton (1624), but I do not doubt he took care that they should be pregnant with wit and wisdom, as well as replete with rules for good latinity. Isaac Walton tells us in his life of Sir Henry, that when surrounded by his pupils, "he would often make choyce of observations out of the historians and poets;" and that he never departed out of the school "without dropping some choyce Greek or Latin apophthegme or sentence, such as were worthy of a room in the memory of a growing scholar." It was this Sir Henry Wotton who once humorously defined ambassadors (he had himself been one from England to the Venetian Republic) as persons "whose duty it was to lie abroad for the benefit of their masters at home," playing on the double sense of the English word *lie*, a jest which brought him into some trouble. Sir Henry Wotton so prided himself on having formulated the dictum, "Disputandi pruritus fit Ecclesiarum scabies," that he ordered it to be inscribed on his tomb. I shew an old copy of Sir Henry's remains, "Reliquæ Wottonianæ." It is to be regretted that the essay in it, entitled "A Philosophicall Surveigh of Education, or Moral Architecture," proves to be only a fragment of an intended work. Posterity would have been gratified had a complete treatise come down to it from Sir Henry Wotton justifying the above title.

Bound up with my Eton "Phædrus" is the twelfth edition (1819) of "Morgan's Grammaticæ Questiones, adapted to the Eton Latin Grammar," "humbly offered to the Public as being the most effectual way of laying a sound Classical Foundation; and obviating the many inconveniences arising from a superficial knowledge of Grammar." The book is humbly offered; but Mr. Mor-

gan had grand ideas. The Preface is in the customary exaggerated strain of which specimens have been given before, characteristic of the pre-scientific period in England. It pronounces a "Classical Education," *i.e.*, faultless drill in the Eton Latin Grammar, to be, "next to the duties of Religion, one of the most important objects in human life, particularly to those who are expected to fill the higher ranks of society." Hence Mr. Morgan presumes "any work which may contribute even in a subordinate degree to so important and laudable a design, will meet with a favourable reception from every description of men—of those who are sensible of the blessings of a liberal education as well as those who are unhappily conscious of the want of it." His plan is simply to break up the whole of the Eton Latin Grammar into short questions and answers, which he does quite lucidly, just as we might suppose any sensible teacher would do of his own accord, without requiring any suggestions *ab extra*. "This method," the writer observes, "obliges children to use their reasoning powers, and leads them pleasantly on to the pursuit of real fundamental knowledge, instead of labouring merely at the repetition of rules and scientific terms whose meaning and application they must, without such a method, long continue ignorant of." For it is known, he had previously observed that "the generality of boys not only learn the grammar by rote, but learn even to apply the rules mechanically, without descending into the meaning and intent of them." His style of questioning is very mild: "Say the present tense of *volo* with its English. Has it any gerunds? Say them. How do verbs in *lo* form the preterperfect tense? Are there not some exceptions?" etc. He grants that there are slips in the text-book on which he is engaged, but he adds: "The reader's own observa-

tion will supply every defect in the *As in præsentî*, which with all its imperfections must be allowed to be a very ingenious performance." Mr. Morgan magnified his office and worked at his specialty to some purpose, as we may gather from the appendages to his name on his title-page: "Fellow of King's College, Cambridge; Prebendary of Wells; Rector of Dean, Northamptonshire, and of Charlcomb, Somersetshire; and Master of the Grammar School in the city of Bath." Another little school manual is bound up with my "Phædrus," "The Book of Cautions for Rendering English into Latin." This is without date; but I have another copy of the same work, separate, dated 1792, and printed by T. Pote. One more elementary Eton book of great repute, allied in subject to those just noticed, I am bound not to omit, having retained a copy, and this is "Willymott's Peculiar Use and Signification of Certain Words in the Latin Tongue," printed by T. Pote, Eton, 1790, and then in the eighth edition. This is a useful alphabetical list of Latin words, with observations in English on each, wherein their elegant and commonly unobserved sense is fully and distinctly explained." The author, William Willymott, D.D., was also, like Mr. Morgan, a "Fellow of King's College in Cambridge." This King's College, Cambridge, founded in 1441 by Henry VI. of England, is a splendid preserve, existing for the special and exclusive benefit of well-drilled youths coming from Eton. Up to 1851, the students of this College were, by charter, exempted from the usual public exercises in the "Schools" of the University, and were not in any way examined for their Bachelor of Arts' degree. It could not be otherwise but that the "men" of the sixteen other colleges in the University should sometimes gaze with envious eye on the "men" of King's, especially, for

examples, when seen occupying their "stalls" of a Sunday, along the two sides of their magnificent chapel, unique in Europe for its beauty, a miracle of architecture, three hundred and sixteen feet in length and eighty-four in width. In 1851, however, King's College magnanimously surrendered its exclusive privileges; and now the *étèves* of that society go into the general examinations and take their chance with the rest of the students of Cambridge.

I find by the side of Willymott's book one similar, but superior to it, dated 1753, on the "Westminster Latin Grammar," by Charles Davies, B.A., "for the use of those schools (publick and private) where that Grammar is taught, particularly of the Lower Forms of Westminster School; and for the Ease and Benefit of Master and Scholar." I notice this manual for the sake of the Dedication prefixed to it. The Earl of Orrery, the patron addressed therein, is curiously told that the work is inscribed to him because the writer had observed in one of his Lordship's "most excellent Letters of Remarks upon the Life and Writings of the inimitable Dr. Swift, that he heartily wished his son, Mr. Hamilton Boyle, would think an attention to his native language as useful and improving a study as any that can be pursued." Therefore Mr. Davies presents a catechism on Latin Grammar, designed, he asserts, "for the benefit of the youth of the English nation in general, and, could he presume to say so, for the Royal Youths at the head of them, in particular." The dedication then proceeds and concludes in courtly strain thus: "To offer anything relating to Grammar to your Lordship, who shines so conspicuously in the higher orbs of Learning, will, I fear, be looked upon as quite out of character; but as Grammar is the foundation of all Learning, I hope that cir-

cumstance will, in some measure, plead my excuse for giving your Lordship this trouble. Besides, under favour, where shall an attempt for making Learning more easy and useful, hope for patronage but amongst the Learned; and where amongst the Learned, if not in an ORRERY?" In the Preface again the assertion is repeated that Latin Grammar is "the foundation of speaking, reading, writing, and conversing in the English tongue"—another instance of the overweening self-complacency of the Grammar schoolmaster of the period in regard to the one subject embraced in his curriculum.

CORDERIUS, ETC.

The aim of the old teachers of Latin was the familiar colloquial employment of that language by the young; and the desired result was, I suppose, actually attained in some schools aforesaid in Scotland, England and Ireland. But as the utter uselessness of the accomplishment when secured, except as a mere amusement, was manifest in the vast majority of cases, the effort in this direction was more and more relaxed, and the attention of teachers for the most part became confined simply to the production of facility in the employment of grammatical forms. In numerous schools on the continent of Europe the practice of speaking Latin after a fashion is still maintained. The famous Colloquies of Corderius, familiar to everyone, at least by name, were constructed for the purpose of cultivating the common use of Latin. They consist of dialogues supposed to be carried on between lads at school; sometimes between a master and his scholars. The talk turns, of course, on ordinary school matters, and occasionally on domestic arrangements; and we get in them momentary glimpses of contemporary home life in France. Corderius is

the Latinized form of the French proper name Cordier. His name in full, unlatinized, was Mathurin Cordier. He lived from 1479 to 1564. He was once employed as an instructor in the College de la Marche, at Paris, and one of his pupils there was no less a personage than John Calvin, who afterwards sought to express his sense of gratitude to his former teacher by dedicating to him, in dignified Latin, his Commentary on the two Epistles to the Thessalonians. I remember well being drilled in Corderius by Mr. Armour, in the Home District Grammar School here in Toronto, many years ago; and of all our manuals, it was the first, I think, to awaken in one's childish mind some actual interest in the Latin language.

The interlocutors in the Colloquies bear such names as Durandus, Genasius, Sandrotus, Orosius, Soterius, Myconius, Clemens, Felix, Audax, etc. Corderius translated into French the Moral Distichs of Cato: "Les Distiques Latins qu'on attribue à Caton." In the Colloquies, accordingly, we have repeated allusions to Cato, meaning Dionysius Cato. Thus, in a dialogue between Arnoldus and Besonius, one asks the other: "Quid est stultitia?" and the other replies: "Si Catonem diligenter evolvas, invenies istud quod quæris." In another between Velusatus and Stephanus, we have Stephanus saying: "Anno superiori, in Catone didici: Retine spem; spes una non relinquet hominem morte;" and Velusatus replying: "Fecisti bene quod retinueris, nam egregia est sententia, et digna homine Christiano." In another dialogue one remarks: "Non est serviendum voluptati, sed consulendum est valetudini;" and the other answers: "Memini carmen Catonis in eam sententiam." In one colloquy between Paulus and Timotheus, a contest is proposed, to recite responsively all the lines con-

tained in a book of Cato, somewhat after the fashion of rival shepherds in a pastoral of Virgil. An umpire, named Solomon, is chosen to judge between them. "Quid estis dicturi?" Solomon inquires. "Tertium librum Moralium Distichorum," Timotheus replies. Solomon rejoins: "Nonne dicctis alterni?" and T. answers, "Scilicet: uterque suum distichum. Incipiamne?" asks T., to which the reply from P. is: "Æquum est, quia tu revocatus à me."

I seem to have preserved two copies of "Corderius:" one, the edition of Samuel Loggon, dated in 1830, but then issued for the twenty-first time; the other, that of John Clarke, dated 1818, but first published some years previously. Loggon sets forth on his title-page that his edition is "better adapted to the capacities of youth, and fitter for beginners in the Latin tongue than any edition of the 'Colloquies,' or any other book yet published." The method in Clarke's book is to place a rather free translation in a column by the side of the text in each page. To this Loggon objects that "as the Latin and English are both in one page, I think they (that is, Clarke's books generally, for he had published 'Suetonius' and other authors in a similar way) are not proper for schools; nay, almost as improper as if published with interlinear versions, which method of printing books for schools Mr. Clarke himself objects against. Where the English and Latin are both on the same page (one remarks, whom Loggon quotes), it cannot be well known whether the scholar has been diligent in getting his lesson, or has been idle, the English construing being before his eyes while he is saying the lesson to the master. To which I shall add (Loggon himself with considerable *naïveté* observes) that my experience shews us that little boys have artful cunning enough

to cheat themselves and their master, when they have so fair an opportunity to do it." From Clarke's preface I extract a passage or two with which no one can help sympathizing, though happily not so applicable to schools in our day as they were in 1818, the date of the "Corderius" before us: "The little progress made in our schools," says Mr. Clarke in 1818, or earlier, "the first four or five years which boys spend there, is really amazing, and would naturally tempt a person of any reflection to suspect there must be some very great flaw, some notorious mismanagement, in the common method of proceeding. How else comes it to pass that the French tongue is attained to a good degree of perfection in half the time which is spent in the Latin tongue to no manner of purpose? . . . A boy shall be brought in two years to read and speak the French well; whereas, in double time or more, spent at a Grammar School, he shall be so far from talking and writing Latin, that he shall not be able to read half-a-dozen lines in the easiest classic author you can put into his hands. . . . I know not how it is," proceeds Mr. Clarke; "we have blundered on in such a way of teaching the Latin tongue, as proves a very great misfortune to all boys, on account of that prodigious loss of time it occasions, but especially to such as are not designed for the University, and therefore cannot stay long enough at school to attain to the reading of a Latin author, in that tedious, lingering way of proceeding observed in our schools. The six or seven years they frequently spend there is time absolutely thrown away, since almost double the space is necessary for the attainment in the common method of proceeding." The orthodox Grammar School Master will of course stand aghast, or profess to do so, at the remedy which Mr. Clarke pro-

poses for the evils complained of, although, I fancy, students very generally take the law into their own hands and have recourse to it: as witness the success of Bohn's Classical Library and numerous respectable publications of the same class. "Translations, therefore," Mr. Clarke finally exclaims, "translations, I say, as literal as possible (and presented as in his "Corderius" or "Suetonius," on each page side by side with the text), are absolutely and indispensably necessary in our schools for the ease both of master and scholar, and the speedy progress of the latter in his business; for while the boys have their words all ready at hand, and can, with a cast of their eye, set themselves a-going when they are at a stop, they will proceed with ease and delight, and make a much quicker progress than they would otherwise do." He then proceeds to cite John Locke as agreeing with his views in this regard; "who was a gentleman," he says, "of too much sagacity not to take notice of this defect in the vulgar method." I have another specimen of Mr. Clarke's labours—his "Lives of the First Twelve Cæsars," by Suetonius, an interesting book intended for maturer minds than those which would be attracted by his "Corderius." My copy of Locke's "Thoughts Concerning Education," dated 1806, has a beautiful frontispiece by Uwins, shewing a mother instructing a child, possibly in Latin, in accordance with an idea thrown out by Locke at page 212, where he says: "Whatever stir there is made about getting of Latin as the great and difficult business, a child's mother may teach it him herself, if she will but spend two or three-hours in a day with him, and make him read the Evangelists in Latin to her; for she need but buy a Latin Testament, and having got somebody to mark the last syllable but one where

it is long, in words above two syllables (which is enough to regulate her pronunciation and accenting the words), read daily in the Gospels; and then let her avoid understanding them in Latin if she can. And when she understands the Evangelists in Latin, let her in the same manner read 'Æsop's Fables,'" Locke directs, "and so proceed on to 'Eutropius,' 'Justin,' and other such books." And then, to shew that he is not proposing anything Quixotic or Utopian, he adds: "I do not mention this as an imagination of what I fancy a mother may do, but as of a thing I have known done, and the Latin tongue got with ease this way." Of course, in what is said both by Locke and Clarke, the intention simply is that everything should be done to prevent disgust with a difficult subject at the outset—that beginners should have every help afforded them—and so the time will be likely all the more speedily to arrive when a real taste and fondness for the study will develop itself and conduct to a life-long appreciation and enjoyment of it. It is curious to note that neither to Locke nor Clarke did the previous question as to the essentiality of initiating every English lad in the Latin language suggest itself, so paramount was the prevailing scholastic tradition on this head.

But to return to "Corderius." Before parting with him I desire to record here a portion of Calvin's dedication, still to be seen at the opening of his "Commentary on the Epistles to the Thessalonians." It is ad-

dressed to "Maturinus Corderius, a man of eminent piety and learning. Principal of the College of Lausanne;" and the exordium reads as follows, shorn, however, of its grace by being translated from its original Latin: "It is befitting that you should come in for a share in my labours, inasmuch as, under your auspices, having entered on a course of study, I made proficiency at least so far as to be prepared to profit in some degree the Church of God. When my father," Calvin continues, "sent me, while yet a boy, to Paris, after I had simply tasted the first elements of the Latin tongue, Providence so ordered it that I had for a short time the privilege of having you as my instructor, that I might be taught by you the true method of learning, in such a way that I might be prepared afterwards to make somewhat better proficiency. . . . And it is with good reason that I acknowledge myself indebted to you for such progress as has since been made. And this I was desirous to testify to posterity, that if any advantage that shall accrue to them from my writings, they shall know that it has in some degree originated with you."

With this tribute of John Calvin to his old tutor Corderius, we may compare St. Jerome's grateful expressions in regard to his early instructor Donatus, author of the famous Treatise on the Eight Parts of Speech; and Bishop Andrewes' recollection of his former master, Richard Mulcaster, whose portrait the Bishop kept ever hanging before him in his study.

THEY have 10,261 school savings banks in France, with 213,135 depositors involving an amount not less than \$849,322. The same system has also been introduced into Belgium, Holland, Italy, Switzerland, Germany, and

other European countries, the idea being to teach children useful lessons of economy. In France, the teacher of the school receives the contributions of a pupil until they amount to a franc, when they are deposited.

WORDS—THEIR ABUSES, USES AND BEAUTIES.*

BY A. H. MORRISON, GALT.

I DO not think it necessary to offer any excuse for having chosen a theme which, although not admitting, perhaps, of that visual illustration nowadays deemed so essential to the proper elucidation of subjects discussed at the orthodox Convention, yet, considered as an educational lever, a powerful means to attain a very desirable end—to wit, culture—is a matter of deep interest, indeed of vital importance, to us all. I allude to the Study of Words.

I am one of those who fancy that something more than the prosy, mechanical commonplaces of everyday school tuition is necessary to develop aright the mental organism of the modern pedagogue; that something of refinement, of classic English training, and that too of a high order, is essential to the moulding of the intellectual personality of the teacher of the nineteenth century, be he professor on the University staff, director or tutor in the flourishing Institute, or mere educational drudge in the meanest log school-house of the backwoods. Such an one has not only to train minds mathematically, scientifically and morally—he has to foster and perfect literary taste; and as nothing is the natural outcome of nothing, if he, the caterer to the mind, has no full mental literary store-house of his own from which to furnish provender, how shall he feed the hungry souls who look to him for aid in the famine of their intellects?

Now, I have a sufficiently high

opinion both of the professional taste and mental capacity of that industrious and meritorious individual, my fellow-labourer in the vineyard of common school tuition, to conscientiously believe that he will fully appreciate any and every endeavour made—even though for once out of the beaten path of conventional orthodoxy—to awaken his interest, to enlighten his understanding, and to administer to those higher faculties of thought and that innate appreciation of the beautiful which are parts, so to speak, of every rightly-constituted mental habit. Need I ask what subject can be more fraught with interest to the student or the preceptor than the all-important one of language—that great vehicle of thought in all lands, and throughout all ages; and in the consideration of language, what of greater moment than the study of words, the verbal atoms out of which the mosaic of speech is constructed—their abuses, their uses and their beauties? Their abuses, under which heading may be classed errors arising from indistinctness of articulation, provincialisms, slang, and expressions absolutely incorrect as to orthography, orthoepy, or syntax—which latter are not the result of carelessness or local custom, but of bad training, or want of training altogether. Their uses, considered separately as symbols or verbal pictures, whose meanings are often intimately connected with their sounds. Their beauties when grouped, as exemplified in those happy combinations which are the product of the genius, the patience and the research of the master intel-

* A Paper read at Berlin before the Waterloo County Teachers' Association.

lects of many epochs, and of divers nations.

I am not, however, going to inflict upon you any very learned disquisition regarding the topic in question. In the first place, time would hardly permit of such treatment; and secondly, I have not come here prepared to tender you an elaborate and exhaustive treatise on philology. I will merely present for your consideration a few fugitive thoughts on words and word-using, which I have endeavoured to collate and so arrange that they may be rendered in some way worthy of your attention, and not altogether unworthy of the great theme which first inspired them.

Words are the material with which we, the artisans of mind, embody our conceptions, illustrate our theories, or convey our instructions; they are the bricks with which we build the edifice of our conversations in oral tuition, or construct the fabric of our written composition, substantiating our ideas, and thus rendering them patent to the discerning faculties of our fellows. And as the expert workman in clay uses none but the purest forms of earth, etc., wherewith to perpetuate the fruits of his skill, and at the same time satisfy the claims of his employers, so we, the mechanics of the school-room, as moulders, not only of intelligent thought, but also of coherent speech, owe it to our employers, the pupils under tuition, to utilize none but the fittest and most apt expressions which a large and sufficiently varied vocabulary places at our disposal. More than this—we are not only bound to *use* none but the very best materials, we are, as progressive intelligences and educators, under the intellectual and moral obligation to *discard* much of the impure, inelegant and even vicious verbiage now obtaining in all classes of society, which passes with the masses as genuine Sèvres ware, but which is, after all,

but poor dross, adulterated in texture, and inartistic in design, and totally unfitted for the high offices it is, alas! too frequently chosen to perform.

What are words? *Literally* they are merely expressions of thought conveyed by sound to the ear through the medium of the organs of speech, or by sight to the eye through the instrumentality of the human hand or printing press—the links, in fact, spoken or written, out of which is forged the chain of intelligible speech. *Figuratively* they are pictures, vivid, artistic representations of mental conceptions or tangible objects, not limned by apprentice hands through the agency of blind chance or fortuitous circumstance, but indelibly stamped by the magic die of genius, of wit, of inspired fancy, or of erudite scholarship, on the surface of all time for the edification of all succeeding generations; or again, we may liken them to flowers, not poor weeds, taken haphazard from the wayside ditch, or dusty margin of some desert waste, but choice blossoms, carefully culled and garnered from the most favoured pastures in the fertile domains of philological research.

We are wont to talk of the hero's sword; but what a weapon does he wield who, armed with the pen and versed in all the niceties of his mother tongue, goes forth into the world of letters to wage warfare at that pen's point, to subdue new kingdoms of the mind, to bring under subjection new empires of thought, and put to utter and ignoble rout the brutish legions of intellectual apathy, prejudice, and incredulity. And as the reward of his successful enterprise, the literary victor beholds at last nations paying him homage, having in very truth wrung, from civilized humanity at large, tribute which at the outset is oftentimes so grudgingly afforded, and the final acquisition of which is the best and surest germond of success in letters.

If the youth starting in life, let us suppose, as a member of the teaching profession, knew at the outset what a mine of exhaustless riches lay within comparatively easy reach, what a very Golconda of intellectual wealth was to be had for the seeking, surely he would put forth some effort to make this wealth his own—for all the incalculable treasure stowed away in language may be acquired by him who diligently seeks it. True, by so doing, he may not attain to universal homage; he may neither ripen into a Shakespeare nor a Macaulay; but I do say, that every painstaking, conscientious student may garner from the fields of literature such sheaves of wisdom as will amply repay him for his outlay of toil, place him on a level with the leading minds of the age, and make him something more than a mere perambulating mathematical formula. Besides being enabled to do much good, and confer much pleasure on his generation here below, he will have laid up for himself a heritage of beauty, which may not indeed be appreciated by the educational powers that be, but will, I firmly believe, bear rich fruitage hereafter in a more congenial sphere, where mental capacity will not alone be gauged by the charlatan-like ability to unravel the intricacies of an incomprehensible equation, nor will intellects be measured solely by the automatic capability of appreciating the astounding relations existing between an involved problem and its inexplicable solution. One may endeavour to convince us that the true secret of success in life is to be found in the function of an algebraic expression, but history gives him the lie. Another may strive to make us believe that renown can only be acquired by a formula, but poetry whispers it is false.

Professor X. may frantically declaim upon the *all importance* of correct

mathematical instruction, but art criticism echoes, "I never made a point by my mathematical knowledge." Dominic Y., because he hasn't a soul above an indeterminate, may whine about the development of the intellect through mathematical agency alone, and yet the world of letters sneers "Tush!" All that is most beautiful in language that has been written, or said, or sung by the humble and illiterate, by the lofty and the enlightened, from the "God said, let there be light, and there was light," of Genesis, to the poetry of Tennyson and the prose of Carlyle, has been formed irrespective of mathematical agency of words—words without figures, words without symbols, words without involved processes—not a formula employed but the great truism of thought, not a contrivance adopted but the spontaneous utterance of native genius, or the intelligent outpouring of cultivated mind. The study of mathematics is good, as all study is good in its place; but to set the golden calf of mathematics upon a pedestal of isolated perfection in our curriculum of education, to the exclusion of everything else that is noble and worthy of acquirement, and then to fall down and worship it, perpetually reiterating, "These be thy gods, oh! Canadian instructors of youth, which will bring thee up to a first-class certificate," is an idolatrous bigotry which should be denounced, and a sin against common sense which should be derided. It is not given to all to excel in every branch of educational attainment; and if the world has seen one Admirable Crichton matured, alas! how many failures has it witnessed! I believe it was the poet Gray who detested mathematics, but the author of the incomparable "Elegy" could well afford to detest that which had so little to do with the establishment of his undying renown. Do not misunderstand me. I have no

wish to undervalue mathematical attainment; it is worthy of all admiration and all praise—in its place. If our literature has a Milton, we must not forget that our philosophy owns a Newton. But there are offices in life, even scholastic life, which can be well filled without a very recondite knowledge of mathematics; and very many clever men have lived and attained to enviable distinction—aye, even as teachers—without having formed an acquaintanceship with Grove's Algebra.

And now to resume our subject proper:—First, as to the abuse of words. That words are abused in various ways is a fact, I think, patent to all. Are there any here present who doubt the assertion? Let me call up to your memories some such expressions as the following:—*Ringin'* and *singin'*, for *ringing* and *singing*; *strenth*, for *strength*; *slow ork*, for *slow work*; *présent ime*, for *présent time*; on the *cole ground*, for *cold ground*; the water became a *nice drop*, for *ice drop*; *goodness enters* in the heart, for *goodness centres*; we will *pay no one*, for *pain no one*; *he went owards am*, for *he went towards Sam*. Have you never heard a dear friend expatiate on the *art o' singing*, instead of the *art of singing*; or speak of Darby *an'* Joan, instead of Darby *and* Joan? I fancy such improprieties have come under the cognizance of all or most of us; hence our first abuse of words—indistinctness of articulation arising from carelessness or evil habit.

Secondly, you have all probably had the opportunity of listening to provincialisms—that is to say, modes of expression peculiar to a certain province or district or class of people, which sound peculiar—not to use a harsher term—to the educated ear. I have myself heard very lately such a barbarism as "it is do it," and its negative equivalent "it isn't do it." What the true translation may be, deponent

sheweth not. Long time have I puzzled over the enigma, but the Sphinx has been hitherto inexorable, and I am despondent. The "childer," for "children," is a mode of phraseology often heard in the Lancashire districts of the Old Country, sanctioned, too, to some extent, by old custom and grammar, but, nevertheless, conveying an unusual sound to the more modernized ear. "The 'orn of the 'unter is 'eard on the 'ill," I need hardly remind my hearers, is eloquent of Coccagne, as is also the following tit-bit: "Hanne went hall the way for a happle;" "I beant goin'," for "I am not going;" "here's summat fur yer," instead of "here's something for you;" "fotch in" or "kotch in," for "fetch in;" "critters," for "creatures" or "kine," are other forms of provincial dialect. "I guess," for "I fancy" or "think," is American; "she," used frequently for "he," is Scotch. I deem these examples sufficient to illustrate what I think may fairly be termed an abuse of pure English idiom, viz., provincialism.

Thirdly, slang verbiage and Americanisms have, I am sorry to say, been sown broadcast over this fair Canada of ours. For instance, we do not at all times run, we sometimes *skoot*; we cannot always be said to progress rapidly, we oftentimes *skedaddle*; on some by no means rare occasions the human form divine has been known to *absquatulate*, to *vamosé the ranche*, to *up and cut stick*, to *git*, to *dig*, and to perform other astonishing eccentricities of movement—poetic conceptions enough of abnormal speed, and no less picturesquely and graphically depicted to the appreciative eye and ear of young America. Nowadays we speak of a "dodge," instead of a "trick;" girls of the nineteenth century are "awful jolly," instead of being "very nice" or "remarkably agreeable," as of course they are; the "governor" or the "old man" or the "boss" takes the place of time-hon-

oured "father;" the "mater," or the "old woman," occupies the opposite chimney corner. When we fail at examinations, we, like other geese, get "plucked;" a bold man is a "plucky fellow," and one whose meanness is more potent than his noble virtues is estimated "a fraud;" "ain't" for "is not," "warn't" for "was not," are expressions which I deem should be ranked under the head of slang. Such improprieties as "this is immense," "how is that for high?" are to be condemned. Though their use is sanctioned by the example of some reputable writers and speakers, such misuse of language must be deprecated. "Slang," says Abbott, "is intended to save the necessity of thinking; the offshoot of laziness more frequently than of actual ignorance."

Fourthly, our ears are too frequently assailed and offended by sounds, and combinations of sounds, which are neither the result of indistinctness of articulation, nor are they provincial peculiarities, nor yet can they be considered, strictly speaking, slang; they represent words and assemblages of words which are radically wrong as regards pronunciation or construction, or both; they are not by any means the product of wilful negligence or of local custom, but of what should be considered very blamable ignorance in this generation of culture and pronouncing dictionaries. I shall merely instance the following, which I have culled from a stock whose name is legion: "Rout" for "route," "tower" for "tour," "suit" for "suite," "stomp" for "stamp," "engine and Italian" for "engine and Italian," "kay" for "quay," "droring" for "drawing," "arethmetic" for "arithmetic," "substraction" for "subtraction," "aught" for "nought," "Arctic" for "Arctic," "Azia" for "Asia," "Roosia and Proosia" for "Russia and Prussia," "figur" for "figure," "introdoo, stoodent, soople, doo"

for "introduce, student, supple, dew," "exageration" for "exaggeration," "portrait" for "por'trait," "voyalent" for "violent," "brigand" for "brig'and," "coad'jutor" for "coadjutor," "wat and wich" for "what and which," etc., etc. With regard to sentences, we frequently hear the following queer verbal combinations:—"You must not *learn* him evil habits." "He *throwed* the ball high." "He had *came* home on purpose." "I *ain't* got no slate pencil." "He has *written* as well as you can." "Who *is* at the door? *Mc.*" "He *seen* his father yesterday." "She's *went* on the stage." "I did not say as some have *done.*" These examples are not creations of the fancy, they are studies taken from real life. Who has not heard one or more such barbarisms during social intercourse or in the performance of school-room duty?

I think I have now enumerated and illustrated the principal difficulties which confront at the outset the instructor in elementary language; the question arises: How is the evil—I regret to say a growing one—to be arrested? How is the disease—an infectious one—to be eradicated? By watchful care exercised not only over others, but over ourselves; incessant supervision; tireless, judicious correction; habit, *habit*, HABIT. Use is second nature, and unless there is some malformation of the vocal organs, some absolute defect in the pupil's mental condition, or ignorant, stubborn opposition on the part of the pupil or parent, constant exercise in right methods must eventually expel wrong ones, provided always right methods get a fair chance, and that the teacher's efforts are seconded by the scholar's exertions, and aided by rightly-directed home influence. Hear what Mr. Spurgeon says on this point; "Nature does sometimes overcome nature, but for the most part the teacher wins the day. Children are

what they are made ; the pity is that so many are spoiled in the bringing up." I may add that one difficulty—an almost insurmountable one—we have to encounter is this: the pupil is not sufficiently with us; he is not long enough under our direct influence; we can care for him for the five hours of the five days he is subject to our personal control, but who will cater for his hungry intellect during the many and long hours of the week when he is left to follow the promptings of his own sweet will, or not impossibly the still sweeter will of others, whose ideas of the appropriate and the beautiful, in conversation and in letters, may not possibly coincide with our own? It is a difficult task, I admit, which we have to perform, but we must, nevertheless, do our best, our little best, and by the blessing of the Almighty the mustard seed sown in faith will bud and blossom and bring forth fruit, towering, perchance, towards the heavens, so that the birds of truth and wisdom will come and nestle among its branches, and sing a jubilant song of earthly lessons learned, or warble notes of praise already fraught with the subtler, sublimer teachings of the hereafter.

Having reviewed some of the more palpable abuses to which words may be subjected, let us in the next place consider their uses, and also why certain words came to be used in preference to others. Hunter has defined a word to be "an arbitrary sign of some notion." The definition, to my

mind, is hardly a satisfactory one; it might lead the thoughtless to suppose that each separate word is chosen at haphazard from pure impulse, and that any other collection of letters representing an intelligible sound, would perform its office equally well. This conclusion would be unjust, and to a certain extent untrue. What I mean is this, that the above definition gives the superficial reader the idea that any letter or collection of letters representing an articulate sound, or combination of sounds, may be used to represent a notion without regard to any ulterior connection between the notion and those sounds, so long as a distinct sound is made to represent a distinct idea: that, for instance, there is no reason why cavalry should not be called infantry; a soldier, a sailor; light, darkness; a whip, a gun, etc. Now, this idea or belief would be *incorrect* in so far as, that many words are chosen to represent notions, not arbitrarily by any means, but because no other words could possibly be framed to convey the same ideas to the understanding so forcibly and truly; and *unjust*, because these same words are in reality beautiful pictures glowing with deep design, and conveying, when uttered, to the organs of sound as correct and appropriate notions of what they are intended to represent as does the artist's canvas portray to the organs of sight the outlines of tangible objects which an inspired pencil has traced.

(To be continued.)

THE USE AND ABUSE OF SLANG.

BY EDWARD L. CURRY, B.A., HEAD MASTER GRIMSBY HIGH SCHOOL.

THIS subject may appear at the first glance not a very reputable or dignified one, but I hope to shew that it is one of considerable importance to all who care for the purity of the English language, and that it lies at least

on the border-land of literature. To define slang would be no easy task; the term is indeed used rather loosely. Roughly, it may be said to comprise all those words and phrases employed in familiar conversation, but not re-

cognised in the standard literature of the country. We shall find it convenient, however, to include under the same name certain peculiarities to which there is a noticeable tendency, at least in the more ephemeral portion of modern literature.

Slang is no modern invention. In fact, it seems so natural an outcome of an artificial state of society that it is not surprising to find it of great antiquity. Accordingly we recognise it in the comedies of both Greek and Roman writers, not to mention more serious works.

The constituents of English slang are of a very heterogeneous nature. All the languages of the civilised world have been laid under contribution. Examples might be multiplied indefinitely. The classical origin of *mob*, *chum* and *gyp* is generally admitted. *Bosh* and *chouse* are Turkish; *mull* (to spoil), *bamboozle*, *pal*, and many other words, including *slang* itself, are Gipsy. The French argôt has furnished some of our slang, and so has the *Lingua Franca*, a dialect spoken in some of the Mediterranean ports. *Lark*, in the sense of sport, and *bone* (to steal) are Early English words; *duds*, *galore*, etc., are Gaelic; *vamoose*, Spanish. *Cant*, *fudge*, *burk*, and a few others, are derived from proper names.

Many curious derivations are given in the "Slang Dictionary," which has much interesting information on the subject. A number of words and phrases now discarded in literature can boast an irreproachable pedigree and history, having at one time been employed by the best authors. In Shakspeare, for instance, we have the following :

"*Ram* thou thy fruitful tidings in mine ears."—*Ant. and Cleo.*

"*Pitch* me in the mire."—*Tempest.*

"Roaming *clean* through the bonds of Asia."
—*Com. of Errors.*

"I cannot tell *what the dickens* his name is."
—*Merry Wives of Windsor.*

Many other examples suggest themselves, among which we may mention *flush* (that is, having plenty of money); *lift* and *prig*, both meaning to steal; *jolly*, *saucy*, *budge*, *dodge*, and *tyke*. All these words have lost caste since the time of Shakspeare.

A large class of words, such as *whiz*, *fizz*, *bang*, *crunch*, etc., are obviously imitative. Descriptive words of this kind have been sanctioned by many great authors from Homer downwards, and the use of them within reasonable limits adds force to a description either in conversation or writing. Besides peculiar words, slang comprises new applications of words, odd phrases, fanciful metaphors, unusual constructions, and countless strange tricks of language which cannot be classed under any head. Metaphors are drawn from all manner of professions and occupations: from the workshop, as, for example, the expressions '*a screw loose*,' and '*a close shave*;' from the billiard-table, as '*to put side on*;' the hunting-field, as '*to come a cropper*;' the card-table, as '*a regular trump*;' from nautical life, as '*to raise the wind*,' and '*the cut of his jib*.' I mention these only to point out from what diverse sources the materials of our slang have been collected.

Many words and phrases now familiarly employed were originally provincialisms. But of late years one of the most copious fountains of slang has been Young America. We are simply deluged by these efforts of our neighbours to improve upon the language of the mother-country. They vary from ingenious and expressive terms of language to phrases suggesting only the most vulgar ideas. They include a number of barbarisms, against which British taste has up to the present time taken its stand, and I sincerely hope it will be a long time before such words as *cablegram*, *walkist*, *swimmist* and the like become naturalized either in this country or in England.

The practical side of our subject lies in the consideration of how far the use of slang may be justified in conversation, and also in writing. It may perhaps be urged by some that since the object of speech is to express our thoughts to others, that form of words is the best which most fully and precisely conveys our meaning, whether it be sanctioned by general usage or not. But this broad view of the question is a very superficial one. Among people with any claim to culture, to give pleasure to the ear and mind of the hearer or reader often becomes an aim scarcely less important than to render our ideas with precision. So we see that it is impossible to lay down a clear rule on the point at issue. It is well to realise at the outset that the use of slang is absolutely universal. Those who would confront this assertion with an indignant denial are frequently among the most hardened offenders. We have the slang of the university, the school, the turf, the cricket-field, the street, the stage, the drawing-room; slang in trade, in art, at the bar, even in the pulpit. It cannot be denied that our slang comprises a large number of apt metaphors, happy similes, and successful strokes of "word painting," whose expressiveness is proved by their untranslatability into the English of the lexicographers. Some of the best slang expressions ultimately work their way into the recognised tongue. Words like *queer*, *cheat*, *bet*, *vagabond*, *filch*, etc., were once slang. Having "served their apprenticeship," as it has been termed, in that capacity, they have been promoted and duly authorised. Until civilisation comes to a standstill, it is impossible for language to become stationary. But the art of inventing or selecting really expressive slang is not possessed by everyone. Few can use it with the skill and effect of "Ingoldsby" or Tom Hood, and the majority of aspirants have

recourse to it merely for singularity to give a cheap semblance of humour to their talk, or to parade their familiarity with various phases of life and manners.

Any detailed consideration of the more open and obvious forms of the slang of the present day is unnecessary, but I shall specify certain peculiarities of speech to which there is a marked tendency, and which may reasonably be included under the head of slang in the wider sense in which we have used it. The needless use of technicalities is one of these tendencies. It is objectionable when new and uncouth words are thus thrust under our notice, but it is more objectionable when good old words are saddled with strange meanings. This is the sort of slang towards which our lawyers, politicians, and divines evince a leaning; it affords such facilities for those strokes of sophistry which logicians call "*Ignoratio Elenchi*" and "*Petitio Principii*," that it is of the greatest use to all whose position involves them in disputes and arguments. There are many words, such as *loyal*, *orthodox*, *constitutional*, *sensational*, *aesthetic*, which a plain man is now almost afraid or ashamed to use. Slang is in a sense the technical language of common life, but to intrude upon it the technical terms of lawyers and theologians is an unpardonable affront to slang itself.

Next we may notice the excessive use of pointless quotations or weak phraseology. To call a fire "the devouring element," or a dinner party "the festive board," or to describe a crowd as "a sea of faces," may have been brilliant ideas in the brain of the man who first used the expressions, but now they seem to be a *little* threadbare. The chief offenders in this way are those ingenious newspaper writers, generally called "penny-a-liners," and that well-known social monster the "comic man." It is true that the lat-

ter often modifies and embellishes the expression he quotes, but the alteration is not always for the better. He may, for instance, describe the conflagration we have referred to as "the devouring elephant," but this is a questionable improvement.

Unnecessary quotations from foreign tongues are another modern development of slang. There are persons who habitually interlard their conversation or writing with such expressions as *mauvaise honte*, *sang-froid*, etc., all of which have adequate equivalents in English, and some of which belong only to that dialect of French which Chaucer calls the "scole of Stratford atte Bowe." If the language which Shakspeare found sufficient does not satisfy these people, it must be because they are very imperfectly acquainted with it. This literary disease has been well burlesqued by Mark Twain in his "Tramp Abroad."

But perhaps the worst offence against good taste is the introduction of foreign idioms into the English language. When a man says "Cela va

sans dire" instead of "That's taken for granted," we think he wants to shew us his acquaintance with a few words of French; but when he says "That goes without saying," we can only conclude that he wants to display his French, but dare not trust himself to pronounce it. Still, such a man may deserve our pity; but he who uses such expressions as "Apropos of boots," or "Let us return to our muttons," rouses more violent emotions.

Here a remark may be necessary to guard against misapprehension. We are all liable to let fall occasional phrases such as those I have been criticising, and the offence, if it is one, is very venial. What I think we *should* discourage is the *deliberate* and *habitual* employment of such expressions, and especially the stereotyping of them in print. We must, on the one hand, recognise the natural and inevitable growth of the language; and, on the other, do our best to preserve intact that "well of English undefiled" which is one of the noblest inheritances that our fathers have left us.

SUNRISE.

(From *Drummond of Hawthorden*.)

Phœbus, arise!
And paint the sable skies
With azure, white and red;
Rouse Memnon's mother from her Tithon's
bed,
That she may thy career with roses spread;
The nightingales thy coming each-where
Make an eternal spring! [sing;
Give life to this dark world which lieth dead;
Spread forth thy golden head
In larger locks than thou wast wont before,
And emperor-like decore
With diadem of pearl thy temples fair:
Chase hence the ugly night
Which serves but to make dear thy glorious
light.

Undis ab imis erige lumina,
Et, Phœbe, cœlos jam decora nigros,
Et pinge tu nubes fugaces
Mille trahens radiis colores.

Educe matrem Memnonis e toro,
Quæ fundat unquam purpureas rosas
In cursum; et æterno canoras
Vere modos Philomela cantet.

Terræque vitam, Cynthia, da, precor,
Gemmis adorna nunc nitidas comas,
Tetræque deformesque noctis
Pelle cito tenebras ab orbe.

Grimby.

OLD RUGBEIAN.

UNIVERSITY WORK.

MATHEMATICS.

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

"A Subscriber" asked for a solution of the following in the December number:—

(1) $x^3 + y = 7$, $y^3 + x = 11$.

From the equations it is evident that y is greater than x . By subtraction and adding and subtracting $\frac{1}{2}$,

$$-\frac{1}{2} + x - x^3 + y^3 - y + \frac{1}{2} = 4.$$

$$(y - \frac{1}{2})^3 - (x - \frac{1}{2})^3 = 4 = (\frac{4}{3})^3 - (\frac{2}{3})^3.$$

$$y - \frac{1}{2} = \frac{4}{3}, \therefore y = 3. \quad x - \frac{1}{2} = \frac{2}{3}, \therefore x = 2.$$

This equation can be solved in several ways.

(2) $x + y = 9$ (1). $x^{\frac{1}{2}} + y^{\frac{1}{2}} = 3$ (2).

$$\begin{array}{r} x + y + 3x^{\frac{3}{2}}y^{\frac{1}{2}} + 3x^{\frac{1}{2}}y^{\frac{3}{2}} = 27 \\ x + y = 9 \end{array}$$

$$3x^{\frac{3}{2}}y^{\frac{1}{2}} + 3x^{\frac{1}{2}}y^{\frac{3}{2}} = 18$$

$$x^{\frac{3}{2}}y^{\frac{1}{2}} + x^{\frac{1}{2}}y^{\frac{3}{2}} = 6$$

$$x^{\frac{3}{2}}y^{\frac{1}{2}} + x^{\frac{1}{2}}y^{\frac{3}{2}} = 3x^{\frac{1}{2}}y^{\frac{1}{2}} \text{ from (2)}$$

$$x^{\frac{1}{2}}y^{\frac{1}{2}} = 2, \quad xy = 8, \quad x = \frac{8}{y}$$

Substituting $\frac{8}{y}$ for x in (1),

$$y = 8 \text{ or } 1, \quad x = 1 \text{ or } 8.$$

SOLUTION

by Prof. Frişby, U. S. Naval Observatory, Washington.

209. Prove that, if

$$a + b + c = 0 \text{ and } x + y + z = 0,$$

$$4(ax + by + cz)^2$$

$$- 3(ax + by + cz)(a^2 + b^2 + c^2)(x^2 + y^2 + z^2)$$

$$- 2(b - c)(c - a)(a - b)(y - z)(z - x)(x - y)$$

$$= 54abcxyz.$$

On left-hand side put $a = 0$; i.e., substitute $a = 0, b = -c, x = -(y + z)$, and the member vanishes, $\therefore a$ is a factor. In same way b, c, z, y , and x are factors. \therefore expression is homogeneous and of six dimensions there can be no other literal factor; hence putting left-hand side $= N(abcxyz)$,

$$\text{let } a = b = x = y = 1, \quad c = z = -2,$$

$$\text{then } 4.6^2 - 3.6^2 = 4N. \therefore N = 54.$$

PROBLEMS

by W. J. Robertson, M.A., Math. Master, C. I., St. Catharines.

1. Simplify

(1) $(x - y)^3 + (x + y)^3 + 3(x + y)^2(x - y) + 3(x - y)^2(x + y)$

(2) $(s - a)^3 + (s - b)^3 + (s - c)^3 + s^3$
when $2s = a + b + c$.

2. If $xz + ys - xy = 2cz^2$

$$xy + xz - yz = 2az^2$$

$$xy + yz - xz = 2bz^2,$$

prove that $x^2 = \frac{(a^2 + c^2)(a^2 + b^2)}{b^2 + c^2}$.

3. If $\sqrt{ax} + \sqrt{by} + \sqrt{cz} = 0$, shew that $a^2x^2 + b^2y^2 + c^2z^2 = 2(abxy + bcyz + acxz)$.

4. Divide

(1) $mn(x^2 + 1) + (m^2 + n^2)(x^4 + x) + (n^2 + 2mn)(x^2 + x^2)$ by $nx^2 + mx + n$.

(2) $h k x^4 + 2(h - k)x^3 - (h^2 + 4 - k^2)x^2 + 2(h + k)x - h k$ by $kx^2 - h + 2x$.

5. If n be a positive integer, prove that

$$(x + y + z)^{2n+1} - x^{2n+1} - y^{2n+1} - z^{2n+1}$$

is divisible by $(y + z)(z + x)(x + y)$.

6. (1) If $x^2 - \frac{1}{x^2} = y$, express $\frac{1 + x^4}{1 - x^4}$ in terms of y .

(2) If $a = xy^{p-1}, b = xy^{q-1}, c = xy^{r-1}$, prove that $a^{2-r} b^{r-p} c^{p-q} = 1$.

7. Cube

$$\left(-\frac{r}{2} + \sqrt{\frac{r^2}{4} + \frac{q^3}{27}}\right)^{\frac{1}{3}} + \left(-\frac{r}{2} - \sqrt{\frac{r^2}{4} + \frac{q^3}{27}}\right)^{\frac{1}{3}}$$

8. Extract the square root of

$$(1) \frac{1+4x^2-2x-12x^{\frac{3}{2}}+9x^{\frac{5}{2}}}{1-4x^{\frac{1}{2}}+6x-4x^{\frac{3}{2}}+x^2}$$

$$(2) 1+a^3+\sqrt{1+a^3+a^6}$$

9. Determine the values of m which make the expression $3mx^3 + (6m-12)x + 8$ a complete square.

10. Express $\frac{5^{\frac{1}{2}}-7^{\frac{1}{2}}}{5^{\frac{1}{2}}+7^{\frac{1}{2}}}$ by an equivalent fraction with rational denominator.

11. If the roots of $x^2 + px + q = 0$ be in the ratio of 1 to 2, shew that one of them satisfies the equation

$$6px^3 + (5p^2 - 6q)x + p(p^2 - 2q) = 0.$$

12. Find the ratio of a to b in order that the equations

$ax^2 + bx + a = 0$, and $x^2 - 2x^2 + 2x - 1 = 0$, may have either one or two roots in common.

13. Solve

$$(1) \frac{1}{x} + \frac{1}{y} = 2, \quad \frac{1}{x^2} + \frac{1}{y^2} = 14.$$

$$(2) 3x^2 + 15x - 2\sqrt{x^2 + 5x + 1} = 2.$$

$$(3) yz = bc, \quad \frac{x}{a} + \frac{y}{b} = 1, \quad \frac{x}{a} + \frac{z}{c} = 1.$$

PROBLEMS IN ARITHMETIC,

by W. S. Ellis, B.A., Mathematical Master,
C. I., Cobourg.

I. Find the quotients of the following, without reducing to vulgar fractions:—

(i.) $.0009 \div 990.9$.

(ii.) $990.9 \div .0009$.

(iii.) $1000.0001 \div .0001$.

(iv.) $268.7592183 \div 83246529100$.

II. A gentleman bought Christmas cards as follows:—3 at 10c. each, 5 at 18c. each, 2 at 25c. each, 4 at 40c. each, 1 at 75c., and 1 at \$1.25. The postage on them was 56c.; what was the total cost. and what the average cost, postage included?

III. The average attendance at a school

for one week was 52. On Monday, 50 pupils were present; on Wednesday, 44; on Friday, 56; the number on Tuesday was the same as that on Thursday; find that number.

Ans. 55.

IV. In the previous problem, if the attendance on Tuesday had been greater by 4 than that on Thursday, other conditions remaining as before, what would have been the number of pupils present each day?

Ans. 57 and 53.

V. If any number be doubled, the result increased by 1, the sum multiplied by 3, the product diminished by 9, and the remainder divided by 6, the quotient will be less by unity than the number taken at first. Why?

VI. 36 inches make one yard; 39.37 inches make one meter. What is the smallest number of yards that can be expressed by a number of metres, both numbers to be integers?

Ans. 3937 yards.

VII. A dealer buys coal at \$4.40 per ton, pays a duty of 50 cents per ton, and at the end of three months sells it at \$5.60 per ton. How much money must he pay out altogether that his clear gain may be \$100, allowing that the use of \$100 for one year is worth \$8.

Ans. \$830.23.

VIII. In the previous problem, what must he pay for the coal independent of the duty, in order that the other conditions may be fulfilled?

IX. It is known that two parcels of different kinds of sugar cost together \$1.80. Had each parcel contained the other kind of sugar the whole cost would have been \$1.35. It is known that the combined weight of the parcels is 18 pounds, and that one kind of sugar cost 6½ cents per pound; find the weight and price of the other kind.

Ans. 14 pounds, at 11 cents.

X. The following notes of an analysis are given; what was the percentage composition of the substance taken, and what is the percentage of error in the result?

Weight of substance taken . . .	12.25 grammes
Yield of Calcium	4.837 "
" Carbon	1.459 "
" Oxygen	5.874 "

Ans. Cal., 39.48 %; Carbon, 11.91 %;
Oxygen, 47.95 %; Error, .65 %.

XI. On January 1st, 1881, *A* gave *B* a note for \$85, bearing interest at 7 per cent. per annum. On this note the following amounts are endorsed: April 1st, 1881, \$15; July 15th, \$27; September 1st, \$26. What sum should *A* pay to *B* in order to cancel the debt on January 1st, 1882 (no days of grace)?

XII. *A* bought an article for \$40, and sold it to *B* at a certain gain per cent. *B* sold it to *C*, *C* to *D*, and *D* disposed of it for \$82.944. If each man gained the same percentage on what the article cost him, find what that percentage was? *Ans.* 20 %.

NOTE.—The answer to Question 4, Entrance Examination to High Schools, page 500, December MONTHLY, should have been printed 103 $\frac{1}{2}$ lbs., and not 30.4 lbs. The answer is obvious, as the space occupied by 56 lbs. of lead is to be filled with platinum, and then it is required to find the weight of this bulk of platinum.

SCIENCE.

GEO. DICKSON, M.A., AND R. B. HARE,
PH.D., HAMILTON, EDITORS.

INTERMEDIATE CHEMISTRY.

Answered by Mary McBean, Hamilton
Collegiate Institute.

I.—(i.) Describe the chief properties of oxygen.

(ii.) You are given oxygen, nitrous oxide, and nitric oxide in separate bell-jars; how would you proceed to distinguish them?

(iii.) Describe the action of plant and animal life upon the oxygen of the air.

(i.) (i) *Physical Properties*.—A gas colourless, odourless, tasteless, invisible, heavier than air; slightly soluble in water, and non-condensable (except at very low temperature and high pressure).

(2) *Chemical Properties*.—Oxygen unites chemically with all the elements, fluorine excepted, to form compounds called oxides.

It is the union of the oxygen of the air with the constituents of the wood, the coal oil, or the coal gas (chiefly carbon and hydrogen), that produces the light and heat of ordinary combustion. The greater the attractive force between the oxygen and the substance uniting with it, the greater will be the amount of heat resulting from their combination.

It has been found by experiment that the burning of a pound of hydrogen in oxygen gives out more heat than does the burning of a pound of anything else in oxygen (a pound of hydrogen gives out 34.462 therms—a pound of carbon only 8.080 therms).

Oxygen has the strongest affinity for hydrogen. If a mixture of two volumes of hydrogen and one of oxygen be made in a soda water bottle (wrap bottle in a stout cloth), and a light applied to its mouth, the gases will unite with explosive force, forming water. Some metals unite slowly with the oxygen of the air at ordinary temperatures (RUST), others upon the application of heat. In pure oxygen the oxydizing action is much more vigorous.

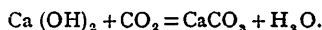
A glowing splint will instantly relight in pure oxygen; lighted sulphur will burn with an intense blue flame; phosphorus with dazzling brightness; resin, camphor, paraffin and wood charcoal with brilliant effects; iron wire tipped with burning sulphur, with great splendour.

(ii.) If a glowing splint be plunged into each of the three bell-jars it will relight in the one containing the oxygen, and in the one containing the nitrous oxide, but not in the one containing the nitric oxide. The oxygen and nitrous oxide are readily distinguished—(1) by nitric oxide, the oxygen forming with it red fumes ($2NO + O = N_2O_2$), and the nitrous oxide being in no manner affected by it; (2) by pyrogallate of potash, which is immediately blackened by the oxygen, and is not at all affected by the nitrous oxide. The pyrogallate of potash gradually and completely absorbs the oxygen. If oxygen be let into the jar containing the nitric oxide, red fumes will form. Nitric oxide blackens a solution of ferrous sulphate, $FeSO_4$.

(iii.) The oxygen of the air, when inhaled by animals, passes through the thin coats of the fine tubing of the lungs and oxidizes the carbon of the blood, forming carbon dioxide. This carbon dioxide then passes out by the same way the oxygen entered, and is exhaled by the animal. Chlorophyl, the green colouring matter of plants, has the power in the presence of sunlight of decomposing the carbon dioxide, absorbing the carbon (for the growth of stems, branches and leaves), and setting free the oxygen. The following experiments illustrate this reciprocal action:

(1) Into a glass beaker filled with water containing carbonic acid in solution, sink a bunch of fresh parsley. Cover the beaker with a short-necked funnel, and place over the funnel a test tube filled with water. If the direct rays of the sun be allowed to fall upon the green leaves, oxygen will be given off from them, and will pass up into the test tube, sufficiently pure to relight a glowing splint.

(2) Place a small quantity of lime water in a beaker glass and expire through a bit of tube into it. The lime water will immediately be troubled; consequently our breath contains carbonic acid.



II.—(i.) How may pure nitrogen be prepared? Describe briefly the apparatus you would use.

(ii.) How is the proportion of oxygen to nitrogen in air by volume determined?

(iii.) How would you demonstrate the presence of water vapour and carbon dioxide in air?

(i.) Pure nitrogen is best prepared by depriving air of its oxygen.

Pass a slow stream of air from a gas-holder through a system of U tubes, one containing a plug of cotton wool to stop dust; a second, pumice stone soaked with sulphuric acid to absorb all the water vapour, traces of ammonia, etc.; a third, lumps of caustic potash to absorb the carbonic acid, then through a tube of hard glass containing red-hot copper turnings. All the oxygen of the air combines with the copper, forming solid copper oxide;

the nitrogen in a pure state passes on, and may be collected over water.

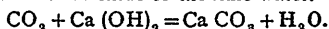
(ii.) Into a Eudiometer previously filled with mercury, a certain volume of air is admitted, the temperature and atmospheric pressure being carefully noted. A quantity of pure hydrogen, more than sufficient to combine with all the oxygen present, is now admitted, volume temperature and pressure being carefully noted as before. After the passage of an electric spark through the mixture, the diminution of volume (representing the volume of gases which have united to form water) is now ascertained.

One-third of the diminution (H_2O) must represent the oxygen that has disappeared, and therefore the volume of oxygen in the air taken. Volume of air taken = 100; volume of H introduced = 50; volume after explosion = 87; volume . . . disappeared = 63; $\frac{63}{3} = 21$, volume of oxygen in 100 volumes of air.

(iii.) If lumps of calcium chloride be exposed to the air for some time, they become liquid, water being absorbed from the air.

The presence of carbon dioxide may be shewn by exposing a solution of lime water (CaO , H_2O) in a flat dish to the action of the air. A white scum will soon form upon the surface of the lime water.

This white scum is calcium carbonate, CaCO_3 , insoluble in water, and is formed by the carbon dioxide of the air combining with the calcium oxide of the lime water.



III.—(i.) Describe the experiments which illustrate the leading properties of nitric acid and the nitrates.

(ii.) What is the brown layer that occurs in the ordinary test for the presence of nitrates? How has it arisen?

(iii.) What metals are not attacked by nitric acid?

(i.) Nitric acid, a liquid at the ordinary temperature, has no constant boiling point, decomposing when heated ($87^\circ \text{C}.$) into oxygen, water and nitrogen tetroxide. The aqueous solution boils constantly at $120.5^\circ \text{C}.$, and contains 68% of the nitric acid. Nitric acid is a strong oxidizing agent.

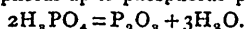
(1) It acts powerfully upon animal matter, skin, wool, etc., turning it yellow.

(2) Boil flowers of sulphur in strong nitric acid. They will dissolve, lower oxides of nitrogen being given off as red fumes, and if the solution be diluted and barium chloride (Ba Cl_2) added, a white precipitate of barium sulphate (Ba SO_4) will be thrown down. The nitric acid has oxidized the sulphur up to sulphur trioxide (H_2O , $\text{SO}_2 = \text{H}_2\text{SO}_4$).

(3) Heat phosphorus in nitric acid. The phosphorus will slowly disappear, and lower oxides of nitrogen be given off. By evaporating and boiling the colourless liquid, phosphoric acid may be obtained.

$\text{P}_2 + 6\text{HNO}_3 = 2\text{H}_3\text{PO}_4 + (2\text{N}_2\text{O}_3 + 2\text{NO}_2)$.

The nitric acid has in this instance oxidized the phosphorus up to phosphorus pentoxide.



(4) Pass sulphuretted hydrogen, H_2S , into nitric acid gently heated.

Red fumes of the lower oxides of nitrogen will be given off, and the hydrogen and sulphur will be oxidized, the former to water, the latter to sulphur dioxide SO_2 .

(5) Throw the metals tin and antimony into dilute nitric acid; yellowish white powders, representing the oxides of these metals, will be formed, and lower oxides of nitrogen given off.

(6) Pour strong nitric acid upon red-hot powdered charcoal contained in a crucible; the charcoal will burn most brilliantly, oxygen being given to it by the nitric acid.

Nitrates have also strong oxidizing properties, and are used to supply oxygen to bodies which are to be burned out of contact with air.

Make a mixture of one part of charcoal, three parts of nitre, and half of sulphur, and place it in a crucible standing in a plate of water. Cover the crucible with a bell-jar having a neck, and fill the jar with carbon dioxide by downward displacement. Touch the mass with a red-hot iron; a sheet of flame will rise, the nitre giving oxygen to the carbon and the sulphur, CO_2 and SO_2 , resulting.

(ii.) Sulphuric acid, H_2SO_4 , is added to the liquid to be tested, to insure the presence

of free nitric acid; this free nitric acid oxidizes the ferrous sulphate, FeSO_4 , up to ferric sulphate, $\text{Fe}_2(\text{SO}_4)_3$, and is itself reduced to nitric oxide, NO . It is the solution of the nitric oxide in ferrous sulphate, FeSO_4 , which produces the brown colour.

A beautiful illustration of this action may be given by passing bubbles of nitric oxide into a solution of ferrous sulphate; the gas will be absorbed, and the liquid turned almost black.

(iii.) Gold, platinum, and aluminium alone, among the common metals, resist the action of nitric acid; all the others are either dissolved by it as nitrates, or converted into oxides.

IV. Give a complete digest of carbon.

(i.) *Symbol* C.C.W., 12.

(ii.) *Occurrence*. 1. *Free*. (a) Diamond, India (Golconda), Borneo, the Cape, the Brazils.

(b) Graphite, or plumbago. Borrowdale in Cumberland, Siberia, Ceylon.

(c) Charcoal (coal), in almost every country.

2. *Combined*. (a) In all animal and vegetable substances without exception.

(b) With oxygen as CO_2 in air and dissolved in water.

(c) In a great many minerals, chalk, limestone, CaCO_3 , forming whole mountain chains; also in carbonates of magnesia, barium, and strontium, as MgCO_3 , BaCO_3 , SrCO_3 , etc., etc.

(iii.) *Preparation*. (1) We are altogether unacquainted with the mode in which the diamond has been formed.

(2) Graphite. (a) Some forms of natural graphite are nearly pure.

(b) Coarse impure graphite is purified by heating the powder with sulphuric acid, H_2SO_4 , and potassium chlorate, KClO_3 . A compound is formed which, when strongly heated, decomposes, leaving pure graphite as a bulky, finely divided powder. Pressure gives coherency to the mass.

(3) Charcoal is obtained by heating animal or vegetable matter to redness, in a vessel nearly closed; the volatile matters

(H, O, N) and some carbon are given off, leaving a great part of the carbon, with the ash or mineral portion, behind. Lamp-black, which is very pure carbon, was first obtained by catching the soot from a lamp. It is now prepared by burning resinous and fatty refuse of various kinds in an insufficient supply of air, and passing the dense smoke so produced through long horizontal flues, where the lamp-black settles. Pure varieties of artificial charcoal can be made by charring pure sugar.

(iv.) *Properties.*—The three allotropic forms of carbon—diamond, graphite and charcoal—differ in hardness, colour, specific gravity, etc., but each yield on combustion in oxygen the same weight of carbon dioxide.

(1) Diamond, Sp. Gr. 3.3 to 3.5, hardest body known (10), does not conduct electricity, crystallizes in the cubic system, the purest form of carbon, possessing a brilliant lustre and a high refractive power.

(2) Graphite:—Sp. Gr. 2.15 to 2.35, is very soft, conducts electricity, crystallizes in hexagonal tables; the best quality is almost as pure as diamond, has a black metallic appearance (hence the familiar name of black-lead).

(3) Charcoal:—Density varies according to the wood from which it is made. The denser varieties (boxwood) conduct electricity; the lighter ones (willow) do not. Charcoal is amorphous carbon, and burns readily in air or oxygen. Carbon is dimorphous.

(v.) *Use.*—(1) Diamond is used as a gem, also for cutting and writing upon glass.

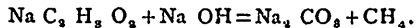
(2) Graphite is used to form pencils, for polishing surfaces of iron work, also for giving a protecting varnish to grains of gunpowder.

(3) Charcoal or coal is used for fuel. Wood charcoal, on account of its porous quality, is used as a disinfectant and deodorizer in hospitals and dissecting rooms; one volume of wood charcoal is capable of absorbing ninety volumes of ammonia, and nearly ten of oxygen. The condensed oxygen in the pores of the charcoal oxidizes the disease-producing germs, and the putrefying and bad-smelling organic matter.

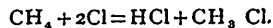
(4) Animal charcoal absorbs vegetable colouring matter from solutions; also used to purify sugar.

V.—Describe the preparation and properties of marsh gas and olefiant gas.

Into a Florence flask fitted with a cork and delivery tube, bring dried sodium acetate, $\text{Na}_2\text{C}_2\text{H}_3\text{O}_2$, and an excess of sodium hydroxide, NaOH (and enough lime to prevent the mixture fusing). Heat strongly; marsh gas will be given off, and sodium carbonate will remain in the flask.

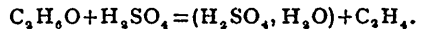


Marsh gas burns with a bluish-yellow non-luminous flame, forming carbon dioxide and water. For complete combustion it requires ten times its volume of air, or twice its volume of oxygen. Expose equal volumes of marsh gas and chlorine to direct sunlight; hydric chloride and methyl chloride will be formed.



The remaining atoms of hydrogen may be replaced successively by the action of chlorine in sunlight.

Olefiant gas is prepared by heating, in a flask fitted with a cork and delivery tube, a mixture of one part of strong alcohol and four parts of concentrated sulphuric acid. Connect the delivery tube with two washing bottles, one containing pumice stone and caustic soda, to absorb the carbon dioxide and sulphur dioxide (formed by a secondary reaction); the other, pumice stone and sulphuric acid, to take up the vapour of alcohol and ether:



The gas may be collected over water. Olefiant gas is colourless, has a sweetish taste, and forms a colourless liquid at -110°C . It burns with a luminous smoky flame, forming carbon dioxide and water. To burn it completely, three times its volume of oxygen is required. Fill a bottle, which is rather less than half full of chlorine, with olefiant gas, and notice that the colour and smell of the chlorine soon disappear, and oily drops collect on the sides of the bottle. These drops are ethylene dichloride, $\text{C}_2\text{H}_4\text{Cl}_2$, or Dutch liquid.

VI.—Given carbon dioxide, how would you demonstrate its chief properties?

Prove that carbon dioxide is heavier than air.

(1) Collect the gas by downward displacement.

(2) Pour it downward from one vessel into another containing a lighted taper; the taper will be extinguished.

(3) Fill two wide-mouthed bottles with the gas, and hold the one mouth downwards, the other mouth upwards, one minute. If a lighted taper be now introduced into both bottles, it will continue to burn in the bottle that was held mouth downwards, and be immediately extinguished in the other that was held mouth upwards.

(4) Soap bubbles float on CO_2 . Carbon dioxide neither burns nor supports ordinary combustion. The metals potassium, sodium (and magnesium, when heated), decompose the gas, uniting with the oxygen to form the oxide of the metal, and throwing down the carbon.

(5) Lower a candle into a large dry bottle filled with air, and allow it to remain there until it goes out. Notice the water on the sides of the bottle. Introduce lime water and shake; a white precipitate, CaCO_3 , will form.

MODERN LANGUAGES.

JOHN SEATH, B.A., ST. CATHARINES,
EDITOR.

ENGLISH.

QUESTIONS IN ENGLISH.

By Miss J. M., Coll. Inst., Hamilton.

NOTE.—The object of the following answers is not so much to convey information as to suggest systematic methods of treating questions.

I. Discuss the relation of English to the other languages of the Aryan family.

The birthplace of the human race, and consequently of the language, is now generally supposed to be in the regions of the Indus, near Cashmere. All languages seem

to have been derived from one common source, and linguists sought vainly for a long time to discover the primitive language. The claims of the various tongues were advocated by different writers, but the Hebrew was the favoured one till quite recently, when the ancient Sanscrit was discovered. There are two roads by which the Aryans of Asia might have come into Europe. One to the north of the Black Sea, through Russia; the other to the south, into northern Greece, and along the Danube.

Many terms have been used in describing the languages of Europe, as Aryan, Indo-European, Indo-Germanic, and Japhetic; but the first of these is the best that has been invented. It originated with Max Müller. It is derived from the root *ar*, to plough, which in later Sanscrit means "noble."

Though all languages have the same origin, some are found to resemble each other more closely than others; and this leads to the classification of languages. Affinities are ascertained by tracing, 1st, The peculiarities of grammatical structure; 2nd, Historical relationship.

The first mode of classification is called a morphological one, and divides languages into (1) Monosyllabic; (2) Agglutinative; (3) Inflectional.

Historical relationship depends on (1) Similarity of grammatical structure; (2) The fundamental identity of roots. There are about nine hundred roots in Sanscrit which reappear in the languages of Europe.

If languages are compared with respect to their inflections, it will be seen that in a very large number of them the genitive contains the letter *s*; and that the dative or accusative frequently terminates in *m* or *n*.

The Aryan family includes—

1. Gentoo or Sanscrit, including most of the languages of Hindostan. 2. Iranian or Ancient Persian, the parent of Afghan, Beloochee, and Kurdish. 3. Armenian, including Ancient and Modern Armenian. 4. Classic, including Greek, Latin, Spanish, French, Wallachian. 5. Slavonic, including Russian. 6. Lithuanic, including Lettish and Lithuanic. 7. Keltic. 8. Gothic.

The Gothic has two main branches—Scandinavian and Teutonic. The latter contains two divisions—High and Low German. To the Low German belong the five following tongues:—

- | | |
|---------------------|--------------|
| (1) Old Saxon, | (3) Frisian, |
| (2) Anglo-Saxon, | (4) Dutch, |
| (5) Modern English. | |

This table shews that Modern English is a member of the Low German division of the Teutonic family of the Gothic stock of the Aryan languages.

II. Discuss the influence of the Norman-French upon English.

After the Anglo-Saxon, the Norman-French is the chief element in our language, and its influence may be considered under the following heads:—(1) Its influence upon the vocabulary, (2) upon the grammar, and (3) upon the pronunciation and orthography of English. There is another aspect under which it could be regarded, namely, its influence upon literature; but this is not necessarily connected with the question of its influence upon the language.

1. Influence upon the vocabulary.

(a) It has enlarged and enriched the vocabulary with a vast number of words, and has thus given writers a greater power to vary their diction to suit the subject.

(b) It has fused into one language the chief formative element of the past (Latin) and that of the present, and thus gives English its cosmopolitan spirit.

(c) The peculiarity known as Bilingualism in early English has been perpetuated to our own day. This consists in expressing the same idea by two words, the one English and the other French, as *act* and *deed*, and *abet*, etc.

2. Influence upon the grammar.

(a) Norman-French has been largely instrumental in bringing about the change from the synthetic to the analytic stage of the language; in other words, it has accelerated the dropping of inflections and the substitution therefor of auxiliary verbs and prepositions. Some of the more striking results may be now given.

(b) The prevalence of the plural in *s* is largely due to Norman-French.

(c) The only termination (*ess*) used to form new feminines is from Norman-French.

(d) The use of the preposition *of* for the 's of the possessive case, sometimes called the Norman genitive.

(e) The adverbial comparison of adjectives and adverbs is after the analogy of the Norman-French.

(f) In poetry the ambidextral adjective originated from the frequent placing of French adjectives after the nouns which they qualify.

3. Influence upon the pronunciation and orthography.

The pronunciation of English has been softened considerably by contact with the Norman-French. Many harsh consonants and gutturals have been toned down, some have become silent. A change in pronunciation and a change in spelling would naturally go hand in hand, but many words retain their old spelling even after change in their pronunciation. The chief changes may be indicated as follows:—

(a) Through its influence many letters have become silent, as *l* in *should*, *would*; *b* in *doubt*, *debt*, etc.

(b) Gutturals have been greatly diminished in number: *gh* is in most words either silent or changed into *f*.

(c) Initial *k* sound has been in many instances changed into a soft *ch* sound, as *chaff*, *churl*, etc.

(d) The use of *e* mute at the end of words.

(e) Though the effect of Norman-French upon pronunciation has been in general favourable, it has vitiated it in one respect: it is partly responsible for the marked sibilancy which characterizes English. English has not only retained the sibilants it had in the Anglo-Saxon stage, but it has adopted those from Norman-French as well.

(f) The French system of accentuation was introduced and is still retained in those English words that terminate in *ade*, *eer*, *ier*, *ee*, *oom*, *ile*, or *in*.

III. Explain the causes which bring about changes in the form of words.

Leaving out of consideration grammatical inflections, the changes which words undergo in form may be arranged as due to the following principles:—

1. The principle of Ease. The chief changes due to this principle may be classified as follows:—

(a) Desire for brevity; shortening a word by leaving out unaccented or unimportant syllables. Compare *paralysis*, *palsy*, *phantasy*, *fancy*.

(b) Assimilation of letters—1, vowels, as in *man*, *men*, *old*, *elder*, etc.; 2, consonants, as *corrupt*.

(c) Dissimilation of letters: To prevent the awkward recurrence of the same sound, one sound is sometimes changed into a more remote one, as *marble*, from French *marbre*.

(d) Indistinct articulation, as *guard* from *ward*.

(e) Prefixing a letter to assist in distinct utterance, as *espy*, *especial*.

(f) Inserting a letter to prevent the disagreeable clash of vowels, or as a strengthening letter, or to affect a transition between two remote sounds, as *redound*, *number*, *gender*, etc.

(g) Adding a letter to the end of words to allow the voice to dwell on it, as *sound*.

(h) Words transferred from one language to another are frequently changed to suit national preferences. This important class of changes is more particularly considered in connection with Grimm's law.

2. The principle of Compensation. This is frequently seen in the lengthening of a vowel sound to make up for the dropping of a consonant, as *goose* from *gans*.

3. The principle of Analogy. This is seen in the formation of such words as *its*, *fore-go*, *dis-like*. Many errors in words have resulted from this principle, such as (a) mistakes of the unlearned who resolve unfamiliar words into words familiar to them; thus, *Char-treux* has been changed into *Charterhouse*; (b) mistakes of the learned, as *island*.

4. The differentiation of vowel sounds, called by the Germans *Ablaut*. This principle is used in the formation of the preterites and perfect participles of strong verbs, as

sing, *sang*, *sung*. Nouns are sometimes formed in the same way, as *bind*, *bound*, *band*, *bond*, *bundle*.

5. The influence of Accent, as seen in the word *counsel*, from the French *conseil*, where the accent is on the last syllable.

6. To mark a difference in meaning, a difference in form is often made, as *cord*, *chord*, *draft*, *draught*.

FRENCH.

EDUCATION DEPARTMENT, ONTARIO.

"Intermediate" Examinations, 1881.

FRENCH.*

(Continued from page 504, Vol. III.)

II.

DE FIVAS: *Introduction*.

Translate:

Maître corbeau, sur un arbre perché,

Tenait en son bec un fromage.

Maître renard, par l'odeur alléché,

Lui tint à peu près ce langage :

Hé ! bon jour, monsieur du corbeau !

Que vous êtes joli ! que vous me semblez beau !

Sans mentir, si votre ramage

Se rapporte à votre plumage,

Vous êtes le phénix des hôtes de ces bois.

A ces mots, le corbeau ne se sent pas de joie ;

Et pour montrer sa belle voix,

Il ouvre un large bec, laisse tomber sa proie.

1. *Le phénix*—Explain the allusion.

2. *Du corbeau*—What does the *du* mean ?

3. Quote the conclusion of this fable (in French).

4. *Ouvre*—Parse, and give the principal parts.

III.

GRAMMAR AND COMPOSITION.

1. Write the singular of *bestiaux*, *yeux*; the feminine of *directeur*, *duc*, *esclave*, *chrétien*, *connaisseur*, the French for the possessive pro-

* Translations of and answers to this paper have been courteously sent us by Mr. W. M. Fraser, B.A., U. C. C. These will be found appended.

nouns "ours," "his," "theirs," in masculine and feminine, singular and plural.

2. Construct an example to show how "the former" and "the latter" are expressed in French.

3. Explain the difference of use between "que" and "quoi," and write in French, "What shall I say to you?"

4. Give the principal parts of *naitre*, *maudire*, *bâtir*, *nuire*, *pleuvoir*, *mettre*; the third person singular, present subjective, of *s'asseoir*, *moudre*, *s'en aller*, *vaincre*, *envoyer*.

5. Write a list of nouns varying in meaning according as they vary in gender, and give their meanings.

6. Render into French—

a. All soldiers are not Cæsars.

b. Taught (instruire) by experience, old people are suspicious.

c. We ate an excellent pineapple at dinner.

d. The knife and fork are not clean.

e. My head aches.

f. Is your cousin (feminine) diligent or idle?

g. "When I was eighteen years old, I used to go, during the fine season, to Versailles, the city where my mother lived. As I went out of the "barriers," I was always sure to find a tall mendicant, who cried in a shrill (glapissant) voice, "Charity, if you please, my good sir!" On his side, he was very sure to hear a large penny piece clink (résonner) in his cap.

7. Translate:

Le palais des rois de Suède, comme la ville elle-même, tire sa principale beauté de sa position: il est entre la mer et le lac; il a la forme carrée; une de ses façades domine un beau pont de pierre jeté sur le Melär. Ce pont, dont l'arche du milieu repose sur une petite île transformée en un charmant jardin, est d'un aspect ravissant. L'architecture du palais rappelle la cour du Louvre, modifiée par le goût lourd, sobre et froid du dix-huitième siècle; les proportions de son ensemble peuvent seules être louées sans réserve; la façade du côté de la mer, précédée d'un jardin, ornée d'un large balcon de pierre, est d'un bel effet, surtout vue de loin.

ANSWERS

To "Intermediate" French, July Examinations, 1881.

II.

Translation.—Master raven, perched upon a tree, held in his beak a (piece of) cheese. Master reynard, attracted by the odour, said to him pretty nearly as follows: Ha! good day, Sir Raven! How pretty you are! How beautiful you seem to me! Without falsehood, if your song bears any relation to your plumage, you are the phoenix of the inhabitants (guests) of these woods. At these words the raven cannot contain himself for joy; and to show his fine voice, he opens wide his beak, lets fall his prey.

1. The phoenix was a fabulous bird of Arabia. Only one phoenix existed at once. Hence figuratively applied to a person of unique genius.

2. *De* is a title of nobility. Hence the title du corbeau is meant as flattery.

3. Le renard s'en saisit, et dit: "Mon bon Monsieur,
Apprenez que tout flatteur
Vit aux dépens de celui qui l'écoute;
Cette leçon vaut bien un fromage, sans
doute."

Le corbeau, honteux et confus,
Jura, mais un peu tard, qu'on ne l'y prendrait plus.

4. *ouvre*, Verb, Pres. Indic. 3rd sing. Parts. *ouvrir*, *ouvrant*, *ouvert*, *f'ouvre*, *f'ouverts*.

III.

1. *bétail*; *oeil*: *directrice*; *duchesse*; *esclave*; *chrétienne*, *connaissesse*.

Pronouns:

le nôtre, la nôtre, les nôtres,
le sien, la sienne, les siennes, les siennes,
le leur, la leur, les leurs.

2. Les rues et les magasins de la ville sont admirables; celles-là sont larges et bien tenues; ceux-ci sont grands et remplis de marchandises.

3. *Que* is used as the direct object of the verb, with reference to either persons or things, for both persons and numbers; e. g. L'artiste que je connais, etc.

Quoi, as a relative, is used only with refer-

ence to an indefinite antecedent, such as *ce, voilà, rien*, etc.

- e. g. Ce à quoi je pense,
- e. g. Voilà de quoi je doute.

Quoi is also used idiomatically; e. g., Il a de quoi vivre. He has a living. Il n'y a pas de quoi. There is no reason (no cause) for it.

Que vous dirai-je ?

4. Inf. Pres.	Pres. Past.	Past Part.
naître	naissant	né
maudire	maudissant	maudit
bâtir	bâtissant	bâti
nuire	nuisant	nui
pleuvoir	pleuvant	plu
mettre	mettant	mis

Pres. Ind.	Perf. Def.
je nais	je naquis
je maudis	je maudis
je bâtis	je bâtis
je nuis	je nuisis
il pleut	je plut
je mets	je mis

Il s'asseie. Il moule. Il s'en aille. Il vainque. Il envoie.

	Masc.	Fem.
5. crêpe	crape	pancake
livre	book	pound
manche	handle	sleeve
mémoire	bill	memory
mode	mood	fashion
mousse	cabin boy	moss, etc.

6. (a) Tous les soldats ne sont pas des Césars.

(b) Instruits par l'expérience, les vieilles gens sont soupçonneux.

(c) Nous avons mangé un excellent ananas, à dîner.

(d) Le couteau et la fourchette ne sont pas propres.

(e) J'ai mal à la tête, or J'ai le mal de tête.

(f) Votre cousine est-elle diligente ou paresseuse ?

(g) Lorsque j'avais dix-huit ans, j'allais pendant la belle saison à Versailles, la ville où demeurait ma mère. Comme je sortais des barrières, j'étais toujours sûr de trouver (rencontrer) un grand mendiant, qui criait d'une voix glapissante, "Charité, s'il vous plaît, mon bon monsieur !" De son côté, il était bien sûr d'entendre résonner dans sa casquette une grosse pièce de deux sous.

7. Translation.—The palace of the kings of Sweden, like the city itself, owes its principal beauty to its position; it is between the sea and the lake; it is square in form; one of the fronts overlooks a fine stone bridge thrown over the Melär. This bridge, whose middle arch rests upon a small island transformed into a charming garden, is of a charming aspect. The architecture of the place calls to mind the Court of the Louvre, modified by the heavy, sober, and cold taste of the 18th century; its proportions in general (i. e., its proportions considered on the whole) can alone be praised unreservedly; the front facing the sea, preceded by a garden, ornamented by a broad stone balcony, produces a pleasing impression, particularly when seen from a distance.

CLASSICS.

G. H. ROBINSON, M.A., WHITBY, EDITOR.

[Matter for this Department is for the present month held over.]

A YOUNG lady in Vassar College claims that Phtholagnyrrh should be pronounced Turner, and gives the following explanatory table:

Phth (as in phthisic), is	T
Olo (as in colonel) is	UR
Gn (as in gnat) is	N
Yrrh (as in myrrh) is	ER.

DOES not our age suffer from a disease of reading—lectomania? What with newspapers, periodicals, primers, cheap literature, literary revolutions, is it not time for many to ask, "Am I not reading too much; remembering, writing, observing, thinking, feeling too little?" The epidemic increases. At many times the best way to read is—*not to read.*

SCHOOL WORK.

SAMUEL McALLISTER, TORONTO, EDITOR.

EDUCATION DEPARTMENT,
ONTARIO.DECEMBER EXAMINATIONS, 1885.—AD-
MISSION TO HIGH SCHOOLS.

LITERATURE.

I. Who were Wm. Scoresby, Ellsha Kane, Sir John Franklin, Longfellow, the Pilgrim Fathers, Sir Humphrey Gilbert, Sir Isaac Brock, and Robert Stevenson?

II. Tell the story of "The Shipbuilders."

III. Explain italicised expressions in, *Earth's emerald green and many-tinted dyes. The fleecy whiteness of the upper skies. The boom of cannon and the beat of drum. The brow of beauty and the form of grace. The prowess of our race. Britannia's trident on the azure sea*, as they are used in the extract.

IV. What and where are St. Peter, Hochelaga, Menai, Anticosti, Metropolis of Canada, Lachine, Detroit, Grand River, Iceland and Levant?

V. Give the different meanings of transports, mine, race, scarce, bounds, wind, fly and gallant.

VI. Distinguish between:—

night	and	knight.
feet	"	feat.
whole	"	hole.
sores	"	soars.
side	"	sighed.

VII. Paraphrase:

"Ay, this is freedom! these pure skies
Were never stained with village smoke;
The fragrant winds that through them flies,
Is breathed from wastes by plough unbroke.
Here, with my rifle and my steed,
And her who left the world for me,
I plant me where the red deer feed,
In the green desert—and am free."

GEOGRAPHY.

I. Draw a map shewing the zones on the earth's surface and their widths.

II. (a) Name the greater and lesser circles drawn on maps of the earth, and define each.

(b) Give the meaning of the name of each zone.

III. Define, with an example and the position of each, five divisions of water and five of land.

IV. Draw a map of North America and locate the St. Lawrence, Halifax, Mississippi, British Columbia, Hudson's Bay, Alaska, and Florida.

V. Name the cities of Ontario, and tell how to reach five of them by railway from Toronto.

HISTORY (ENGLISH AND CANADIAN).

I. Name the nations that conquered Britain, with dates, and tell some effect each had upon the people.

II. What battles were fought on the following dates, in whose reign, between whom, and which was successful?—878, 1138, 1346, 1415, 1485 and 1356.

III. Explain Magna Charta, Council of Clarendon, Treaty of Bretigny, Act of Conformity. Give dates and reign.

IV. Who were Thomas A' Beckett, Lord Burleigh, Wolsey, Perkin Warbeck? In whose reign did each live?

V. Tell what you can of two discoveries of America.

VI. What were Royal Government in Canada, Quebec Act, and Constitutional Act? Give dates and provisions.

VII. Write a sketch of Canadian History during the century following 1690.

VIII. How long did France have possession of Canada?

DERIVATION.

I. Of what use is the study of Latin and Greek Roots to Canadians?

II. Give the meaning of *credo, ebrius*,

debeo, filius, fortis, frango, inferus, hospes, sequor, scribo.

III. Give the root, with meaning, of integrity, conduct, altered, majestic, doleful, impede, signifies, appropriate, fugitive, sanquinary, excelled, and centuries.

IV. Give the meaning of in, un, trans and ex, and give the meaning of fy, al, able, and an. Tell which are affixes and which prefixes.

PROMOTION EXAMINATION, COUNTY OF LINCOLN.

NOVEMBER 24TH AND 25TH, 1881.

Second Class to Junior Third.

ARITHMETIC.

1. Write in figures:—Seventy thousand and sixty-two; four hundred thousand five hundred and eight; forty-seven thousand four hundred and seventeen, and two hundred thousand and twenty-five.

2. A man sold a house for \$6,248, a carriage for \$175, seven tons of hay at \$14 a ton; how much money does he receive?

3. If a boy earn 75 cents every day and spend 47 cents, how much money will he have at the end of 365 days?

4. A man sells his butter at the market for 237 cents, his eggs for 175 cents, his apples for 437 cents, his potatoes for 770 cents, and his chickens for 58 cents; he then spends 1287 cents of his money for clothes; how much has he left?

5. Work the following correctly:— $439 + 17 + 4850 + 68 + 336 + 5500 + 772 + 8$; also, $43,600 - 991$, and 4050×4050 .

VALUE—Ten marks for each, and ten marks additional for neat work.

SPELLING.

1. Very busy planting roots, fruits, flowers.
2. Laughing, crying, quite afraid.
3. A great deal to learn to wear clothes.
4. He asked in shrill, piercing tones for a piece of meat.
5. The county of Norfolk in England.
6. In a dreadful rage he tried to seize Willie.
7. Sugar plums, a guard chain, and some new music.

8. He managed to crawl easily, slowly, and steadily.

9. Opening the door she saw a bird with soft, yellow feathers.

10. Enemies and friends happened to meet together.

11. She snipped off ribbon enough with her mother's scissors.

12. They buried him for he was dead already.

13. Ascending and descending the tall chimney.

14. She never lost her presence of mind.

15. He walked off coolly and leisurely.

16. He attracted his attention, fully believing in his power.

17. The weight of his soaked clothes completed his distress.

18. Men imagine they hide their thoughts, but God knows them.

19. He was touched at a scene of such emotion and pleasure.

20. In fifteen minutes they separated on their several errands.

21. A wearisome job for robust, healthy boys.

22. He threw off his clothes, jumped in, and saved him.

23. A small country village near the wonderful city of London.

VALUE—50; 2 marks off for each mistake in spelling or use of capitals. Pupils will write but once, and the teacher will dictate slowly and distinctly.

READING.

VALUE—50; 35 marks being given for correct reading, and 15 for a reproduction in the pupil's own words; of the lesson on "The Best Fun," no previous preparation being allowed.

Junior Third to Senior Third Class.

SPELLING.

(Not to be seen by Pupils.)

1. Nothing but repulses, accompanied by abuse.
2. Two mattresses and an earthen pitcher of vinegar.
3. His gratitude guessed her taste in an elegant basket.

4. He could scarcely keep his countenance during the harangue.

5. The marvellous work of art made a great sensation.

6. To my despair, the light suddenly disappeared.

7. An immense ocean covered with innumerable islands.

8. Tell me what I ate this morning for breakfast.

9. They seized him and clipped off both his ears.

10. So famed for his talent in nicely discerning.

11. The opportunity of pursuing a liberal course of study.

12. Tumbling and peeling the skin of their shins and knuckles.

13. Completely deceived and unconscious of their situation.

14. He conceived a new and original method.

15. The spectators rewarded him liberally.

16. Sagacity, docility, benevolence, fidelity and attachment are qualities in the dog.

17. Nearly immersed and unable to extricate itself.

18. The final suppression of the Scottish rebellion.

19. He fought desperately for some minutes on the opposite side.

20. Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday.

VALUE—50; 2 marks off for each mistake. Pupils to write but once; teachers to read slowly and distinctly.

READING.

VALUE—50; 35 marks for correct reading. 15 for a good reproduction in pupil's own language of the lesson on "Brave John Maynard."

GRAMMAR.

1. What part of speech is each word in the following passage? (The word *the* not counted.)

He made his arrangements in the night and began very early the next day. He instructed the labourers and they came at four o'clock in the morning. They set to work and the thing was soon done.

2. Write six sentences and draw a line under that part of each sentence called the predicate.

3. Write a description of your school-house. Try to fill ten lines of your paper with it.

Ten marks additional for neat paper. Value of last question includes spelling, correctness, and general fitness of language.

GEOGRAPHY.

1. Give the boundaries of the township you live in.

2. Name the Province you live in, and name separately the other Provinces of Canada, shewing which lie east and which west of your own.

3. Name the land lying east of the Pacific Ocean, and that lying west; through what must you pass in sailing from the Pacific into the Arctic Ocean.

4. Name six peninsulas in Europe and name the waters that surround them.

5. Name three large rivers in each of the continents of North America, South America, Asia and Africa, and name the waters each river flows into.

Ten marks to be deducted for lack of neatness.

ARITHMETIC.

1. Write in figures six hundred millions four thousand two hundred and fifty-eight, and forty millions twenty-eight thousand and nine.

2. How many times can you subtract 1482 from 25574?

3. By dividing 42 into a certain number I get a quotient of 375 and a remainder of 16; into what number did I divide?

4. A man sold 46 head of cattle at \$33 a head, and 25 horses at \$135 each; he paid \$3500 of the money for a house, and with the rest bought flour at \$6 a barrel; how many barrels did he buy?

5. How many dozen of eggs at 12 cents a dozen must be given for 4 boxes of raisins each containing 15 pounds at 15 cents a pound?

VALUE—10 each; ten marks additional for neat work. Full work required.

CONTEMPORARY LITERATURE.

OLD GREEK EDUCATION, by J. P. Mahaffy, M.A. London: Kegan Paul, Trench & Co. Toronto: Willing & Williamson, 1881.

IN the midst of our keen debates on the best educational methods, despite of classical reading, it requires a strong mental effort to realize that the very thoughts that stir our brains and struggle for expression were on earth before, at least a couple of millenniums ago, and were then clothed in a literary form which excites the envy and the despair of the best modern writers. On a question of training processes,—literary, æsthetic, or physical,—it would be exceedingly difficult now to employ an argument which cannot be either actually reproduced, or at all events closely paralleled, from the lectures of Socrates, Plato, Aristotle, or Isocrates. Even in athletic training, which now engrosses so much attention and ingenuity, it seems hopeless to attempt anything very new. We Canadians pride ourselves on our graceful national game, Lacrosse. As in duty bound, we believe it to be a genuine product of our own soil, found here by Cartier, Champlain, and the other pioneers who saw the Indians at play in the broad glades of the forest; and handed directly to our sons by these red-skinned *autochthoni*. As we all know, the Byzantine Empire lived on the stirring memories and traditions of the Athenian Hegemony, and prided itself on its servile imitation of those glorious old Greeks who, alike in physique and intellect, were held to be the type of perfect development. Now hear the game of Lacrosse described by a Greek of Constantinople 680 years ago, and we may be reasonably sure that the game was then a venerable legacy:—"Certain youths, divided equally, leave in a level place, which they have before prepared and measured, a ball made of leather, about the size of an apple, and rush at it, as if it were a prize lying

in the middle from their fixed starting-point. Each of them has in his right hand a 'stick' (*rhabdus*) of suitable length ending in a sort of flat bend, the middle of which is occupied by gut strings, dried by seasoning, and plaited together in net fashion. Each side strives to be the first to bring it to the opposite end of the ground from that allotted to them. Whenever the ball is driven by the 'sticks' to the end of the ground, it counts as a game."

Some fine manly sports, though thoroughly understood, were from association of ideas distasteful to free-born Greeks. Even in seagirt Attica our champion Hanlan would have ranked far below a cabman. Regattas were quite usual, but the rowing was given over to slaves, though the memories of Salamis might well have secured for future oarsmen high and honourable recognition. There was no lack of leisure among the youth of Greece, for they had no foreign languages to learn, and the *ologies* were still in a state of protoplasm—mere scientific jelly, so to speak. And, truth to say, these idle hours were often filled in by employments that gave the old statesmen much anxiety for the future of their country. Gambling took early and deep root. Some few of the identical dice that were employed have come down to us, and of these few it is melancholy to relate that some are *loaded*.

It was not for want of State oversight the Greek youth went astray. At Athens, as well as at Sparta, the child was held to be the property of the State, and the father was thus a trustee for the State. At Sparta an ignorance of the three R's was rather expected than otherwise; there, the ambition was to beget stalwart men-at-arms,—tall, lithe, and adroit. At Athens the ideal of perfect manhood comprised not only a splendid physique, but graceful action and eloquent expression. In both cities, infants that were weak, under-

sized or deformed, were remorselessly exposed, so that a household of four persons under one roof would have exceeded the average of families. In either city it would certainly have fared ill with Isaac Newton, of whom at his birth, as the midwife contemptuously declared, there was not enough to fill a quart-pot. No better fate would have been in store for Pope, Voltaire, and the whole race of literary Titans whose brains, even before their birth, had got the better of their muscles.

The training of youth being regarded as the very corner-stone of State-craft, we find the most profound thinkers of Ancient Greece bending their powers to the solution of infantile difficulties, as well as to the highest speculations of philosophy. By Greek fire-sides Archytas, the famous astronomer of Tarentum, was better known for his invention of the *child's rattle* than for his profound researches into the weight and figure of the earth. And his great ancestor in philosophy, Pythagoras, is at this day known chiefly for his device of the "Multiplication Table" and for his discovery of the 47th Proposition; while all the vast and recondite stores of knowledge that he had amassed by a life-time of travel and study are for us hopelessly lost. So with the most eminent sons of Athens.

"Ancient of days! august Athena! where,
Where are are thy men of might? thy grand
in soul?

Gone—glimmering through the dream of
things that were;

First in the race that led to Glory's goal,
They won and passed away—is this the
whole?

A schoolboy's tale, the wonder of an hour!"

Among the numerous heirlooms that have descended to our children from the early Greek schools is the *abax* [Roman *abacus*] or numeral frame. In default of decimal notation, and relative numerals, the old mathematicians used this device or its precise equivalent, though of course with applications far beyond the range of our infant schools. The basis of ancient notation was *five*, and the Greek child, so far from being restrained from using his fingers for counting, was taught to *extend* this dactylic arithmetic so as to include high multiples of five. It

does not appear to have been noticed by any writer how easily the decimal system and relative numerals may have been suggested by the abacus *as used by the ancients*; and it seems to us incredible that a mechanician and mathematician having the intellectual stride of Archimides could have failed,—if indeed he did fail,—to take the short and easy steps necessary for the transition.

Art education in its higher aspects was at Athens a subject exterior to the ordinary school course, which seems to have been confined to geometrical drawing or conventional models.

An extraordinary degree of importance was in Greece attached to the selection of musical instruments and of *instrumental music*: An unwise choice being held by Plato and other eminent educationists as infallibly disastrous to morals. The flute was looked upon with suspicion: the clarionet was the favourite wind instrument, as the lyre was the standard in strings. This department of ancient school-craft has fairly baffled the majority of commentators, but Professor Mahaffy treats the question with characteristic skill and ingenuity. He first prepares us for the discussion by illustration, and then, having arranged this light underneath, he applies to the question from above natural insight of fine definition and of very high power. A close reader will notice that this system of literary research is adopted by the best analysts of our day; but its successful employment requires rare skill.

The literary training of Ancient Greece is better understood than any of the other branches. This however is too tempting a subject to be treated or even characterized at the end of a brief review. Plato's school, or rather University, had of itself a distinct history of seven centuries, before the intellectual glow faded into the deep night of the middle ages. The "Academy" was, by the arrangement of its generous founder, free to all qualified students. This noble instinct in the Greeks for high culture is still exemplified in the administration of the great University on which Modern Athens generously spends

much of her resources, and to which studious Greeks are admitted without let or fee from all the wide world over. Here we have realized the highest ideal of a Panhellenian; and a race that thus shows itself conscious of its past history and of a lofty future mission, is ultimately sure to win for itself not only sympathy but success in its national aspirations.

J. H. H.

SOME TOPICS IN ENGLISH GRAMMAR. For the Pupil, the Teacher, and the General Reader. Edited by Arthur Hinds, lately Teacher of Grammar in the Westfield, Mass., State Normal School. New York: Baker & Godwin, 1881.

THERE is probably no other subject in the Public or High School course upon which so much time is wasted in teaching as in that of English Grammar, neither is there any other subject, probably, that can vie with it in importance.

Of late years many attempts have been made to simplify its study. With respect to some of these attempts, perhaps the less we say the better. Mr. Hinds approaches the matter from a *human* standpoint when he says, "A knowledge of grammar does not insure correct speech. Many a child uses correct language who has never studied grammar, and it may be has never heard of it; many a teacher is faulty in speech who is thoroughly versed in grammar. To teach correct habits of speech would seem then not *the* province of grammar: it is the province of 'language lessons.'" And "language les-

sons should form a part of *all* the child's training, both at school and at home." This is the key-note to Mr. Hinds' "Some Topics," and although his statement of the theory is an excellent one, it would be impossible for us to say, without actual trial, just how far his method of treatment is likely to prove successful.

As an aid to teachers, we have no hesitation in saying that the book will be very useful.

"THE RURAL CANADIAN."—The impetus given to agriculture throughout the Province, by the recent wise action of the Ontario Government in having a Commission report upon the various industries that pertain to it, has borne fruit in the issue of a new fortnightly paper devoted to its interests. This enterprise has for its title "The Rural Canadian,"—a handsome 16-page serial, edited by the Rev. W. F. Clarke, an able and well-known agricultural writer, and published by Mr. C. B. Robinson, Parliamentary printer. In these days, when the professions are overcrowded and the avenues of commercial life are so many paths to financial ruin, a true kindness would seem to suggest that "Rural Canadians" should remain on their farms. This, in not a few cases, would be found better than keeping school, or trying "to make 'n an Editor out 'n a Jim." If any one doubts our word for this, let him send a dollar for "The Rural Canadian," and secure at some comfortable farm-house board for a year for two.

WE have pleasure in calling the attention of heads of educational institutions, and the profession generally, to Mr. Edgar Buck's announcement that he has opened a College of Music at 375 Church Street, Toronto, for professional training in elocution, solo and concert singing, and the cultivation of the speaking voice. Prof. Buck has had large experience in teaching the art of Voice Culture, and his successful methods are vouched for by many influential names in Toronto and Ottawa. These testimonials and references, and terms for tuition, may be had by application at the Professor's residence.

WE have to thank those correspondents who have sent us communications denouncing the wrathful attack of Messrs. Gage & Co. upon THE MONTHLY and its Editor, and assuring us of their appreciation of the propriety and justice of our criticisms upon certain text-books which would inflict a lasting injury on education were they permitted, with their present defects, to find their way into the schools. In our unpleasant duty of exposing the worthlessness of these books, it is grateful to us to receive the support of the profession, and to know that our motives are not misunderstood.

EDITORIAL NOTES.

"LIFTING VEILS."

THE candid criticisms upon Canadian school-books and the trade tactics of some of their publishers which have now and again appeared in this magazine, together with the many articles we have published on our educational administration and its machinery, would seem to have formed not the least of the healthy stimulants by which interest is aroused from time to time in the cause of true education and a sound educational literature. In these criticisms, that we have succeeded in doing something more than arresting attention, not only the siren voice of friends, but the amended course of ministerial action, and the retraced steps of recalcitrant publishers, have frequently borne witness. That one of the latter has now and again jibbed, when we have given him an occasional prod through the review department of *THE MONTHLY*, was, considering the wonted docility he has publicly claimed credit for, perhaps not to be wondered at. Indeed, in his indulgence of the refractory mood, every allowance has to be made for him—to the extent, as Mark Twain would say, of his occasionally "cutting up" and "speaking back." In some respects, the poor fellow was to be pitied, for we had so effectively interfered with his little games, deprived him of his friends on the Central Committee, exposed the pretensions of his pretence look-makers, and generally been a thorn in his flesh, that it would not have been in human nature for him to conceal his baffled rage, or to abstain from "lifting veils," under which he hoped to find a sham oracle. The "veil-lifting" entertainment was of course little else than a pantomime, suited to the holiday season, and with that travesty of truth and the life which one naturally looks for on a paper stage, with the make-believe of injured innocence and the harlequin pos-

turings of "a Pirate Pub." simulating the "slave of duty." To treat other than flip-pantly the attack of W. J. Gage & Co. [in the January number of the *School Journal*] upon this magazine, its editor and promoters, would be to lay ourselves open to the charge that we were lacking in the sense of humour. The "Plain Facts Concerning Three Shams" of our contemporary is so ludicrously beside the mark, while it is so wofully wanting as a defence of the "Practical Speller," of which we had something to say in our last issue, that it is next to impossible to treat the affair seriously, or to imagine that the article would be mistaken by anyone but as the despairing effort of a house, conscious of the justice of our criticism, yet unable with relevancy to reply to it. As we write, however, it occurs to us that it is just possible that the statements respecting ourselves, in the article to which Messrs. Gage & Co. have appended their signature, are matters which that firm have deluded themselves into believing, and that their "Veiled Treason" to truth has not been detected. In this event, if our readers will allow us the space, it might be worth while to set the firm in question right.

But first let us analyse the article, that we may give Messrs. Gage an intelligent notion of the haphazard assertions in the contribution to which they have subscribed. These the truculent writer groups under three heads: (1) *The Canada Educational Monthly*; (2) Mr. G. Mercer Adam; and (3) The so-called Syndicate of Experienced Canadian Teachers,—in each of which, either from ignorance or malice, he has set down an unconscionable heap of falsehoods, and, from the publishers of the slanders, has "lifted the veil" of any shred of candour they had left to cover them. From first to last the article is a tissue of lies—the opening paragraph informing its readers that it has borne "in silence for

years the coarse (?) attacks in this (the present) magazine," and its closing one, that "a decided aversion to discuss personal matters has prevented our (Gage & Co.) doing so before"—*both being untrue to fact*, as a reference to the *School Journal's* onslaught on us, in its issue for April, 1881, will testify.

Beginning and ending with statements which the publishers of the *School Journal* would perjure themselves were they to endorse on oath, it will occasion little surprise if we affirm that the rest of the article is manufactured out of the like "whole cloth." There is scarcely an assertion made which we cannot honestly and truthfully refute. Under the first head, Messrs. Gage & Co. undertake to discredit THE MONTHLY as "an independent journal," affirming that "it was started with three objects: to attack the Education Department and the members of the Central Committee 'to write down books issued by our (Gage & Co.'s) house, and to write up those published by the chief subscriber to the (Monthly's) guarantee fund,"—*all of which statements are absolutely and unqualifiedly false*. With the further purpose of criminally decrying the undoubted independence of THE MONTHLY, Messrs. Gage, with partisan rancour, connect the names of three High School Masters, at whose "instigation" THE MONTHLY is said to have been started, with the obtaining of "a guarantee fund, given by certain publishers," but with which the gentlemen referred to had nothing whatever to do. It is true that Messrs. Seath, MacMurphy, and Dickson, with others who longed for an able and independent professional journal, at the inception of the magazine gave it hearty countenance and support, and their words are on record in behalf of the approved aims and objects of the publication. Their desire for a rigidly independent magazine was repeatedly expressed at meetings of the Provincial Teachers' Association long before the present publication came into existence, and on its appearing it was accorded support on the sole and emphatic understanding that it was, and should remain, in good faith, independent. It was also a condition, which was

ratified when the publication was acquired as a property by an incorporated body of well-known and responsible teachers, that it should be "no one's mouthpiece, nor be used to puff any particular book-store, or set of men." That THE MONTHLY has consistently adhered to this platform, it need hardly be affirmed by us, for the fact has on all sides been acknowledged, and its proof is to be found in the pages of the magazine itself. That we have had the advertising patronage of the publishing houses, is but an acknowledgment of the value of the publication as a medium of effectively reaching the influential members of the profession, and an indication, in itself, of our merit and success. That this source of revenue has sapped our independence, or made us partial in our literary criticisms, we utterly deny; and here again the proof is in our own pages, and, as it happens, in those also of our contemporary. To substantiate this, we have only to point to the recent reviews in our columns of the two editions of Cicero *Pro Archia*, by Messrs. McHenry and Parker—the first of which, *published by Messrs. Gage & Co.*, we were happy to be able to speak well of; and the latter, though published by the firm whose books we are accused of "uniformly lauding in most flattering terms," the *School Journal's* own pages testify to Mr. Parker's grave, though, as we think, indiscreet dissatisfaction with. We admit, at the same time, that Messrs. Gage have reason not to be in love with our reviewing, but this, considering the slatternly work of much of the school literature the firm has issued, and the circumstances connected with the publication of books upon which the Department and the public have, on our exposure of the facts, damagingly spoken, is an added proof of the soundness of our criticism and the endorsement of its moral value.

On another point Messrs. Gage & Co. desire to libel THE MONTHLY, viz., in refuting, with a cheap flourish, the claim which it sets up for us, that the magazine is "high-toned." But this act of baseness is wholly gratuitous, for we have never laid claim to the distinguishing term, and have not the

slightest desire to do so. The phrase is one we utterly loathe and repudiate, and we make a cordial gift of it to Charles Julius Guiteau, and to the firm whose costermonger use of it has helped to dishonour it. Messrs. Gage, descending in the scale of epithet and accusation, then go on to cite, as an evidence of the "high-class journalism" which they sneer at, the fact that we devoted sixteen pages in our last issue to the reproduction of an able and interesting article on school reading books, which they have the effrontery to speak of as an advertisement, and call upon their readers to note that we were "palming it off" as an article on an educational subject. A grosser misrepresentation of our motive in reproducing the instructive article could scarcely, in a respectable journal, find its way into print. But the unscrupulous purpose its publishers had in view is betrayed in the next sentence, which insinuates that the appearance of the article in our columns was to make it tributary to our advertising patronage—an opinion which could only have been suggested by familiarity with the practices at which it maliciously hints.

In the second "act" of Messrs. Gage & Co.'s amusing comedy of "The Veil Lifted" we are introduced to the august presence of the editor of this magazine, under the thin veil, in craven fear of a libel suit, of a fictitious Christian name. The character impersonated is, of course, the "heavy villain" of the piece, whom the man in the wing who rings up the curtain introduces with a knowing wink, accompanied by sundry dark references, as the man that edits what the introducer knows nothing about—"an independent and high-class journal." This journalistic Cetewayo has then flung at him the choice pellets of the showman's vocabulary. He is assailed as an "independence" man, and hence guilty of treason to the *e-state* (of Gage & Co.). He is also "hired" to do certain dreadful things: "to fit the contents of a magazine to its advertising pages"—which means, of course, to blow the craft up; "to decry our (G. & Co.'s) publications"—which consists in re-spelling, for the benefit

of the firm's editor, the word "pronunciation," and in suggesting that he "catch up" the syllabication of some of the little words in the language. Furthermore, it is stated, that he intends "at some future time" to connect himself with a syndicate to build a rival series of railway readers, and to be engineer-in-chief in the construction of a new highway to *impracticable* spelling.

Now, all these wicked and perturbing designs should properly be exposed, and Messrs. Gage & Co. have undertaken the heavy task of lifting the thin "veil" which has hitherto concealed the assumed Intransigent's operations. But we can quite fancy some of the *unstartled* readers of the *School Journal* being heard to say, that they are very sceptical of the truth of such extraordinary revelations, and that they insult the intelligence, if Messrs. Gage design them as a defence of a self-condemned Spelling-Book. Of course, to cover a retreat, and with the purpose of saying *something*, however irrelevant, it may be amusing and not very harmful to traduce a contemporary; but it is a sorry shift for a publishing house which aspires to produce the school-book literature of the country. *It is*, echoes the present writer, and he hopes that the compilers of "Gage's Educational Series" will shake off their unhappy addiction to blundering, and join with him in calling forth more creditable specimens of Canadian school-book literature. It is one of the real and lasting calamities to education that inferior text-books should be in use in the schools; and if there be at times a strain of savagery in our reviews of such books, it will be conceded that a just severity is the best kindness we can shew to their publishers, and the highest service we can render to education. It is true that the journalist who respects his profession and feels the obligation that rests upon him to speak the truth, has at times to address himself to unpleasant tasks; but when he works in the unpartisan temper, and rates his honour above his purse, he has reward of which an angry publisher knows not, and that consciousness of rectitude which is more than fame. Under this new attack,

therefore, of Messrs. W. J. Gage & Co., we feel that, personally, we have little occasion to be discomposed, and that the Philistinism which vents itself upon the CANADA EDUCATIONAL MONTHLY is but sure to recoil, with increased discredit, upon those who invoke it. Such misrepresentations as the publishers have permitted to appear in the last *School Journal*, they may be assured, are unworthy of them and their work; and their moral measure of the owners and conductors of this magazine equally discredits their sense of justice and truth. If the publishing firm will but improve the character of their publications, they will find an ally where they at present find a vigilant and outspoken critic, and may then feel easy in regard to the literary judgments of THE CANADA EDUCATIONAL MONTHLY.

IN UNION, STRENGTH.

OUR readers, we doubt not, will receive with satisfaction the announcement that the oldest educational periodical in Ontario, the *Hamilton School Magazine*, will henceforth be incorporated with the CANADA EDUCATIONAL MONTHLY, and that its conductors with the present number take a place on the staff of this magazine. The gain to our readers in this literary partnership need scarcely be dwelt upon, for the eminently practical character and general excellence of the *School Magazine*, wherever it has circulated, has been readily admitted and heartily extolled. Though the publication in the future is to lose its separate and distinctive individuality, this will no doubt manifest itself in increasing the attractions of the CANADA EDUCATIONAL MONTHLY, and, by the literary and professional aid which its promoters bring to our enterprise, enable us to cater still more effectively for the wants of the Canadian teaching profession. In this fusion, it may safely be said, that never before has Canada had so much educational effort enlisted in its periodical press, and that the teachers of the Dominion may well be congratulated upon the opportunity now afforded them to utilize in their professional work the combined talent

now at their service. In the range, variety and adaptation of the school-work we are now able to present to our readers, the CANADA EDUCATIONAL MONTHLY should find its way into the hands of every teacher in the Dominion; while the candid and independent attitude of the magazine, in respect to educational administration and every interest, social and professional, that affects the teacher, should further recommend it to those who appreciate honest and fearless thought, and the disinterested motives that counsel and direct its expression. In these respects, and in the literary characteristics of the magazine, we may well claim to have created a new educational literature,—and that not only for Canada, but, admittedly, for the profession in older and more cultured communities. But we have had in view, not only to improve upon the characterless serial publications heretofore issued in the long-suffering name of education, but to adapt our enterprise to the progressive mind of the country, and to appeal to higher standards of professional attainment and to all that makes for the culture and refinement of the community. What we have accomplished makes us hopeful that the announcement we make in these columns will ensure for THE MONTHLY a still greater success, and the whole-hearted favour of Canadian teachers. The strength of the *Hamilton School Magazine*, which lay in the practical school-work of its various departments, will give increased force and effectiveness to our own effort, and we doubt not will make the CANADA EDUCATIONAL MONTHLY more than ever acceptable in the teacher's library and the school class-room. The present issue of THE MONTHLY will be mailed to the former subscribers of the *School Magazine*, and all who are not on our own mailing lists are urged to send in their subscriptions. By arrangement with the proprietors of the *School Magazine*, THE MONTHLY will be sent free to the subscribers of the former until their subscriptions expire. Those who are already subscribers to THE MONTHLY will receive credit, in extension of the date to which they have paid, for any unexpired portion of their subscriptions to the *School Magazine*.

THE HOUSE AND EDUCATIONAL QUESTIONS.

THE debates on the Address, on both sides of the Local House, have this Session been of so stirring a character that we may not unnaturally look for some lively discussion of educational topics when Mr. Crooks makes up his mind to bring them before the Legislature. We could wish that, with regard to some of the Minister's actions, the doctrine of "Disallowance" were more frequently acted upon, and agitation upon the "Boundary Question," in circumscribing Departmental Centralization, made practically operative. But Mr. Crooks, in the meantime, exercises imperial power, and education and educational interests must submit to be shaped as he thinks best. His party, moreover, is strong in the House, and we presume we are far from seeing it divest itself of an office which can shed even a feeble lustre upon the Administration, and in its patronage add to its days. Nevertheless, we long for a separation of our educational affairs from politics, and a return to the system of a permanent lay executive. Happily, signs are not wanting that this view of the matter is growing in the country, and we may yet see our wish realized.

What Mr. Crooks' bill-of-fare is to be, we cannot of course divine. It is time, however, that we had the Ministerial Report, and we shall look in it for an utterance on the subject of "Cram," and for practical suggestions for its repression. The want of new School Readers, no doubt, will be touched upon, and we may look for a deliverance on trade ethics, for the benefit of rival publishers, and the usual mandates against the use by the profession of unauthorized text-books. Mechanics' Institutes will, we presume, have some attention, and we would look to the proposed Public Libraries Act for the means of galvanizing these moribund institutions into quickened life. Upper Canada College—well, we cannot, we won't, touch the "burning" question! But Dr. May and the Commission of Inquiry deserve consideration. Yet it will be time, perhaps, to

speak of this grave matter when the Minister has told us *what has* been done. We need hardly say that the public will not suffer itself to be now cajoled in respect to these Depository scandals, and will have no white-washing Report as the result of a perfunctory Inquiry.

There is talk again of a reconstruction of the Central Committee, three of its late members—Messrs. Watson, Tilley and Glashan—having retired at the end of the year. Professor Watson, whose withdrawal is a loss to the Minister's advisory body, is, we believe, to be replaced by Mr. Maurice Hutton, Classical Professor at University College. The appointment of this gentleman is, we should say, an admirable one. To fill the other vacancies, we understand that Mr. J. Howard Hunter, M.A., and Principal Buchan, of Upper Canada College, have been asked to take office. As they are both adepts in educational matters their appointment will, no doubt, be acceptable to the public. From the reorganized body we will look for good results, in this reconstruction of the *personnel* of the Committee, and the increase of its practical working power.

It is always pleasing to us to notice any expression of kind feeling which marks the relation subsisting between teacher and pupil, and of regret at any severance of that relation. Recently Mr. David Boyle, Head Master of the Public School, Elora, was made the recipient of a handsome gold watch by the pupils of the school, on the occasion of his retiring from professional work. The address which accompanied the testimonial spoke in dutiful terms of the appreciation, by the pupils and their guardians, of Mr. Boyle's long, able, and conscientious services as a teacher, and of his zeal and intelligent interest in the Elora Museum, the Mechanics' Institute of the town, and other public-spirited work. Mr. Boyle has also received kindly testimonials from the South Wellington and Guelph City Teachers' Association, expressive of the gratitude of that body for Mr. Boyle's helpful aid in the many years he has been connected with it. Mr. Boyle, we learn, is about to enter the service of the Canada Publishing Company, Toronto, to represent their various educational enterprises. We wish him hearty success.