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THE CANADA
EDUCATIONAL MONTHLY
AND SCHOOL MAGAZINE.

OCTOBER, 1885.

THE BEST POSSIBLE EDUCATION.

BY THE VERY REV. PRINCIPAL GRANT, QUEEN'S UNIVERSITY, KINGSTON.

NEVER before in the world's history was there so much talk about education. Never before were there so many schools and colleges, so many schoolmasters, schoolmistresses and professors; so many theories propounded, books written, periodicals published, money spent, laws and regulations made, unmade and re-made, returns and statistics of all kinds perpetually called for. We talk about our "system" of education as if there never had been the like of it before, and as if we had at length discovered how to make more of the human brain than ever was made before. Is all our jubilation warranted? Has all our clattering machinery given us such great men as England, for instance, produced in the days of Queen Elizabeth, or has it made average men and women better? Do we see the results in abler statesmen, truer prophets, more upright judges, more unselfish legislators, better mechanics, more honest merchants, a people more industrious, duty-loving, braver than "those stout

yeomen whose limbs were made in England," who conquered from Cressy, Agincourt and Poitiers to Cadiz Bay and Naseby? Is there among us a purer morality, a loftier sense of public duty? Let us look for answer to the debates in Dominion Parliament and Provincial Legislatures, to the proceedings of Trades Conferences, Church Conferences and Courts, and to those still better reflections of society—the newspapers, the current amusements, and the popular conceptions of what success in life means. The answer will probably be, ought certainly to be, a doubtful shake of the head.

But have we any right to look to our schools for such results as have been indicated? That depends on what we consider to be the true object of education. If the object of education be the development of the potencies in us to the utmost of all their rightful issues, then the life of a country should depend largely on its schools. True, the minister, the author, the writer for the press are all

educators, and the best of all schools is the home. But schoolmasters are the only educators who are supported by a tax on the whole community. They are the only educators who are organized by the public for public work. They have almost all the children of the country in their hands, and they have them for almost every day in the week, and almost every week in the year. But we must have a clear conception of the main object of all the work they are called upon to do, that is, of the education they are expected to give. Only then can we know what is the best possible kind of education, and how we are most likely to get it or to get something very different.

I have nothing to say to those who have any lower conception of education than that it ought to deal with our whole nature. It is to fit us for real life, the life that we have to live as long as we are on earth. Whether we add the hereafter also matters little, for those only who live well here are prepared for the hereafter. As its object is life, it must embrace the whole man, and not only the intellectual side of man. Indeed, when we draw distinctions between the different sides of our nature, and talk of the different powers and faculties of the mind, the metaphors used are apt to lead us astray. Man is a spiritual being and spirit has neither top, bottom nor sides. A power of the mind is simply the whole man acting in a particular direction. We must not allow metaphors to dominate us. They make religion materialistic and turn poetry into poor prose. They play queer tricks with our conceptions of the constitution of human nature. Man is a unit. We must take him in his entirety, or we shall have only corpses or abstractions to deal with, that is, we shall be dealing not with realities but with unrealities. Now, if man was intended to be only

a calculating machine, to "dicker" well, to amass wealth, in other words, to "succeed," in the ordinary acceptance of the word, then it would be quite right and proper to subordinate everything in his education to arithmetic. But if that is not the chief end of man, if instead he is capable of comprehending all the meanings of this wonderful universe, if it is intended that he should keep time with the pulses of the Eternal while doing the every-day work of the world, then a culture at once simpler and richer is needed. To stimulate his intellect at the expense of either the physical or the spiritual in him will be bad, not only for muscle and conscience, but for brain as well. If comparisons are to be made, it is more important that he should have the staying power that is seldom found except in connection with rugged health, and still more the moral qualities that constitute character, than the intellectual acuteness that may enable him to be a successful or unsuccessful thimble-rigger in banks or stocks or at the regular gaming-table.

Our Public School system tends to the undue exaltation of mere intellectual sharpness and nimbleness. The written examinations to which young children are subjected, the fact that promotions from school to school, and from form to form are consequent on the results of these written examinations, and the character of the questions generally put, especially the prominence given to arithmetic and to verbal analysis, sustain this serious charge. The system is one-sided, rigid, harsh and pretentious. It cramps individuality. It ignores genius and it has no place for the Rugby stupid boy of whom Dr. Arnold said, "I would stand before him hat in hand," because the said boy was patiently cultivating inferior powers of mind. The papers on which boys and girls have to write before they

can pass from the Common to the High School are sometimes appalling to a college professor. He feels thankful that in his day such fences had not to be leaped, for he knows that in attempting to jump them even now he would be sure to get a cropper. And yet these papers are placed before his little son and daughter, and they, with fingers that have hardly learned to hold a pen with ease and minds untrained to clothe half-formed thoughts in words, are compelled to torture their immature brains to solve a given number of puzzles in a given time, and write the solutions down in black and white, or be subjected to what must always be considered disgrace. A teacher who comes in contact with his scholars every day ought to know whether they are fit to pass into another school. If he cannot be trusted, associate with him the Rector of the High School or the Chairman or a Committee of the Trustees, and let the result depend on oral more than on written examinations. There is no need to put the fence too high. As a rule, fees are charged and rightly charged in High Schools, and that of itself is almost sufficient fence, not to speak of the greater difficulty of the lessons, a fact which can have no great attraction for the ordinary juvenile mind. At any rate, why should the decision be wholly upon written examinations on questions drawn up by a central department and not upon examinations by men who are in a position to make all the allowances that ought to be made? Our system of course is intended to secure uniformity; but uniformity in education is the one thing to be shunned. It is dear to the official mind, and is therefore bad. As a rule, the departmental mind can rise no higher than to conceive of a mechanism faultlessly uniform. Cf the higher unity and beauty and power of an organism, vast as a na-

tion, elastic and full of infinite possibilities, it has no appreciation. It has been said that "the teacher who does not regard the individuality of his pupils is like the physician who administers the same medicine to all his patients." But, if it be wrong for the teacher to treat his two or three score of pupils regardless of the divine differences between them, what shall be said of the wrong done by the system that deals with two or three millions as if they were simply so many bricks in a brickyard? Uniformity is the great idol before which many a genius has been tortured. Uniformity in the Common School, uniformity in the High School, uniformity in the University, this is the ideal of the ordinary official or departmental mind. China exists as a warning, but the warning is unheeded.

It is only fair to note here that for the last year or two the examination papers for entrance to the High Schools have been much improved. There are fewer puzzles and catch questions, but they are still too difficult, taken as a whole. But the system itself is the great wrong. Any boy who can read with fluency, expression and intelligence might safely be admitted to a High School. How many boys in our High Schools can read in such a way? And how can a written examination test the cultivation of intellect that is implied in such reading! It can test cram, and little else.

That is the best possible education which has respect to what a boy is and to the life he has to live. Our boys are to be citizens of a free State, and the great mass of them will have to work for their living. It is necessary that they should be able to read their mother tongue with ease, that their imaginations should be filled and possessed with true ideals, and that their minds should have de-

veloped so healthfully that on leaving school they shall feel that their education has only commenced. A boy so trained will go on educating himself whether he enter a High School or the larger school of the world. A system that does not induce our young men to read, to study, to think for themselves, cannot be good. Now, authorities tell us that fewer books are read in Canada in proportion to population than formerly. Such a negative result of our wonderful educational apparatus is appalling. It means that our young men have not, with all their learning, been taught to delight in reading, and that means that they have not been educated aright. Instead of puzzling them with arithmetic and analysis, and cramming them with useless geographical and historical facts, how much better to give them a taste for reading and an appreciation of our own literature! Then their education would be continued throughout life. Such knowledge would not make much show on examination papers, but we could put up with that disadvantage. For what our Governor-General has recently said as to the object of a University is true, in the main purport of it, of every Common School: "It should be the object of its educational course to expand the minds of its students, to make them more anxious for knowledge, not of one kind only but of all kinds more capable of acquiring it, retaining it and assimilating it, and for this purpose the study of literature and languages is absolutely indispensable."

But while it is needful that our children shall be able to read with understanding and to appreciate books, it is of still more consequence

that they shall be hardy and healthy, truthful and brave, honest, persevering and patient. Here it will be asked, what have schools to do with physical development, and how can morals be taught? The right schoolmaster will deal both with the physical and the moral; but to get the right schoolmaster we must give him his proper place. The way to get him is certainly not by the system of annual elections, or by making him the mere slave of a department. He must be independent. His appointment, if not for life, should certainly be without limitation of time; and in the school he should be as supreme as the parent is in the home. You can no more expect enthusiasm from the slave of red tape than from any other slave, and we need expect nothing from teachers devoid of enthusiasm. It seems to me that those who clamour for industrial or technical teaching, that is, for manual labour in our schools, have not thought out the subject or that they can hardly be in earnest; but even their demand indicates a recoil from the old notion that schooling has no connection with the every-day life of the world. The wise teacher will be profoundly interested in the physical development of his scholars, and he will find ways of teaching morals. He is teaching them every day by his tone, by his character and his own life; and a wise community, knowing what a force for good or evil he must be, will elect its wisest men as school trustees, and they will best show their wisdom by electing as teachers the noblest men and women they can obtain, and after electing them, treating them with honour, and above all, giving each of them a free hand.

THE GERMAN SCHOOLS.

A. J. EATON, PH.D., PLYMOUTH, MASS.

IT is not seldom that one hears in Ontario the patriotic boast that its common school system is one of the best in the world, and the statement can scarcely be disputed. Yet excellent as the common school system of the Dominion may be, no one can be blind to the serious defects in intermediate and higher education. It is for this reason alone, I think, that our reputation as an educated people is yet to be recognized. To a distinguished and widely read foreign scholar with whom I had lately the honour of conversing, the Canadians were an unlearned, uneducated people ("*unwissenschafliche Leute*," were the exact words of the speaker).

It is well for us to see ourselves sometimes even through the distorted vision of others. And I am not certain that we do not display as much ignorance when we talk of foreigners. Surely but little definite information of the progress of public instruction in those countries which have the best right to our recognition is found among those who oftentimes in their inexperience would seek to foist upon us their experimental systems.

No schools are better worthy of a careful study than those of Germany. No doubt much of their excellence is due to the Minister of Public Instruction who is the centre of responsibility; and this state administration, we are told, has been found in practice to be just and right. But, on the other hand, it is asserted that the whole system of public instruction in France, where a like policy is in vogue, is influenced too much by political considerations. What may be said of Prussia in this respect, I doubt

if the same can be affirmed of any other country in the world. In Prussia all officials are armed with an authority which Americans or Englishmen would not easily brook. A statesman is free to act according as his own experience directs, he is not hampered by the will of his constituency or the likes and dislikes of the populace. Yet the popular will is strong enough to prevent his being swayed by political motives. However much other departments may be governed by political considerations, it is certain that the Germans are so thoroughly imbued with belief in culture that they will not suffer it to be sacrificed to any other interest. We must not forget, moreover, that the representatives in their legislative halls generally represent the best culture of the country. For in Germany the professions are only accessible through the University course, and the necessity of combining responsibility with thorough mastery and experience in educational matters in the Minister of Public Instruction is easily met in a German council. There the statesman may be the man of letters, or the warrior—imagine such men as William von Humboldt and Wolf, the great Homeric critic, directing educational reforms. To these two men do the Germans owe, more than any others, that complete system which challenges the admiration of the world. Both to us probably are known only as the greatest scholars of their age, marking new eras in philological research.

It is my present purpose to make special reference to the classical schools or gymnasiums. These dif-

fer from the Real Schools (Realschulen), in that the classics are made the basis of instruction, though even in all the best Realschulen Latin is considered necessary. The belief that the study of Latin so strengthens the mind that it aids rather than retards the progress of the Realscholar in the studies which are peculiar to those schools, is widespread. Similar declarations have often been made respecting the schools of America, in spite of the attempt to make Latin elective. The writer recalls to mind the two high schools with which he has been connected. Though there were two parallel courses—one a classical, the other a scientific or English course—and though the numbers of scholars in each were pretty evenly divided, yet out of ten graduations, in but one instance were the highest honours carried off by those electing the scientific. And yet one of these schools, at least, possessed such means of scientific culture as few of our colleges possess. Nor is this my experience alone. In the last report of the Massachusetts Board of Education—one of the ablest and replete with information gathered by experts—we read: "The study of Latin syntax is the most thorough work done in our schools. Indeed, the larger part of the mental discipline obtained in these schools is obtained in the study of Latin. After observing closely the mental operations of more than 10,000 students in a great variety of subjects, I am convinced that nothing else can fill the place of Latin in our High School work."

We do not intend here to discuss the benefits derived from the study of language in general, or the merits of the Latin in particular. Everyone has experienced, as it were, a feeling of emancipation as new spheres of thought, new conceptions are opened up with every new unlocked literature; "the peculiar forms in which each

people clothes its thoughts, its divinations, its loves, its scientific thoughts, its political hopes, enrich our minds—all these become ours, and we become all these." And as the historian regards the Roman Dominion as the grand reservoir into which all the currents of history from the earlier ages have gathered, and from which the ampler currents of modern history have flowed, so the Latin language and literature become the medium of communication between the old and new world. In it are preserved the best records of antiquity.

Whatever, then, tends to render efficient the study of Latin in our High Schools is worthy of careful attention. It is just here that our schools, both in Canada and in the United States, suffer the most in comparison with those of Germany—? will not add England, for there the study of classics has become torpid, and has not retained the honourable place it held during the last century.

From the earliest period of a Prussian child's education, he is imbued with a taste for classical study. In looking over some elementary readers used in the schools of Leipsic, I was especially struck with the character of the selections of literature, oft repeating in a simple and interesting manner many of the old legends of Greece and Rome. But the real classical education commences with the gymnasiums—schools that for thoroughness of work and broad linguistic culture are without their equals in the whole world. Nor have I found the training here narrow, as is so often supposed. While the linguistic course is far broader and more complete than in our American High Schools, there is at the same time certainly better scientific training also. Our college graduates would for the most part compare unfavourably with the graduates of a German gymnasium

in general culture. With us it is more and more felt that the High School should do the old work of the college, and that the University should provide for the need of those working in the line of their future specialties. Matthew Arnold says: "Our great Universities—Oxford and Cambridge—do nothing towards a true University education. They do not carry education beyond the stage of general and school education. The examination for the degree of Bachelor of Arts, which we place at the end of the three years' University course, is merely the *abiturienten-examen* of Germany placed at the entrance of University studies, instead, as with us, at their close. For mastership or doctorship they have no instruction; no real University examination therefore at all."

The course in the gymnasium generally comprises nine years. The average graduation age is eighteen. There are six classes—from the *sexta*, or lowest, to the *prima*, or highest. Twenty hours of regular school work are required during the week, of these, ten hours a week are devoted to Latin and to Greek, five hours a week from *quarta* on. A visit to one of these schools is a revelation to the average American student; for in the higher forms of the best gymnasiums, all explanations and discussions are carried on in the Latin language, and one is surprised with what readiness and fluency boys of sixteen and seventeen will converse in Latin.

The distinctive features of these schools are their thoroughness and systematic drill. One who visits and acquaints himself with German University methods would be most likely to infer that the German schools must be unsystematic and lax. This would be wide of the mark. The student of the University is free to

choose whatever line of work suits him; free to attend on lectures, or scarcely enter the lecture room. His methods of working are entirely in his own hands. But after all, one is surprised to find how seldom these privileges are abused. The rooms of a Curtius or a Ribbeck are generally filled from the commencement to the end of a semester. The stimulus of examination tests for compelling attendance and promoting study is almost unknown. And when written examination is resorted to the object "is to tempt the candidate to no special preparation and effort, but to be such as a scholar of fair ability and proper diligence may at the end of his school course come to with a quiet mind, and without a painful preparatory effort, tending to relaxation and torpor as soon as the effort is over; that the instruction in the highest class may not degenerate into a preparation for the examination; that the pupil may have the requisite time to come steadily and without overhurry to the fulness of the measure of his powers and character; that he may be securely and thoroughly formed, instead of being bewildered by a mass of information hastily thrown together." "*Perverse student, qui examinibus studet*" was a favourite saying of Wolf. The freedom of the German student comes from the confidence of the German public and educators in the culture obtainable in the gymnasium. Such habits of diligence and capability of work have been fostered in the secondary schools that the student can be safely left to independent study and research. The period between twelve and eighteen in the scholar's life is especially one of the strictest discipline, both mental and physical. Should we call upon our students for an equal amount of work the cry would be over-pressure.

LETTERS TO YOUNG MEN AT COLLEGE.

BY D. A. O'SULLIVAN, M.A., LL.B., BARRISTER-AT-LAW, TORONTO.

COLLEGE COURSE.

THE average college course is well known; it is to teach something of everything, which must, of necessity, mean not a very great deal of anything. But consider that no one finishes his education in a college, and no one wants to know everything about everything, he only wants to know everything about some one thing. What is this something of everything that a boy is to learn?

This must be answered in a paragraph, nor will the same answer apply in every case. You know there is a long-continued warfare to displace the classics—the Latin and Greek classics—out of our colleges and universities. The men of science want to have science in their stead, but Latin and Greek have all the advantages of tenants in possession. These arguments, however, would not apply to such classics as are taught in most of our colleges, and unless a college is equipped equal to a full university course the sciences cannot generally be considered as of much importance in them.

A boy who goes to college means, of course, to have his Latin and Greek grammars on the very top of his satchel. He must needs wait until the next generation for a reversal of the past in this direction.

With these two languages there will be added his own, and at least one other—French or German—as the most natural things in the world. These gifts of tongues are inseparable from a college education, and generally the new student manages them like a rider in the Hippodrome—sometimes he has all well in rein and

rides his own steed, and again he is dragged on or is rolled over in the dust. But if he is well mounted on his own horse he can get along pretty well with or without the others.

The study of English—assuming that to be the language of the house—is, or ought to be, the main feature and test of a college, and by a study of it one does not mean such an acquaintance with it as when one makes up to a foreigner such as Greek or German. By the study of English in a college, we mean composition, elocution and the study of the literature. Incidentally also we connect history and such matters as go to interpret it.

These, with some lessons in chemistry, philosophy, botany, and other special studies in the natural sciences, go to make up a college course, and are, every one knows, there already. We must explain why reference should here be made to it.

It often happens that a college grows around some one man who is distinguished in his own line, who attracts students to him, and then gets assistants, and develops into an academy and then into a college. If he be a good classic, as they speak of excellence in the dead languages of Greece and Rome, then you may be sure his college is distinguished in that direction, and the best prize is for such iambic trimeters as the head student can compose. In the same way if it be literary tastes in English, and he is known as an author, you may expect excellence in that direction, and so on in other departments. In Catholic colleges prominence is always given to the classics, especially Latin—it is as necessary as English.

Latin is the mother tongue of the Church, the language of the Fathers and of the seminary. It can never be dislodged from their colleges, and ecclesiastical students may trifle with Greek and be innocent of a modern tongue, even about their own, but they must, at least, be passable Latin scholars. Latin and Greek would never have retained their dominion in colleges were it not for this circumstance. Homer is very fine in the original epic, and Horace is lively reading; but you can get the translations for half the price of the original. But, it will be said, you will miss the beauty of the language; the charm of the expression, the sublimity of the aorist will escape you. Well, that may be, you will miss it all the same, unless you are a very exceptionable youth, even when you are in your finals in the best university in the land. You know English for some time, but can you see the same beauties in Shakespeare that Coleridge or Mrs. Jamieson can? In really learned men there is a cant about the beauties of the dead languages that in an ordinary student is simple silliness. The meaning will be easier to understand from a translation, the language will be even quite secondary to the most of us.

I know that it is barbarian, or perhaps Philistine, to say the beauties of the classics elude us in this way, and perhaps, for those who think otherwise, no one has a right to complain; but I tell the student, unless you can rival DeQuincey or Dr. Parr, you will barely know good Latin from bad at the end of your college course. You may be able to assert as to the grammar or quantity, but you will be no judge of Latin style. You may have the words, the turn even, but you haven't compare the hold on the language to rival expressions or balance the shades of contending beauties. In that case don't pose as Paris of old, lest allusions

to bundles of hay be cast at you. The chief use of the study of the ancient classics in Oxford and Cambridge has been cynically said to be a capacity to use occasionally a quotation in the House of Commons. Woe betide the man who was guilty of a false quantity there. He was ruined for life, and so the necessity of a study for the classics arose. That would not be a good reason for their study here in this new country where the thought, whether in literary rags or in fine raiment, is paramount to the expression of it. You will be told that to the right understanding of English a knowledge of these dead languages is necessary. There is much truth in that, but the student may ask is there no way to trace the genealogy of such words as come to us through these languages other than by a drudgery of years in their attempted mastery? Ordinarily speaking, I think, there is; but if a boy is to devote himself for some years to perfect himself in his own language he might as well study the languages with that end in view. At the same time I believe that the most ordinary boy can learn all the foreign roots in the language in one year and not disregard his studies either. If the classics did no more than this they might be superseded at any time.

The real truth is, I judge, that the boy must be kept occupied with something. He can always turn to his Greek grammar when he knows all things else. I suppose were these dominant studies to be thrown out of our colleges nothing would be left for the employment of our youth. Not sciences, for our colleges are not equal to them; not mathematics, lest they all shrivel up and blow away. Why there would be nothing except English and history, with decay and ruin in the near future. When these languages are set aside the average college will find its occupation gone.

For persons other than professional men, literary aspirants, newspaper writers, of what use is a study of the classics? To the man for whom these studies are not a necessity I believe that they are a positive disadvantage—that they positively hinder him in his way through life.

At the same time I personally, as most university men, like the classics. I take delight in reverting to the days

spent in conning over the not too difficult authors and the agreeable attending studies. I like a quotation as well as any one, and squibs of Prout and O'Dogherty, and the learning of authors of the first half of this century are readable and enjoyable. It is no use to take up these old prigs without being something of a classic. No one is given to that now, however; it is antiquated, obsolete.

ECHOES FROM THE CLASS-ROOM.

A. H. MORRISON, ENGLISH MASTER, C. I., BRANTFORD.

IV. ENGLISH IN THE CLASS-ROOM.

WHEN an artisan desires to accomplish a perfect work, his first desideratum is a perfect instrument with which to perform that work. As the object of the artisan of the class-room is, or should be, to attain to a perfect method of culture, his great desideratum must also be a perfect means by which to attain the wished for result. Now the instrument for perfected work in the class-room is, *par excellence*, language and of course, for the English class-room, the English language, as through this medium must all technical or special instruction be conveyed, all reasoning conducted, and all discussion and illustration amplified. No other badge of culture sits so easily on the thorough student as his intimacy with the mother-tongue. It is the scholar's patent of nobility, the *open sesame* to the *élite* of letters.

It has been too long the fashion to neglect the thorough, systematic study of the English language, than which none more beautiful, more powerful, or more wonderful, has ever been framed since the first articulate

syllables fell from the lips of the first inspired being. In England, where for many years education was confined to certain favoured classes, the critical study of the mother-tongue was scarcely deemed a necessity, for it was learned incidentally in the home at the mother's knee, and learned there in its purity. But in a new and struggling community, a semi-democracy made up of all classes and all conditions, English is not and cannot be so learned. The home atmosphere is, alas, too frequently polluted by an epidemic, which has been facetiously termed by one writer, "English as she is spoke," and it is in this tainted air that the majority of our pupils get their first notions of the mother-tongue, with all its motley sequence of impropriety, solecism and barbarism. Nor, unfortunately, does the mischief stop with the acquisition, for wrong once learned can seldom be effectually eradicated. This may sound harsh. It is said with the kindest motives. He who professes to be a surgeon must use sharp instruments and sometimes cut deeply. He who professes to speak the truth must be fearless, and puncture sore places, that they

too may be healed. I know whereof I speak, and it is with regret I say that, as a rule, even the young men and young women of our class-rooms do not display any adequate knowledge of their own glorious language. If this is the case with advanced students in advanced class-rooms, students who in their turn are about to become teachers; if the instrument by which the great work of education is to be perfected be itself imperfect, or its functions underestimated or not thoroughly known, what results can be hoped for but imperfection and possibly failure? It may be objected, I am aware, that there is such a thing as fastidiousness even in the matter of speech, and that one may be too particular even in regard to the use of words. Be it so. I only echo the sentiment of the refined and truly cultured, when I reiterate my opinion *that the correct use of the English language is the surest and indeed the only badge of thorough education.* The words are mine; but the truth is the truth, though I had never been. What becomes of the theory of gravitation in the mouth of a man who has no words, no fluency, no powers of vocal expression? If I, the intellectually hungry, ask a fish, do I not receive a stone? But with language comes power. It scales the heavens, permeates space, wrests the secret from the star, and lays it humbly at the feet of men; for thought is itself unspoken language, so the right utterance of the thought is not merely correct English, it is correct mathematics and correct logic and correct poetry; the language of Nature and the possible transmuted into the language of man and fact, these making Nature's knowledge his inalienable heritage also; his heritage and his birthright for ever.

I venture to say that the majority of our pupils, when once the school-room door has closed behind them

for the last time, seldom, if ever, open a euclid or solve an equation; but language, the great gift of Nature, the one means for the expression of Nature's wants and Nature's promptings, must of necessity be in constant requisition. How much better is a willing and esteemed servant than an arbitrary and ill-understood master. Language, our own language, should be that servant, for if it is not our slave, it will become our tyrant, domineering over us in high places, and trampling us in the gutters of derision beneath the mocking feet of our fellows' scorn. Step behind the scenes for a moment or, if opportunity forbid, accept my word that though the super-cultured of a community may openly ignore the critical teaching of the mother-tongue as something beneath them, and stake their all on the acquisition of an *ology* or a *cult*, their covert sneer is the first to greet a solecism, while a political theft is more condonable in their eyes than a grammatical impropriety. It is so in other lands. It must be so ere long in ours. Again it may be objected that the teacher's place is not in the circles of super-culture. I tell you the teacher's place is where he is best fitted to be. Must the teacher stand abashed before the chattering community, he who professes to hold the key of knowledge? Is his profession a sham that it should be mocked, or that he should be told: "Go down lower, this is no place for you, other and better are here, go to and learn ere you can become our teacher"? No. A thousand times I say no. Let the teacher arise and proclaim his place. This is the nineteenth century. The dark ages are behind us. Before us lies the future. Let the earnest soul rise and say, I too am an autocrat. The wealth of tuition is mine, past, present and to come, and I will mount to my place, though the way be blocked with

covert gibes, and every step be slippery with covert sneers.

Our language has been neglected because *it is our own*. It is so familiar, and of course being familiar, so contemptible. What fallacy and what priggishness ! As if our mothers are contemptible because we have hung upon their breasts, looked into their joy-dimmed eyes, and caught the first accents of love from their familiar tongues. Our own forsooth ! It is because it is our own that it is so priceless. The great heritage of the rugged Viking, who with his unconquerable spirit, gave us our unconquerable tongue, which spans the earth with vocal symphonies and prompts to deeds to-day beneath the drooping banners of the sultry Nile as daring as any that immortalized Hastings' ill-starred field, or quelled the foe on Crecy's battle-plain.

The English tongue is history, the history of universal man, from the time when first he left his nomad tent on the Asiatic plateau, to the hour when the sheet, still wet with printer's ink, rustles its great story to the four winds of the civilized globe.

Again, there has been much of antagonism to the advance of pure English, indirect perhaps, but none the less sure. The masses laugh at what they think superfine English. They imagine, poor dupes, that one is putting on airs if he has the accent of culture, and can construct a sentence without a vulgarism. I speak advisedly, and again I say I know whereof I speak. What miserable blindness, to spurn the very means that would be the stamp of superiority if possessed !

The home influence of a new made country has also militated against pure speech. Well, this was inevitable. But, because inevitable in the past, it need not of necessity remain so in the future. Because I, without advantages, and to whom therefore

no blame can attach, have been accustomed to violate my syntax or my orthoepy, that is no reason why my child should perpetuate my errors. Why should I stand in his way, or laugh at his accomplishments, because they contrast with my paucity of attainments ? Ah ! believe me, the cruellest foe to progress is a gibe, and sneers have been more fatal to civilization than poverty or persecution !

Then teachers and instructors have themselves been much to blame in this matter of the mother-tongue. It has been neglected by them, perhaps depised ; relegated to the cold shades of the by-and-bye, while other subjects with higher sounding names have been mastered. When will the world learn that beauty unadorned is always most beautiful ? To many, that by-and-bye never comes, business cares, a hundred things, step in to prevent the acquisition, while the few who really strive to master the subject start at the wrong end. They commence their educational structure at the chimneys and build downwards, instead of rearing on a solid base a tenement for all life, replete with grace and strength and architectural finish.

I speak to the young and with my whole heart. I, a life student, ask them to consider these words calmly and dispassionately. Whatever your studies may be, whatever the future you may have mapped out for yourself may promise, study well the language in which is enshrined all wisdom, and all beauty, and all vocal power, and though you learn no other tongue, make this your own ; this in which Shakespeare has carved his immortal images, in which Ruskin paints his verbal landscapes, in which De Quincey warns and Harrison philosophizes and Tennyson sings, and which is at once the symbolized spirit of sculpture and painting and philosophy and ethics and all of highest art.

And now comes the question : how are we to make this gift our own? Shall we go to our mothers' knees to breathe the home atmosphere of culture? No, this is not the clime of intuitions but of honest toil. No cobwebs of a remote ancestry have here enveloped the archives of a cultured tradition. The forest boles have scarcely had time to moulder into the soil from which the bread of a bare and precarious subsistence springs. Outside of the cities and the family circles of the few, small chance would there be for any to profit by such advice. Far other means must be employed, but what? In every township throughout the length and breadth of the Province stand the temples of peace, whose doors are never closed, to which the votaries flock, from lisping infancy to blossoming youth, and within are the priests and priestesses, albeit bearing humbler names, who minister before the high altar of learning. You, you, the teachers, are the guardians of the vestal flame of speech, living examples, who having yourselves profited, in your turn must repay the debt by ceaseless vigilance, by constant corrections, by tireless supervision, example and yet again example, and still I say example! Grammar with its dry and antiquated rules is useless. It is worse than useless, it is unintelligible and revolting. Well has Bain said : "Many persons are beginning to see the mistake of commencing grammar with children eight or nine years of age. Experience must have impressed teachers with the futility of the attempt," and Herbert Spencer follows in the same vein : "As Dr. Latham, condemning the usual school-drill in Lindley Murray, rightly remarks : 'gross vulgarity is a fault to be prevented ; but the proper prevention is to be got from habit—not rules.'" Where English cannot be learned by direct

personal contact with correct speakers, other means than grammatical rules must be sought to meet the requirements of the case : reading the best authors, listening to good speakers when opportunity offers, and actual correction of errors in the class-room ; transpositions, synthesis of sentences, false syntax, anything practical, anything but the rotten strand of sophistry which has so long spanned the educational gulf, and which, termed grammatical rule, parts when the neophyte most surely needs its fallacious support, precipitating him headlong into the gulf of error and confusion. Then if rule is impotent to perform the required work, analysis for the beginner is little better. It has its uses, and valuable uses, for the student who has made some progress in the knowledge of words and groupings. To the advanced student the exercise is indispensable ; but to the tender intellect it is confusing and often misleading. What does the builder of the mansion do with the bricks at his command? Does he erect his structure by breaking down another? Not so, brick on brick, applied with synthetic hand, the fair edifice rises and at length stands revealed in all its symmetry against the glowing sky. Shall we not then take a lesson from the builder? For what is the speaker but a builder, only he works with sentences and paragraphs instead of walls and flats. Words are but bricks ; thoughts consolidated into articulations with which the word-worker rears his fabric, and leaves it a completed work with all its outlines symmetrical, its clauses balanced, its periods rounded ; or, inapt, bungling the edifice, delivers it to the world an unsightly product, with here a solecism and there a barbarism and everywhere mistakes in outline or inner completeness which mar the whole and render the labour of none effect. Let us be careful. Let us be students of this

science of vocal expression ; living, sympathetic, reverent, devout master builders, so that when we build, our foundation may be on a rock, and the fair fabrics we raise may stand the

tests of time and change, uplifted from the shifting sands of an inelegant, equivocal, or erroneous diction, and so a step nearer the sunlight of a perfected knowledge.

SCRIPTURE LESSONS FOR SCHOOL AND HOME.

BY THE REV. J. WYCLIFFE GEDGE, M.A., INSPECTOR OF SCHOOLS FOR WINCHESTER, ENG. (NOTES FOR TEACHERS.)

NO. 6. THE FIFTH COMMANDMENT.

INTRODUCTION. So far Commandments have taught about God and our duty to Him. Remaining six teach about our neighbours, *i.e.*, those with whom we are brought in contact.

I. THE DUTY ENJOINED—*Obedience.* (Read Eph. vi. 1-8.) Words apply to all persons—have duties to those over them. Can take three classes: (a) *Children.* Repeat fifth Commandment. Honour includes obedience, love, help. Parents set over children by God, must be obeyed. Remind how Christ was subject to His earthly parents at their home at Nazareth. (Luke ii. 51.) Children must *obey* parents in *all* things; *e.g.*, choice of friends, books to read, time to leave school, choice of occupation, etc. Must also *love* them. Think what they have done for children, worked for them, nursed in sickness, cared for. Child should often think, how *can* I show love in return? Not by teasing for what I want, but by *helping*. Remind of Miriam, little girl watching baby brother, Joseph providing for aged father, Christ, when dying, thinking of His mother. Children can often help with younger children, give part of wages to old and sick parents, help busy mothers on Saturdays. (b) *Servants.* Not

always stay at home. Boys work under masters in farm, shop, office, etc.; girls in shops and homes. Service must be faithful, such as Joseph's, whose master able to trust him. Such service done as to God will receive special reward. (Eph. vi. 8.) Potiphar and Pharaoh both blessed for Joseph's sake. (c) *Citizens.* St. Peter tells us to fear God and honour the king. Good subjects will obey laws of their land.

II. THE SIN FORBIDDEN—*Disobedience.* (Read Deut. xxi. 18-21.) What a fearful punishment on a rebellious son! Do not know whether often carried out, but do read of Absalom. King's son raising rebellion against father, and coming to untimely end. This, in lesser form, very common sin. Children speaking disrespectfully, giving saucy answers, choosing own way; servants neglecting orders, not attending to master's wishes, answering back rudely—all break this Commandment.

III. THE REWARD PROMISED. Called first Commandment with promise. Two promises in Eph. vi. 3. What can be happier than family trained in habits of obedience, respect and mutual help! Parents may well look forward to happy and comfortable old age; know children will not let them want. Those who thus act

do duty to God, and earn long life in a better land, *i.e.*, heaven.

LESSON. *Obeys those that have the rule over you, and submit yourselves.*

NO. 7. THE SIXTH COMMANDMENT.

INTRODUCTION. This one of Commandments explained by Christ in Sermon on the Mount, showing how all others may be explained. Remind what said in first lesson about four things in all the Commandments, *viz.*, the sin itself, the same in lesser form, the feeling in the heart, and the opposite duty.

I. THE SIN FORBIDDEN.—*Murder, anger, etc.* (Read Matt. v. 21-22.) Ask who was the first murderer? What led Cain to do it? *Envy*, because Abel's sacrifice accepted, and not his; then *hatred* against his brother; *malice*, planning his death. Then the actual *murder*, followed by *lying* when asked where his brother was. Similarly remind of Saul. (Read 1 Sam. xviii. 6-10.) Same three things—envy, hatred, malice—against David, because received less praise. For other examples, take Joseph's brethren. Above all, Jews at Jerusalem against Christ. Chief priests envious of Christ's success with people, hated Him, demanded His crucifixion

when Pilate found Him innocent. All teach same lesson. Sin is not only in the act, but the thought. Hatred same as murder. (1 John iii. 15.) Another form of this sin is unkindness, such as boys teasing and hurting others, calling names, jeering, speaking unkindly, proceeds from same wrong thoughts; might, if not checked, lead to quarrels, blows, fighting and even murder. Hence, see how needful to check risings of evil thoughts, envy, hatred and such-like, lest lead to worse. (See Matt. xv. 19.) Beginning of strife like letting out of water. Can be stopped in beginning, but afterwards impossible. Quarrels of *nations* lead to war, with all its horrors.

II. THE DUTY ENJOINED.—*Forgiveness.* Read (Eph. iv. 31-32.) St. Paul tells how we may break and how are to keep this Commandment. So also Christ in Sermon on the Mount. (Matt. v. 44.) Must love, bless and forgive, not only friends, but even enemies. For examples, take *Joseph* forgiving his brothers (Gen. xiv. 5), feasting them, returning their money, providing for them in Goshen; *David* forgiving Saul (1 Sam. xxvi. 11), sparing his life; *Christ* praying for His murderers (Luke xxiii. 34), and *Stephen* also (Acts vii. 60).

LESSON. *Be ye kind one to another.*

ONE of the saddest experiences of life comes with the recognition of past and on-going changes which we are powerless to mend or to hinder. The ruthless hand of time leaves its destructive traces upon everything that we love. We go away from the old homestead, and return with glad anticipations after a dozen years, only to find that the well-remembered scene is no longer the same; that the ancient landmarks have been removed; that the grove in whose shadow we played has given place to unpoetical brick and mortar. Old faces have disappeared forever; and those that remain have suffered change. Even we ourselves have changed; and we look into old comrades'

aces with half-alien eyes. The clasp of the hand is colder, and there is a ring of disappointed longing in the voice. When we turn our back once more upon the unforgotten past, it is with the feeling that something has gone out of life which will never be restored to it. It is in such moments as these that one turns for comfort to that promise of the Book: "I will restore to you the years that the locust hath eaten. . . . And ye shall eat in plenty and be satisfied, and shall praise the name of the Lord your God, that hath dealt wondrously with you." And there is comfort in such a promise, for it is the promise of Him who changes not, and it means that even we shall be redeemed from change.

DR. ARNOT ON SMOKING.

THE following letter was written by the lamented Dr. Arnot, five weeks before his death:—

"I don't smoke; I never smoked; God helping me, I never will. I have lots of reasons—more than I could crowd into one paper; but here are some, taken as they rise to memory. I have sons, some of them grown-up and some growing. Whatever difference of opinion there may be as to the effect of tobacco on the health of men, I believe all are agreed that it damages at the root the constitution of youth, if they use it before they reach manhood. Now, common sense and all experience teach that a man weakens his influence immeasurably if he himself smokes and tells his boys to abstain. If you can encourage them to do as you do, you stand on a firm footing, and have a mighty purchase on your child. This is a method that God will bless.

"But there is one reason against smoking which is so big that it seems to me to comprehend nearly all others within it. It is that the use of tobacco makes it more difficult to be a Christian—hinders a Christian mightily in being a true witness to his Lord. I am accustomed now to pity greatly Christians who are also smokers. The practice not only drains the life-sap out of the smoker's cheeks; it also drains charity out of the smoker's soul. Many smokers succeed in living a Christian life till their Lord calls them hence, in spite of this great obstruction, just as many youths contrive to wriggle forward into manhood, with somewhat sallow cheeks and somewhat sunken eyes, in spite of the tobacco poison. Yet it remains true that smoking to a greater or less extent diminishes the strength and

beneficial effects of a Christian's graces. The tender regard for others; the willingness to suffer rather than inflict an injury; the watchful, glad grasping at opportunities of doing to others as you would like them to do to you—all this is sapped and weakened at the foundation by the smoker's appetites and habits. My neighbours all round do me day by day deliberate injury, who, I believe, would give me fair treatment if they were not enslaved to tobacco. On the top of a car, where we are packed together in a row, with faces within eighteen inches of each other, a man sitting next to me on the wind side takes out his apparatus and prepares his dose. Then he scrapes a match, and the brimstone smoke nearly chokes me. The wind has blown out his match, and it is not until I have endured the brimstone three times that I am admitted into the pungent element of tobacco. It never occurs to him that he is doing me an injury; and if I utter a complaint, five to one he meets it with insolence. The white ashes of the pipe are afterwards shaken out, and scattered like snow over the dress, and it may be into the eyes of the neighbours. The floor, meantime, where our feet are resting, is in such a condition that it can neither be described in polite society nor endured by any but the most robust.

"Everywhere the same thing. In crowds at railway stations, or at an illumination, where there is no means of escape, the person next you in the garb and with the mien of a gentleman and, I believe, in his heart a gentleman as far as his supreme and selfish devotion to his own gratification in the form of tobacco will permit—

will puff the smoke in your face, or in the face of a lady, without apology and without compunction. In all this I have respect not to the persons who suffer the injury : I am thinking of those who inflict it : I am grieving over the damage done to their character. For, on the principle that it is more blessed to give than receive a benefit, it is more cursed to inflict than endure a wrong. The transgressor has the worst of it ; for every time that he treats his neighbour unkindly and unfairly, he gives another rub to his own conscience, and increases the hardness of its searing.

"The appetites that God has planted in our nature—hunger and thirst—are very imperious, and put us to a great deal of trouble. They must be obeyed. But then they are useful and necessary. Wanting hunger—a stern watchman set over us within our own constitution—we should certainly forget or neglect to take the nourishment necessary to sustain life and health. So, these imperious appetites that our Maker has set over us are wise and good. They are the preservers of our life. But what of the appetites that man makes for himself? I admire that choice that David, the king, made in his great distress : 'Let me fall now into the hand of the Lord, for very great are His mercies ; but let me not fall into the

hand of man.' (1 Chron. xxi. 13.) In the matter of appetites that shall stir in my being, and lord it over me, and compel me to obey them, let me not fall into the hand of man—least of all into my own hands. Now, I reckon it to be self-evident that a smoker, when he begins, deliberately kindles in his own constitution a fire that was not there before he kindled it—a fire that, though it needs some cherishing and fanning at first, will, when it is once kindled, blaze on and compel the victim to toil like a slave—running and fetching, and flinging on tobacco leaves to feed it, until his dying day. For, if here and there one breaks his chain and escapes, he may well say : With a great price of lengthened agony obtained I this freedom ; and the multitude are held in bondage to the last.

"It is time that Christians should take tobacco-smoking into their closets and shut the door, and ask, ask on until they get an answer, as to their duty in the matter. For my part, I have no doubt that it is one of the great waves stretching like the tide over all the breadth of the world, to the extent of their power impeding the coming of the kingdom. It is a system of self-gratification at the expense of others. The Gospel system is the reverse. These two currents are antagonistic."

NOTES FOR TEACHERS.

IN our common schools we should prepare the greatest possible number for life-work, and this can be done by teaching those facts that are necessary for intelligent citizenship, by training and stimulating the mind so that it shall have power and activity when devoted to any pursuit, and by laying the foundation of morality and Christian manhood.—*Ex.*

WITH the coming school year hundreds of young and inexperienced teachers, just turned out from colleges and normal schools, will take their places in the teachers' ranks. A certain percentage of these is sure to be accounted failures for many reasons, chiefly because the teacher, like the poet, is born and not made. It is of importance for these beginners to

know from the first that other things being equal, permanence of position is one of the most essential requisites of success. Avoid being an educational tramp. You may receive offers more tempting, but until your reputation as a teacher is established, until you become sure of your own work, it is best not to make frequent changes. Another thing that these young people may learn, and well, that is, be progressive. Do not be afraid of new ideas—new methods. They may not all be adopted, but each one contains some good that perhaps can be utilized.

PONDER these sentences: Good principles are much better than extensive acquirements; the chief function of the teacher is to make a self-governing, law-abiding and God-fearing citizen. It is essential that the teacher should himself be a man and a gentleman before he can train his scholars to be such. The true foundation of school management is based not on repression but on development of the forces lying within the schoolroom. These principles are deduced by Dr. Hunter in commenting on Kellogg's "School Management," a little book most replete with excellent thoughts and advice on discipline. The author shows clearly that the work the teacher does in governing is as valuable as the instructing, and that good governing substitutes for habits of disorder, disobedience and idleness their opposites, quietness, courtesy, industry and love of knowledge; it develops true manhood and womanhood, and teaches self-government, which consists in restraining our evil propensities and rousing and employing our higher nature. How this may be accomplished is well-illustrated in the little book just mentioned.

THE arrangements for the colonization of 20,000 Hungarians in North-

Western Canada, which Count Esterhazy is negotiating with the Dominion Government, are likely to be completed. Under the terms of these arrangements he contemplates taking his countrymen, who are now working in the coal and iron mines in Pennsylvania, to the Qu'Appelle district, which is not far from the scene of the recent rebellion, where a tract of 200,000 acres of land will be placed at their disposal. The Hungarians propose to pay their own way from Pennsylvania to the nearest point on the Canadian Pacific Railroad, the road to transport them thence to the Qu'Appelle district free of charge. They have sufficient funds to commence operations after they arrive, and it is not saying too much to prophesy that, as all of them were agriculturists at home, they will speedily make the district blossom like the rose. It will be an excellent thing for the Canadian Pacific Road, for the Dominion interests, and for themselves. They will be more independent, happy, and prosperous than they can ever hope to be in the hard, cheap mining work of Pennsylvania.

IMPORTANT SCHOOL CASE.—At the last sitting of the Division Court at Norwich, Ont., a case was tried before His Honour Deputy Judge Beard, which is of considerable interest to teachers and trustees. The trustees at S. S. No. 13 N. Norwich employed Mr. A. S. Brown for a year from August 18th, 1884, at a salary of \$500 with the right of either party to terminate the agreement by a month's notice. The trustees gave notice for the teacher to terminate his agreement on the 1st of June last. Mr. Brown accepted the notice and gave up the school, but demanded pay for a proportion of the holidays for the time actually taught. The trustees refused to comply with Mr. Brown's demand, whereupon Mr. Brown

brought a suit to recover \$51.37, the amount withheld, and a further sum of \$50 for the time after his dismissal until his claim was paid. Judgment was reserved and a written judgment given, allowing Mr. Brown's claim in full for the portion of the holidays and the further sum of \$2.45 per day for teaching days from June 1st until his claim is settled in full by the trustees. Trustees and teachers will do well to make note of the above decision, as very often disputes arise out of the question of holidays.—*Berlin Telegraph*.

THE writing of the great American novel is not the sole business of the young literary men and women of the time. There is more important work than this to be done. There are a thousand questions, intimately involving the general welfare or closely concerning particular classes of men, which are worthy of profound study and exhaustive research, the results of which will require the resources of the highest literary art to adequately present. The demand for such student-writers is more imperative than the demand for novelists and poets. In all branches of literature competent specialists are needed, specialists who have acquired knowledge from personal investigation, specialists who have something original to offer and new light to afford. There is abundant room for them. The fields of the novelists and poets alone are overcrowded. The men who can write books which embody facts of value, and who can attractively collocate facts, exercising in the collocation the same degree of care and skill that a competent poet does in metre and metaphor, are the literary men who are needed. And the works of such writers will stand quite as fair a chance of living a long life as the works of those who would ride Pegasus into the hearts of posterity.—*G. C. Matthews*.

ONTARIO expends yearly for a population of less than two millions over five hundred thousand dollars for educational purposes. Yet the number of those really educated is quite insignificant. Here is proof positive that there is something grievously wrong in the very foundations of this highly lauded system. What is it? We make answer as follows:—Our whole theory of education is based on these five monstrous fallacies: (1) All children are capable of attaining an equally high standard of instruction. (2) All children are alike desirous of reaching this standard. (3) It is better to give a smattering of the whole curriculum of studies than to teach three or four branches of it thoroughly. (4) The object of all good teaching is the imparting of knowledge. (5) The best and only test of mental progress is the conventional examination. Need any wonder be felt that in spite of good school-houses, with all means and appliances to boot, our population continues to be practically uneducated? Need any wonder be felt that public schools turn out thousands to whom it seldom occurs that the words of a writer have any meaning; or, what is still worse, who never dream of questioning or weighing the sentiments and reasons of what they do read? Need any wonder be felt that High Schools produce little beyond a motley superficiality? Need any wonder be felt that, as a rule, a university graduate and a well-educated man are two vastly different beings.—*Richmond Hill Liberal*.

IN these first autumnal days, when so many are turning anew to the book and the writing-desk with plans of busy winter study, it is well to remind the intending student that study is of little use unless it is directed to some end; and that the end to be attained should be the guiding principle in the selection of particular

subjects of study. It is not a matter of indifference whether we shall occupy ourselves during the coming winter with music or painting, with French or Italian, with history or with geology, with Shakespeare or the Bible. There ought to be as deep a sense of responsibility in arranging one's plans of winter study as in deciding upon any other personal duty; and the subjects which we ought to select are those which are most necessary in the legitimate advancement of our own culture, and in fitting us for more efficient service in our chosen walk of life. Is a knowledge of architecture our most pressing present need? Then let us study architecture, even if we would prefer to spend our time with Greek or German. And the same principle of wise selection ought to run through our choice of books for the hours which are given up to relaxation rather than to study. If we *must* read novels, why spend time over the interminable trash of the inferior novels when we might be stirred to better thoughts and better deeds by the earnest fiction, of which there is no lack in our English literature at least?

SIR GEORGE YOUNG (who was in the chair), in the course of his remarks, said that the work which the College of Preceptors was doing could not but be well known to those who, like himself, were connected with education. The system which they administered had a great future before it, and was accomplishing a great work throughout the country. He knew well that this society was the pioneer of middle class examinations, and that the Universities of Oxford and Cambridge took up this work, and had since considerably extended it, and that the work of the society had grown side by side with theirs, but in point of fact very considerably more important. It could not be too often

repeated that examination was the handmaid of teaching, and not *vice versa*, and he believed that the work which they did was one of examining schools regulated and controlled by those who were schoolmasters. He was very far from depreciating the labours of Universities in regard to middle class education, but he should be sorry to see a state of things in which the College of Preceptors did not exist, and the middle class examinations of the country carried on entirely by the Universities. The time had come when the scattered fragments of the University should be brought together, and be given a common standing ground, and for that purpose the convocation of the London University should be reformed, and representatives of the different bodies, such as King's College and University College, should be admitted to its councils. He had every hope of this soon being fulfilled, and looked forward to the time when London should be raised to the educational level of Oxford and Cambridge. Sir George Young then presented the prizes, and a large number of certificates was also distributed.

A SCHOOL OF FISH.—Most young readers of the *Fountain* have heard of, or read about, schools of herring, but I dare say few of them have seen such a school. At Nanaimo, British Columbia, while our steamer, the *Idaho*, was "taking coal," I first saw a school of herring. Everyone has seen these little fish, dried and smoked, packed in boxes at the grocers. Millions were visible just beneath the surface of the water in the small bay at Nanaimo, and packed seemingly as closely as you have seen them in the boxes. Little Indian girls in canoes were paddling over the "school" and catching fish—not with hooks, nor yet with nets, but with poles about six feet in length, in which nails are inserted

about an inch and a-half apart, like the teeth of a comb. They draw the pole quickly through the water, and with a backward sweep impale several on the sharp teeth. They secure a canoe load in two or three hours. Two persons usually occupy one canoe, one to manage the craft, while the other does the fishing. The former sits on the bottom of the canoe near the stern, and uses a light paddle to propel the vessel, while the latter kneels in the bow facing the direction in which the canoe is paddled. When the canoe is filled the Indians take the fish ashore, salt and dry them for winter use. The waters of the North-West literally swarm with fish. The "schools" of which I have written extend over surfaces embracing many acres during the spawning season. At Sitka, Alaska, the girls in the training school for Indian children went to the beach of the bay, and with their hands caught several bushels of herring in a few minutes. Besides herring, salmon, cod, flounder, and halibut abound. The natives of these shores live chiefly on a fish diet. Their houses, their clothes and their persons have a disagreeable fishy odour. In Clarence Strait, Alaska, I saw a school of porpoises. Thousands of heads were popping above the water, and for several hours they kept alongside of our steamer, which was going at the rate of ten knots an hour. I am sure many who read this sketch would enjoy a trip to this "Land of the Midnight Sun." Mountains, glaciers, cascades, lakes, rivers, straits, bays, islands—every natural division of land and water—here present themselves to the delighted gaze of the tourist in almost infinite variety of form, embodying both beauty and grandeur. As I write, Mt. Edgecombe, an extinct volcano, six thousand feet high and crested with snow, is visible from my window. The crater, from my room, looks

like the top of a huge funnel. It has not been active for fifty years, but should it belch forth smoke, ashes and melted lava again, there will be an exciting time in Sitka. But I began writing about a "School of Fish," and must defer these other matters for a future article.—*Fountain.*

THE BEST WINE LAST.

So Cana said : but still the first was good,
For skilful Nature wrought her very best ;
Turning the sunshine into hues of blood,
Bringing the ripened clusters to be pressed.

But this the Master brings : His silent eye
Flushes the sunshine of a loitering year ;
Be still, O guests, for heaven is passing by !
Bow down, O Nature, for your God is here !

And it is always so. Earth's joys grow dim,
Like waning moons they slowly disappear ;
Our heavenly joys fill up the widening brim,
Ever more deep and full, more sweet and clear.

Sweet were His words, when o'er the mountain slope
He breathed his benedictions on the air ;
Waking the sleeping angels, Faith and Hope,
Bidding them sing away the grief and care.

And yet, methinks, He speaks in sweeter tones,
Out of the shadow of the nearing cross ;
Telling of mansions and the heavenly thrones,
Which soon shall recompense for earthly loss.

The good, the better, and the last the best,
This is the order of the Master's wine ;
More than the yesterdays to-days are blest,
And life's to-morrow may be more divine.

And what beyond ? Ah ! eye has never seen,
Ear hath not heard the wonders that await ;
Earth's lights are paling shadows to the sheen
Of untold glories just within the gate.

We "bid" thee, Master, come and be our guest !
Life's common things Thou turnest into wine ;
Our cares, our woes, our bitter tears are blest,
If only thou dost "cause Thy face to shine."

Good Words.

—HENRY BURTON.

GEOGRAPHICAL NOTES.

THE ISLAND OF ACHIL.—It is proposed to connect the large and important Island of Achil, County Mayo, with the mainland of Ireland, by a swivel bridge across the Sound. The Island contains 6,000 inhabitants, and is separated from the mainland by an arm of the sea only 310 feet wide at the point where the bridge is to be made. The cost will be £6,000, of which £3,500 has been raised, leaving a balance of £2,450 required. It is stated that when the undertaking is completed it will add more than 35,000 acres to Ireland. It will raise 6,000 people from poverty by the development of their fisheries and other resources; and it will encourage tourists to visit the Island, with its marine cliffs, grand mountains, and many other attractions.

CLIMATES OF CANADA.—Recent investigations on the subject of the climatic relations of Canada to European countries show that the Dominion has the latitudes of Italy, France, Germany, Austria, the British Islands, Russia, Sweden and Norway, and has as many varieties of climate as have those countries. There is greater cold in winter in many of the latitudes of Canada than in corresponding latitudes in Europe, but the summers are about the same. The most southern part of Canada is on the same parallel as Rome, Corsica, and the northern part of Spain; it is farther south than France, Lombardy, Venice or Genoa. The northern shores of Lake Huron are in the latitude of Central France, and vast territories not yet surveyed lie south of the parallel of the northern shores of Lake Huron, where the climate is favourable for all the great staples of the temperate zone.—*School Newspaper (English)*.

THE LARGEST ISLAND IN THE WORLD.—Immediately north of Australia, and separated from it at Torres Straits by less than a hundred miles of sea, is the largest island on the globe—New Guinea, a country of surpassing interest, whether as regards its natural productions or its human inhabitants, but which remains to this day less known than any accessible portion of the earth's surface. Within the last few years considerable attention has been attracted towards it by surveys which have completed our knowledge of its outline and dimensions, by the settlement of English missionaries on its southern coasts, by the exploration of several European naturalists, and by the visits of Australian miners attracted by the alleged discovery of gold in the sands of its rivers. It has hitherto been the custom of geographers to give the palm to Borneo as the largest island in the world, but this is decidedly an error. A careful estimate, founded on the most recent maps, shows that New Guinea is considerably the larger, and must for the future be accorded the first place. In shape this Island differs greatly from Borneo, being irregular and much extended in a north-north-west and south-south-east direction, so that its greatest length is a little short of 1,500 miles; a distance as great as the whole width of Australia from Adelaide to Port Darwin, or of Europe from London to Constantinople. Its greatest width is 410 miles, and omitting the great peninsulas which form its two extremities, the central mass is about 700 miles long, with an average width of 320 miles; a country about the size of the Austrian Empire, and, with the exception of the course of one large river, an absolute blank upon our maps.

THE EXPLORATION OF HUDSON BAY—In the month of February last a report was laid before the Parliament of Canada detailing the results of an expedition despatched by the Government of that country particularly for the purpose of inquiring into the navigability of Hudson Strait and Bay, and, at the same time, of gathering information concerning the resources of that region, and its availability as a field for settled habitation. This report represents the first properly organized attempt that has ever been made to pierce the secrets of Hudson Bay for the public benefit. It is at first blush not easy to understand why this mighty expanse of water, occupying the peculiarly important position that it does, should remain for so many generations comparatively unexplored and wholly unutilized, except as a hunting-ground for a few New Bedford whalers, or a medium of easy communication between some half-dozen scattered factories of the Hudson Bay Company. Although called a bay, it is really an inland sea 1,000 miles in length by 600 in width, having thus an area about 500,000 square miles, or quite half that of the Mediterranean. It drains an expanse of country spreading out more than 2,000 miles from east to west, and 1,500 from north to south, or an area of 3,000,000 square miles. Into its majestic water pour feeders which take their rise in the Rocky Mountains on the west, and in Labrador on the east, while southward it stretches out its river-roots away below the 49th parallel

until they tap the same lake-source which sends a stream into the Gulf of Mexico. Despite its distance northward, its blue waves are never bound by icy fetters, and its broad gateway to the Atlantic is certainly navigable four months out of the year, and possibly all the year round to properly equipped steamships. Its depths abound in finny wealth, from the mammoth whale to the tiny caplin. Its shores are serrated by numerous streams, some navigable for long distances inland, and all stocked with the finest of fresh-water fish, and clothed as to their banks with valuable timber ready for the lumberman's axe. Its islands are rich in mineral ore of many kinds. The country whose margin its tides lave is well adapted for tillage and pasturage, while all around the region swarms with animals and birds whose flesh or fur render their chase a highly lucrative employment. — *Popular Science Monthly*.

MERCY.

The quality of mercy is not strained :
It droppeth as the gentle rain from heaven
Upon the place beneath. It is twice blest :
It blesseth him that gives and him that takes ;
'Tis mightiest in the Mightiest ; it becomes
The throned monarch better than his crown ;
His sceptre shows the force of temporal power,
The attribute to awe and majesty,
Wherein doth sit the dread and fear of kings.
But mercy is above this sceptred sway,
It is enthroned in the hearts of kings,
It is an attribute to God Himself ;
And earthly power doth then show likest
God's,
When mercy seasons justice.

—*Shakespeare*.

A BAGFUL of historical documents relating to the proceedings which led to the siege of Carlisle by the Scots after the battle of Marston Moor, has been found under a beam in the triforium of Carlisle Cathedral by some workmen who were doing repairs.

The documents bear the date of 1642 and 1643, and they must have been hidden under the beam 240 years ago. They have been taken possession of by the Dean and Chapter, who intend to have them examined by experts. — *Southern Journal of Education*.

EDITORIAL.

It has been the aim of THE MONTHLY to devote a portion of space in each issue to the various branches of work taken up in the schools. In this, we would fain believe we have been successful, so far, at least, as the departments of language, mathematics and science are concerned. But no special effort has hitherto been made to supply notes or material in the important work of Bible instruction. This we felt to be a defect, though our readers, we trust, did not mistake the attitude of THE MONTHLY on the great question of religious and moral instruction which we desired to see made a part, and an important practical part, of the teaching of the schools. There are unhappily, we are aware, differences of opinion in regard to religious teaching in the schools; but our own views are emphatical in favour of such instruction being given, and that this need give no offence to any Christian man or woman in the land. This instruction, we know, is now given, and has been given, in many of the schools in the Province, and we cannot but think with the best results. That it may be more generally given, and with increasing acceptance, it is our design to continue, and if practicable, to enlarge the space we have of late devoted in THE MONTHLY to notes on Scripture lessons, believing that the growing conviction of the country is in favour of imparting, along with a secular education, the essentials of a Christian nurture and godly training. Never, as it seems to us, has the need of this training been more manifest than it is to-day.

TRAINING OF HIGH SCHOOL ASSISTANTS.

Editor of C. E. MONTHLY:—

SIR,—Some time ago I ventured to address some correspondence to your columns upon the above, among other subjects. At that time the scheme was in the incubatory stage; and, consequently, we were very much in the dark as to what shape it would ultimately assume. We have now some definite knowledge on the subject and, with your permission, Mr. Editor, I propose to criticise it, and have no desire to use language stronger than the case warrants. I have but one object in view, that is to benefit, even in a small degree, the profession with which we are all in some way or other identified.

That the master of a High School should be well furnished and equipped in all the arts and methods which may enable him to impart his own knowledge and educe and strengthen all the innate powers of our youth, I think there can be—there is—but one opinion. Those gentlemen who preside over our High Schools and Collegiate Institutes, as a class, in point of intelligence, intellectual attainments and general culture, will compare favourably with those of any profession. But while ample provision has thus far been made for their own academic proficiency, but little opportunity has been offered to render them more expert in the art of the educator. Now we are informed that two Institutes—Hamilton and Kingston—have been selected by the Department as schools in

which this technical training is to be imparted to those who look forward to High School work as a profession. I have no fault to find with the choice of schools, probably the selection is as suitable as could be desired; I apprehend that there is never likely to be much rivalry amongst our larger schools for this "honour" (?). But if, in the case of these schools, I should say that their present staff is altogether inadequate to the discharge of the additional duties imposed, I hope, sir, you will not construe my language as reflecting in the slightest degree on the efficiency or literary attainments of the gentlemen who compose them. Nothing is further from my object. On the contrary I know that both the principals, and many of the departmental masters, have justly earned and maintained an enviable reputation, Provincial in its character. And this leads me to the marrow of the subject. In the formation and maintenance of this reputation who shall say but the gentlemen themselves what unremitting toil in the class-room and continued preparation in the study have been involved? Perhaps no class of professional men undergo more intellectual tear and wear, or have their work subjected to more crucial tests in the present age than High School masters. And to all this, additional burdens are to be added; a pretentious syllabus of studies is to be lectured upon by masters who are already sufficiently loaded with work. But they are to be paid. Yes, the munificent sum of \$300, if we are correctly informed, is to be voted to each of the Institutes. Tell it not in Gath! We should have expected from the Hon. Minister of Education, who has been an educator himself, sympathy of a more practical, if less demonstrative, order. But every thing in this world, we are told, has its marketable value, and \$300 per Institute is the price placed by the Depart-

ment on the training of High School masters. It is very cheap, talk is cheap too. However glib the utterance may be in official quarters in favour of such training I am constrained to say that it is not very earnest, and that it has other aims to serve than the ostensible one. Had the compensation been ample, so as to warrant the boards in engaging additional masters, the objection to the use of such schools might possibly lose some of its points; but, so long as no such provision is made, we can see evil and nothing else in the arrangement. It must inevitably disorganize the school, and this means demoralization, less or more, and especially more to both pupils and masters. The remedy lies with the board. Our trustees are usually good business men, and they will not be slow to see that the schools they direct are handicapped in their contests with other schools for academic distinctions. It will be very competent for our legislators to ask the Minister of Education to produce his authority for regulations which must place at a discount institutions otherwise excellent. If the training is to be worth the salt; if text-books are to be mastered and supplemented; in other words, if the whole thing is not to be a sham, then it must be placed in the hands of specialists who will receive compensation that shall be adequate and commensurate with the importance of the work.

But they say it is easy to find fault. Certainly it has not been difficult with the regulations of the Education Department, and so will it ever be as long as such an important trust as education is wedded to party politics. Surely in all honesty we are not shut up to a plan that will enervate the best of our schools by this training of masters. I made suggestions before on this subject in your columns; but as your paper, I am afraid, is not the

official organ, I presume they were treated with contempt. One great object of a statesman in education surely should be to harmonize the system, to bring Public Schools into more sympathetic relationship with High Schools, and the latter with the Universities. At all events, this is being aimed at in other countries, and some few wrinkles in our High School programme of studies would seem to indicate that our Minister was not altogether a stranger to the principle. Here is a grand opportunity. The time has come but not the man. Yet, if the Napoleon in the educational world is alive, he must be studying mathematics at Elba. Our suggestion is simply to engage the services of one or more specialists who might lecture on pedagogy at the University at particular times during the year, and the Normal Schools, as well as the other schools

in the city, would always afford ample scope for the practical side of such training. By this method undergraduates could qualify during their course with little additional expense, and at the close of such lectures the examination test could be applied and the standard adjusted to the satisfaction of the Department. Failing this scheme it would not be difficult to make the necessary arrangements to have such training given at the Normal School. But to go and interfere with the legitimate work of a Collegiate Institute under pretence of training masters, and then throw a sop—\$300—to the boards, is a scheme which, so far as observation goes, will never commend itself to the judgment of intelligent men. But I am afraid this letter is already too long. I hope to return to the subject in a future issue.

ALPHA.

SCHOOL WORK.

MATHEMATICS.

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

EDUCATION DEPARTMENT, ONTARIO.

JULY EXAMINATIONS, 1885.

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

First Class Teachers—Grade C.

ALGEBRA.

Examiner—J. A. McLellan, LL D.

1. (a) Find the value of $5x^5 + 497x^4 + 200x^3 + 196x^2 - 218x - 2001$ when $x = -99$.

And of

(b) $x^3 + 3x^2 - 13x - 38$ for $x = 3.58443$.

1. (a) Divide by $x + 99$ and find remainder.
Result = -21.

(b) Adopt the same method as in preced-

ing part, or $x^3 + 3x^2 = x^2(x + 3) = x^2(6.58443)$
∴ $x^2(6.58443) - 13x - 38 = x(x + 6.58443 - 13) - 38$. Substitute value of x .

2. Investigate Horner's Method of Division.

(1) Divide $6x^5 + 5x^4 - 17x^3 - 6x^2 - 10x + 2$ by $2x^2 - 3x + 1$.

(2) And express $x^4 + 8x^3 - 16x - 10$ in powers of $x + 2$.

2. Book-work.

(1) $6x^5 + 5x^4 - 17x^3 - 6x^2 - 10x + 2 \div 2x^2$
 $- 3x + 1 = 3x^3 + 7x^2 + \frac{x}{2} - \frac{23}{4}$ with remainder $-\frac{111}{4}x + \frac{31}{4}$.

(2) Let $x + 2 = y$, or $x = y - 2$. Divide by $x - y + 2$ and find remainder.

3. When is an expression

(1) Symmetrical with respect to two of its letters.

(2) Completely symmetrical with respect to two or more letters. Give examples. State clearly "The Principle of Symmetry."

(3) Show that $(2x-y-z)^2(2y-z-x)^2 + \text{anal} + \text{anal}$ is a perfect square.

3. (1) and (2) Book-work.

(3) Let $2x-y-z=a$, $2y-z-x=b$, $2z-x-y=c$, then $a+b+c=0$, and quantity given is $a^2b^2 + b^2c^2 + c^2a^2 = (ab+bc+ca)^2 -$

$$2abc(a+b+c) = (ab+bc+ca)^2,$$

since $a+b+c=0$, $\therefore$ a perfect square.

4. If $f(x)^n$ be divided by $x-a$ the remainder is $f(a)^n$ (Prove).

(1) Find the value of $6a^7 + 9a^5 - 16a^4 - 5a^3 - 12a^2 - 6a + 6c$ when $3a^3 + a - 4 = 0$.

(2) Determine the values of p and q which will make $x^{12} - 5x^{10} + 10x^8 - 15x^6 + 29x^4 - px^2 + q$ vanish, if $(x^2 - 2)^2 = x^2 - 3$.

4. Book-work.

(1) Divide by Horner's Method and find the remainder. The remainder is $3(a^3 - 5a^2 + 28)$. But since $3a^3 + a - 4 = 0$, $\therefore (a-1)(3a^3 + 3a^2 + 3a + 4) = 0$, $\therefore a-1=0$, or $3a^3 + 3a^2 + 3a + 4 = 0$. If $a=1$ then $3a^3 - 15a^2 + 84 = 72$; if $3a^3 + 3a^2 + 3a + 4 = 0$, remainder $= -18a^2 + 3a + 80$.

(2) $(x^2-2)^2 - x^2 + 3 = 0$, $\therefore x^4 - 5x^2 + 7 = 0$. Dividing by Horner's Method, and equating co-efficients of remainder to zero, we find $p=40$ and $q=56$.

5. Find the G. C. M. of $x^5 - 49x^2 + 116x - 68$ and $x^6 - 21x^3 + 20$. If 10 be put for x in these expressions and in their G. C. M. examine the resultant, and explain.

5. G. C. M. $= (x-1)(x-2)$. Nothing special results from putting $x=10$.

6. Find the factors of

$$(1) a^3 + b^3 + c^3 - 3abc.$$

$$(2) (a-b)(x-a)(x-b) + (b-c)(x-b)(x-c) + (c-a)(x-c)(x-a).$$

$$(3) (a+b+c)^3 - (a^3 + b^3 + c^3).$$

From (1) prove that

$$\frac{x}{1-x^2} + \frac{y}{1-y^2} + \frac{z}{1-z^2} =$$

$$\frac{4xyz}{(1-x^2)(1-y^2)(1-z^2)}$$

when $xy+yz+zx=1$.

$$6. (1) a^3 + b^3 + c^3 - 3abc = (a+b+c)(a^2 + b^2 + c^2 - ab - bc - ca).$$

(2) By inspection it is seen that the co-

efficients of x^2 and x disappear, and $\therefore$ the quantity reduces to the form $ab(a-b)+bc(b-c)+ca(c-a)$ which is a well-known quantity whose factors are $(a-b)(b-c)(c-a)$.

(3) It is evident that $(a+b)$ is a factor; and by symmetry $(b+c)$ and $(c+a)$. It is also evident that 5 must be a factor.

$$\therefore (a+b+c)^3 - (a^3 + b^3 + c^3) = 5(a+b)(b+c)(c+a)\{m(a^3 + b^3 + c^3) + n(ab+bc+ca)\}$$

$$\text{Let } a=0, b=1, c=1,$$

$$\therefore 32 - 2 = 30 = 5(2)(2m+n)$$

$$\therefore 3 = 2m+n(1).$$

$$\text{Again, let } a=0, b=1, c=2,$$

$$\therefore 243 - 1 - 32 = 5(1)(3)(2)\{5m+2n\}$$

$$\therefore 210 = 30(5m+2n)$$

$$\therefore 7 = 5m+2n$$

$$\text{but from (1) } 6 = 4m+2n$$

$$\therefore 1 = m$$

$$\therefore 1 = n$$

$$\therefore \text{factors are } 5(a+b)(b+c)(c+a)$$

$$(a^2 + b^2 + c^2 + ab + bc + ca).$$

(4) Simplifying we obtain for numerator of fraction $x+y+z - (xy^2 + x^2y + y^2z + yz^2 + z^2x + zx^2) + xyz(xy+yz+zx)$ (1) but $xy+yz+zx=1$, $\therefore$

$$x^2 + y^2 + z^2 - 1 = x^2y + y^2 + z^2 - xy - yz - zy,$$

Multiplying both sides by $(x+y+z)$

$$3xyz = x+y+z - (x^2y + xy^2 + y^2z + yz^2 + z^2x + zx^2 + x^2y + y^2z + zx^2)$$

$\therefore$ substituting $m(1)$ we obtain $4xyz$ as numerator of fraction.

7. (1) If $(x-y)a^2 + (x+y)^2a + (x^3 - y^3)(x+y)$ be a complete square find the relation between x and y .

(2) Find the values of n which will make $x^3 + nax + a^2a$ a factor of $x^4 -$

$$ax^3 + a^2x^2 - a^2x + a^4.$$

7. (1) Here a is the variable, $\therefore$ condition that the quantity given should be a complete square is $(x+y)^4 = 4(x-y)(x+y)(x^2 - y^2)$, or $(x+y)^4 - 4(x^2 - y^2)^2 = 0$, or $\{(x+y)^2 - 2(x^2 - y^2)\} \{(x+y)^2 + 2(x^2 - y^2)\} = 0$,

$$\therefore \text{either } (x+y)^2 - 2(x^2 - y^2) = 0 \quad (1)$$

$$\text{or } (x+y)^2 + 2(x^2 - y^2) = 0 \quad (2)$$

$$\text{from (1) } 3y^2 + 2xy - x^2 = 0 \quad (3)$$

$$(2) 3x^2 + 2xy - y^2 = 0 \quad (4)$$

$$\therefore \text{from (3) } (3y-x)(y+x) = 0$$

$$\therefore x = 3y \text{ or } x = -y,$$

$$\text{from (4) } y = 3x \text{ or } x = -y.$$

(2) Dividing by Horner's Method we find

that if $n_2 + n = 1$, $x^2 + nax + a^2$ is a factor. Or assuming another factor, $x^2 + max + a^2$, we obtain the statement $(x^2 + nax + a^2)(x^2 + max + a^2) = x^4 - ax^3 + a^2x^2 - a^3x + a^4$. Multiplying out and equating coefficients

$$m + n = -1$$

$$2 + mn = 1$$

$$\therefore mn = -1 \text{ and}$$

$$m + n = -1.$$

From these two equations $m + n$ can be found.

8. Solve the equations:

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

$$(2) \frac{ax + b}{ax - b} - \frac{bx}{ax + b} = \frac{ax}{ax - b} - \frac{(ax^2 - 2b)b}{a^2x^2 - b^2}$$

$$(3) x + y + z = 3a + b + c$$

$$x + y + t = a + 3b + c$$

$$x - z - t = a + b - c$$

$$y + z - t = 3a - b - c$$

$$8. (1) \text{ Square } 4x^2 + 4 + 2\sqrt{(2x^2 + 1)(2x^2 + 3)} = 4 + 4x^2 - 8x.$$

$$\therefore 2\sqrt{(2x^2 + 1)(2x^2 + 3)} = -8x.$$

$$\therefore \sqrt{(2x^2 + 1)(2x^2 + 3)} = -4x.$$

$$\text{Square again } 4x^4 + 8x^2 + 3 = 16x^2.$$

$$\therefore 4x^4 - 8x^2 + 3 = 0.$$

$$\therefore (2x^2 - 1)(2x^2 - 3) = 0.$$

$$\therefore x = \pm \sqrt{\frac{1}{2}} \text{ or } \pm \sqrt{\frac{3}{2}}$$

(2) Transposing

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

$$\therefore \frac{1}{ax - b} - \frac{bx}{ax + b} = \frac{2b - ax^2}{a^2x^2 - b^2}$$

Simplifying, $\therefore ax + b - ax^2 + bx = 2b - ax^2$,

$$\therefore ax + bx = b,$$

$$\therefore x = \frac{b}{a + b}.$$

(3) A simple simultaneous equation. The value of y can be readily found by subtracting (2) from (1) and substituting the resultant value for $z - t$ in (4). By this process

$$y + 2a - 2b = 3a - b - c$$

$$\therefore y = a + b - c.$$

Adding (1), (2) and (3) together there results

$$3x + 2y = 5a + 5b + c, \text{ but}$$

$$2y = 2a + 2b - 2c, \therefore$$

$$3x = 3a + 3b + 3c,$$

$$\therefore x = a + b + c.$$

The values of z and t can now be readily found.

9. A grocer had three casks of wine containing in all 344 gallons. He sells 50 gallons from the first cask; then pours into the first one-third of what is in the second, and then into the second one-fifth of what is in the third, after which the first contains 10 gallons more than the second, and the second 10 more than the third. How much wine did each cask contain at first?

9. Let x = number of gallons in 1st cask,

$$y = \text{ " " 2nd "}$$

$$z = \text{ " " 3rd "}$$

$$\therefore x + y + z = 344 \quad (1)$$

$$\text{also } x - 50 + \frac{y}{3} = 10 + \frac{2}{3}y + \frac{z}{5} = 20 + \frac{4}{5}z \quad (2)$$

$$\therefore x - \frac{y}{3} - \frac{z}{5} = 60 \quad (3)$$

$$\text{also } x + \frac{y}{3} - \frac{4}{5}z = 70 \quad (4)$$

Subtracting (3) from (1) we have

$$\frac{4}{3}y + \frac{6}{5}z = 284 \quad (5)$$

$$\text{also (3) from (4) } \frac{2}{3}y - \frac{3}{5}z = 10 \quad (6)$$

from (5) and (6) we get $z = 110$, $y = 114$,

$\therefore$ from (1) $x = 120$.

10. Given the sum of an Arithmetical Progression, the first term, and the common difference, find the number of terms (n).

(1) Interpret the result when there is a negative value of n .

10. Book-work.

(1) $s = \frac{n}{2}(2a + \overline{n - 1}d)$. Let a value of n which will satisfy this — n be — m ,

$$\therefore s = -\frac{m}{2}(2a + \overline{-m - 1}d),$$

$$\begin{aligned} \therefore 2s &= -m(2a + \overline{-m - 1}d) \\ &= -2am + m(m + 1)d \\ &= m[2(d - a) + (m - 1)d] \end{aligned}$$

$$\therefore s = \frac{m}{2}[2(d - a) + (m - 1)d]$$

which is the sum of a series whose first term is $(d - a)$ and common difference d , and number of terms m .

11. (1) If n geometric means be found between p and q , determine their product.

(2) If x, y, z are in G. P. show that

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

11. (1) If there are n geometric means, then q (if $> p$) $= pr^{n+1}$, when r is common ratio,

$$\therefore \left(\frac{q}{p}\right)^{\frac{1}{n+1}} = r.$$

$$\therefore \text{1st mean} = p \cdot \left(\frac{q}{p}\right)^{\frac{1}{n+1}},$$

$$\text{2nd mean} = p \cdot \left(\frac{q}{p}\right)^{\frac{2}{n+1}},$$

$$\text{3rd mean} = p \cdot \left(\frac{q}{p}\right)^{\frac{3}{n+1}},$$

$$\text{and } n\text{th mean} = p \cdot \left(\frac{q}{p}\right)^{\frac{n}{n+1}},$$

$$\therefore \text{product of mean} = p^n \left(\frac{q}{p}\right)^{\frac{1+2+3+\dots+n}{n+1}}$$

$$= p^n \left(\frac{q}{p}\right)^{\frac{n(n+1)}{2(n+1)}}$$

$$= p^n \left(\frac{q}{p}\right)^{\frac{n}{2}}$$

$$= p^n \times \frac{q^{\frac{n}{2}}}{p^{\frac{n}{2}}} = (pq)^{\frac{n}{2}}.$$

(2) Let $y = xr$, $z = xr^2$, $\therefore x^2 y^2 z^2$

$$\left(\frac{1}{x^3} + \frac{1}{y^3} + \frac{1}{z^3}\right) = x^0 r^0 \left(\frac{1}{x^3} + \frac{1}{x^3 r^3} + \frac{1}{x^3 r^6}\right)$$

$$= x^0 r^0 \left(\frac{r^6 + r^3 + 1}{x^3 r^0}\right) = (r^6 + r^3 + 1)x^3$$

$$= x^3 r^6 + x^3 r^3 + x^3$$

$$= z^3 + y^3 + x^3 - \text{Q.E.D.}$$

12. (1) Give a proof of Binomial Theorem for a positive index.

(2) Write down the coefficient of x^{2r+1} in the expansion of $\left(x - \frac{1}{x}\right)^{2n+1}$

12. (1) Book-work.

$$(2) \left(x - \frac{1}{x}\right)^{2n+1} = x^{2n+1} \left(1 - \frac{1}{x^2}\right)^{2n+1}$$

To find coefficient of x^{2r+1} we must find coefficient of $x^{2r+1-(2n+1)}$, or $x^{2(r-n)}$ in

$\left(1 - \frac{1}{x^2}\right)^{2n+1}$, which is the same thing as finding coefficient of x^{n-r} in $(1-x)^{2n+1}$,

$$\therefore \text{coefficient} = \frac{1}{n-r} \frac{2n+1}{n+r+1}.$$

13. (1) Expand $a\sqrt{1 - \frac{x^2}{a^2}}$ to 4 terms.

(2) Find the sum of the squares of the coefficients in the expansion of $(1+x)^n$, where n is a positive integer.

$$13. (1) a\sqrt{1 - \frac{x^2}{a^2}} = a \left\{1 - \frac{x^2}{a^2}\right\}^{\frac{1}{2}}$$

$$= a \left\{1 - \frac{x^2}{2a^2} - \frac{1}{8} \frac{x^4}{a^4} - \frac{1}{16} \frac{x^6}{a^6} \dots\right\}.$$

$$(2) (1+x)^n = 1 + nx + \frac{n(n-1)}{2} x^2 + \dots + x^n (1)$$

$$(x+1)^n = x^n + nx^{n-1} + \frac{n(n-1)}{2} x^{n-2} + \dots + 1 \quad (2)$$

$$\therefore (1+x)^{2n} = (1) \times (2).$$

Selecting the coefficient of x^n in product of (1) and (2) we find it to be sum required,

$$\text{but coefficient of } x^n \text{ in } (1+x)^{2n} \text{ is } \frac{1}{n} \frac{2n}{n},$$

$$\therefore \text{sum of squares of coefficients} = \frac{1}{n} \frac{2n}{n}.$$

MODERN LANGUAGES.

Editors: { H. I. STRANG, B.A., Goderich.
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EXERCISES IN ENGLISH.

The first five questions are based on the lesson, "Ocean," in the Fourth Reader.

1. Point out the phrases in the following, and tell their grammatical value and relation.

(a) Ten thousand fleets sweep over thee in vain.

(b) Man marks the earth with ruin.

(c) Nor doth remain a shadow of man's ravage.

(d) Spurning him from thy bosom to the skies.

(e) From out thy slime the monsters of the deep are made.

2. Substitute for the following words or phrases others of equivalent meaning:—unknelled, haply, quake, arbiter, mar, realms, azure, glasses, torrid clime, from a boy, wantoned with thy breakers.

3. Explain the force of the italicized words in the following:—Sweep over thee *in vain*; *thunderstrike* the walls, oak *leviathan*, *clay*

creator, *yeast* of waves, Armada's *pride*, *spoils* of Trafalgar, laid my hand upon thy *mane*.

4. Supply the ellipses in the following :—
And shake him from thee—the vile strength he wields—and many a tyrant since—and as the snowy flake—not so thou, unchangeable save to.

5. Parse the italicized words in the following :—The wrecks are *all* thy deed, thou dost *all* despise, changed in *all*, *like* a drop, borne *like* thy bubbles, *such* as creation's dawn, thou goest *forth alone*, for I was.

6. Change the voice of the verbs in the following :—

(a) Did they say anything to you about the mistake that he made?

(b) We do not know the names of the persons to whom he gave them.

(c) It was said that the store had been broken into.

(d) This aroused the suspicions of those who had been left in charge.

(e) He has never felt any doubt that it was written by her.

7. Expand the following simple sentences into complex ones :—

(a) Describe the usual mode of preparing it.

(b) In spite of repeated warnings he resolved to make another attempt.

(c) They begged to be allowed another chance.

(d) After dinner he started off in the hope of finding them.

(e) Their onward progress was stopped by a boom extending across the river.

(j) He appears to have been under a wrong impression of my meaning.

8. Arrange in as many ways as possible without destroying the sense—

(a) So, through the valley, in silence I'll take my way.

(b) For us the raftsmen down the stream their island barges steer.

(c) A mile or so away, on a little mound Napoleon stood on our storming day.

9. Change to *direct* narrative, using quotation marks—

(a) He told them that he was well aware the torture and death were in store for him, but that these were nothing to the shame of a dishonourable action. Though he was a slave to Carthage he had still the spirit of a Roman, and as he had sworn to return it was his duty to go.

(b) Turning to his officers he told them that they could see now that the advice of the dervise, at which they had laughed, was most valuable, and had saved his life.

10. Rewrite in prose, expressing the meaning in your own words as far as possible—

(a) The remnant that survive onward like drunkards reel,
Scarce wotting if alive, but for the pangs they feel.

(b) Reason forsook her shattered throne,
He deemed that summer hours
Again around him brightly shone
In sunshine, leaves and flowers.

(c) An antlered dweller of the wild
Had met his eager gaze,
And far his wandering steps beguiled
Within an unknown maze.

11. Combine each of the following groups into a single sentence :—

(a) They were undergoing a course of discipline. It lasted thirty-eight years. It fitted them for a task. This was to achieve a conquest. They had formerly shrunk from it.

(b) At last an arrow struck him. It was a poisoned arrow. He believed himself mortally wounded. He ordered a retreat to the camp. They had left it in the morning. They were then in high spirits.

(c) A superior force was getting ready to attack him. He learned this. He sailed back for reinforcements. He had left these at Lisbon. He suddenly returned. He made an attack on the French fleet. The attack was successful.

12. Divide into clauses, telling the nature and relation of each—

(a) But *long*, upon Araby's green, sunny highlands,
Shall maids and their lovers remember the doom

Of *her who lies sleeping* among the Pearl Islands,
With nought *but* the sea star to light up her tomb.

- (b) The young village *maid*, when with flowers she dresses
Her dark-flowing hair *for* some festival day,
 Will think of thy fate, till, *neglecting* her tresses,
 She mournfully turns from the mirror *away*.

13. (a) Analyze the principal clause in each of the above stanzas.

(b) Parse the italicized words.

14. Give all the inflected forms of *write*, *lady*, *woman*, *happy*, *him*.

15. Give an example in each case of common errors in the use of *can*, *done*, *lay*, *like*, *seen*, *kind of*, *don't*.

16. Give examples of

(a) The different uses of the nominative case of nouns.

(b) *Compare to* and *compare with* used correctly.

(c) Adjective clauses beginning with *when* and *where*.

17. Indicate as nearly as possible the pronunciation of bouquet, decorous, epoch, genuine, heinous, horizon, inquiry, medicinal, orchestra, quoit, satiate, victuals.

18. Distinguish—

(a) I will go if he asks me. I would go if he asked me.

(b) A tailor and a clothier. A tailor and clothier.

(c) I alone can do it. I can do it alone.

19. Which is correct?

(a) If I was (were) he (him) I would (should) be glad of the chance.

(b) I might have drank (drunk) two spoonfuls. (spoonsful) of it without producing any effect (affect).

(c) Before going any farther (further) let us try and (to) settle it.

20. Correct any errors in the following, giving reasons:—

(a) We will all be very pleased to see him again.

(b) They were scholars of a very different type to Bentley.

(c) He'll find that that's easier said than done.

(d) How sadly she must have felt at parting with them.

(e) He was that faint he could hardly walk to the door.

(f) One after another came forward and put down their names.

(g) The bell began to ring directly they left the church.

(h) I would advise him neither to sneer at or condemn what he don't understand.

(i) I have more faith in him than his friends.

(j) I didn't know but what it might be some sort of a trap.

(k) How do you distinguish between a preposition and conjunction?

(l) A large part of the exports from these islands consist of spices.

(m) Not one in ten of these candidates are likely to pass.

(n) She took out a dress that had lain there for years undisturbed, and which was still fresh and uncrumpled.

CLASSICS.

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

THE PRINCIPAL USES OF THE SUBJUNCTIVE MOOD IN LATIN.

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(Continued from page 197.)

To return to the definition and its expansion:

The subjunctive mood expresses thoughts: whether these be (a) contingent facts, *i.e.*, mere thoughts (at present) without any corresponding realities.

Under this head come:

(1) The simple potential use of the subjunctive mood: *dicat aliquis*: some one might say; *videres*: you would have been seeing.

(2) The mildly-imperative use: *eamus*: let us go; *ne feceris*: do not, pray, do so.

(3) The optative use: *occupet extremum scabies*: plague take the hindmost.

(4) The dubitative-interrogative: *quid faciam?* what am I to do? *quid facerem?*

what was I to do? de dignitate contendas? are you to wrangle about precedence.

(5) The conditional use: si quis hoc faciat: should any one do this; si quis hoc faceret: had any one been doing this; si quis hoc fecisset: had any one done this.

(6) The concessive use: quamvis prudens: be you as sagacious as you may; etsi nihil aliud abstulis setis: even granting that you had take away nothing else.

(7) The "final" use (*i.e.*, the expression of purpose):

facit	ne	profligit:	
	ut		
hoc		bellum	
fecit	ut	profligaret:	
	ne		
he	does	this in order that he	may not end
did			may the
			might not war;
			might not war;

multa quoque et bello passus dum conderet urbem: much in war also he suffered in the effort to found (lit: till he should found) his city.

The definition continues:

Or (β) existing facts looked at in relation to (1) the words or opinions of some particular person: the facts, *i.e.*, are given as "reported" by or as influencing the mind of some one: *i.e.*, the fact is regarded as an assertion made or a question put by a particular person; or as a portion of a particular person's opinions or knowledge; not as a bare fact standing apart from any special mind.

Under this head come all the secondary clauses of reported speeches: *e.g.*, he said that the enemy, of whom there had been two thousand, were slain: dixit hostes, quorum duo millia fuissent, cæsos esse.

The number of the enemy is a fact not stated independently, but reported as forming a part of the information given by the messenger who announced at the same time their defeat.

If, on the contrary, the number be appended as an independent fact appended by the historian, *i.e.*, as a note of his own, and having no connexion with the messenger's testimony, the mood is the indicative: he said that the enemy (there were two thousand

of them) were slain: dixit hostes (quorum duo millia erant) cæsos esse.

If we could use here the same device of inverted commas (which unfortunately are restricted to direct narration) the difference would be made clearer. The first sentence would run: He said that "the enemy, of whom there had been two thousand were slain": dixit hostes, quorum duo millia fuissent cæsos esse. The second would run: He said that "the enemy" (there were two thousand of them) "were slain": dixit "hostes" (quorum duo millia erant) "cæsos esse."

Under this same head come all clauses with a so-called dependent or indirect interrogative:

(1) Quis es? who are you? but: rogo quis sis: I ask who you are.

(2) Nuntiaveram am quis essem: I told who I was.

(3) Notum que furens quid femina possit: and the knowledge of what a desperate woman can do.

(4) Quo statu res sit quid ve sentiant milites cernere est in promptu: it is easy to discern what is the posture of affairs and the temper of the soldiery.

(5) Scire quid tempora ferant prudentis est: a shrewd man sees what the spirit of the age tolerates.

(6) Mirum quantum illi fidei fuerit: it is surprising how much confidence was reposed in him.

In all these sentences the subjunctive mood expresses a fact regarded not as standing by itself and independent, but as forming part of somebody's questions, or assertions, or reflections, or perceptions, or knowledge, or observations: "quis sis" is a reported question; "quis essem" a "reported" announcement; "a desperate woman's resources" are the burden of Æneas' reflections with himself; "the posture of affairs and the temper of the soldiery" is a fact regarded as part of the information within reach of anyone; "what the spirit of the age tolerates" is not a bare fact but a fact regarded as a thought present to the mind of the "prudens"; "how much confidence

was reported in him" is an observation forced upon the attention of the speaker and awaking his surprise.

Finally the definition ends as follows :

Or to (2) some other facts outside themselves, either to a previous fact to which they stand as consequences to a cause, or to a subsequent fact to which they stand as causes to a consequence.

Under this head we have

(1) The consecutive subjunctive : *hoc ita fecit ut nemo idem facere postea cogeretur* : he did this so thoroughly that no one was compelled to do the work over again.

(2) The casual subjunctive : *quum nemo id antefecis se hic facere voluit* : because no one had done this before, this man resolved to do it ; or (according to the context) the same words may mean : although no one had done that before, this man resolved to do it.

[NOTE.—There is the same notion of sequence of thought or causation here as in the translation "because no one," etc., only in that sentence the subjunctive after "because" gives a reason *for* the act, commends it to our attention as natural ; whilst in this, the subjunctive after "although" gives a reason *against* the act, and emphasizes for us its surprising character. But in both alike the fact that "no one had done it before" is not stated independently but is brought into mental relation with another fact, "this man did it," towards which it stands as an antecedent (1) favourable or (2) hostile.]

This last form of the subjunctive however—the causal subjunctive—is, it must be confessed, by no means amenable to logical rules. For although "quum" in the two causal senses given above (and often indeed by false analogy when it simply means "when" of time) is followed by the subjunctive, on the other hand "quod," "because" and "quanquam," "although" (when the verb following is not part of a reported speech), are found with the indicative. Now, according to the general principle that the indicative expresses bare facts as such, and the subjunctive, facts in their relations of cause

and effect to other facts, it should seem that all clauses introduced by "quod" or "quanquam" should be in the subjunctive, because such clauses necessarily go outside the bare fact and introduce the mental conception of causation, and so far turn the fact into a thought. There is therefore a discrepancy between (1) *quia*, *quoniam*, *quod*, *quanquam*, *etsi*, on the one hand, all of which, when used of actually existing facts and not mere contingencies or hypotheses, are generally found with the indicative, and (2) *quum* (in its senses of "because" and "although") *quippe qui*, both of which are followed, the first, invariably, the second almost invariably by the subjunctive. The explanation, so far as there is an explanation, perhaps is that the human mind, as we know, is apt to regard as objective much that has in it a strongly subjective element ; besides which the distinction may be suggested that after *quod*, *quoniam*, *quanquam*, etc., the emphasis falls on the fact as such ; after *quam*, *quippe qui*, the emphasis falls not at all on the fact as such, but on the fact viewed as an explanation of, or a surprising comment upon, a further fact. Thus, e.g., to return to Virgil *Æneid VI.* :—"demens erat quod simulabat" will be translated "he was a fool, for he actually tried to mimic, etc.," the emphasis being wholly on the fact of mimicry. *Sal-moneus* actually tried to represent thunder, but "*demens qui* (or '*quum*') *simularet*" will be translated : fool to mimic, etc., the emphasis being wholly on the *folly* of *Sal-moneus*, and the special way in which he showed his folly—his mimicry of Jove being only added to justify the epithet *demens*.

And so in some other instances of "quod" with indicative, as "*quod animadversum est in eos non debeo repretendere ; quod viris fortibus honos habitus est laudo*," Cic. *Rosc. Am. 47*. The "quod" seems hardly more than the accusative relative—the fact that the notion of causation, *i.e.*, seems scarcely developed. Finally, it must be remembered that the necessity for distinguishing between real motives and alleged motives, and again between real facts and alleged facts, would be a strong inducement to the use of the in-

dicative a'ter quia, quod, etc., to express real motives and real facts, and the limitation of the subjunctive to alleged motives and alleged facts.

Magis quia id negare requirerat, quam quod ignoraret, etc. (Livy, 2, 13.)

More because he had been unable to refuse this [the real motive and fact], than because he was ignorant (as he affected to be) that, etc. [the alleged motive and fact.]

It is apparent from all this that to speak of the subjunctive mood as governed by such particles as *forsitan*, *si*, *quamvis* (or *licet*), *ut*, *ne*, *ut non*, *quum*, is slightly incorrect. The subjunctive mood follows these particles because the sentences which they introduce necessarily express either contingency, or condition, or concession, or purpose, or consequence, or causation; but the *raison d'être* of the subjunctive is not found in some mystical property of these particles, but in the essential character of the sentences which these particles introduce.

The use of the subjunctive after the relative pronoun "qui" should cause no difficulty. In these cases the relative followed by the subjunctive can be analyzed (where the subjunctive is not explicable as a "reported" fact) into the demonstrative or indefinite combined with one of these particles. Thus "qui simularet" can be analyzed according to the context into (a) *si quis*, or *si is simularet*, e.g., *demens esset qui simularet*: a fool had any one been who should have mimicked; (b) *licet simularet*, e.g., *demens qui alia simularet si simularet fulmen*: he was a fool, even granting that he mimicked other things, if he sought to mimic thunder; (c) *ut simularet* (purpose), e.g., *demens missus est qui simularet fulmen*: a madman was despatched to mimic the sound of thunder; (d) *ut simularet* (consequence), e.g., *ita demens erat qui simularet fulmen*: he was so mad as to mimic thunder; (e) *quum simularet* (cause), e.g., *demens qui simularet fulmen*: fool to mimic thunder! i.e., because he mimicked.

It will often be noticed in such sentences that the relative refers not to definite but to indefinite objects; no to individuals but to

classes and types; and that it expresses in any case not bare facts but some sequence of thought and some idea of cause. In many cases the most natural translation of the relative is the word "such." Under this head comes the subjunctive, sometimes called the subjunctive of indefiniteness or generality (see Arnold's Exercises, p. 189. note), "*ubi res posceret priores erant*," "whenever occasion required they were to the front"; but the notion of cause here is so plainly discernible, the connection between the demand and the supply is so plainly implied, that it is not necessary to group such subjunctives under a separate heading and give them a separate name.

Finally, it should be added that the subjunctive mood occasionally seems due to mere attraction. The verb in the principal clause being in the subjunctive or infinitive, the verbs in the minor clauses gravitate towards the subjunctive, though expressing facts regarded as independent in most of the examples quoted by Arnold (p. 189). the relatives can be reduced to demonstratives with particles of condition, concession, purpose, consequence or cause, or otherwise explained. And so with many of the examples of Roby (vol. 2, pp. 338, 340); but the following seem to be most easily explicable when referred to attraction:—

Non enim is sum qui quicquid videtur tale dicam esse quale videatur (Cic. Acad. 2, 7, Roby, p. 341). I am not the man to say of anything which seems that it is what it seems.

Sic perpersio ceterorum facit ut ea que acciderint minora quum quanta sint existimata videantur. Thus the sufferings of the rest of the world make what has happened seem of less moment than we have supposed (Cicero Tusc. Disp. 3, 24, Roby id).

Is igitur ut natus sit dicitur ab Amulio exponi jussus esse. So when he was born he is said to have been ordered for exposure by Amulius (Cicero De Rep. 2, 2, Roby 338).

Earum rerum quibus abundaremus expositio et earum quibus egeremus investio certe nulla esset nisi, etc. There would have been no exportation of our superfluities and no

importation of things we needed had not, etc. (Cicero De Offic., 2, 3, 13, Arnold, p. 189).

The same attraction is occasionally found in Greek, e.g., *βουλοίμεθα* in Demosthenes pro Megalopolitanis, ch. 5.

NOTE.—Sometimes when a cause is being stated as a thought influencing some one, and as the reason (according to himself) of his conduct, there is a confusion similar to that found in similar sentences in English. Thus: Quum exisset de castris rediit paulo post quod se oblitum nescio quid diceret. After leaving the camp he soon returned, because, he said, he had forgotten something (Cicero De Off. 1, 13, Roby, vol. 2, p. 326). Here the "forgetting something" is an assertion made by the hostage in the story and would naturally seem "quod (ut dicebat) oblitus esset"; but just as in English we say carelessly "because he said he had," etc., when we mean "because, as he said, he had," etc., so in Latin the verb of assertion appears in the subjunctive mood occasionally, and the verb which should be in the subjunctive, viz., the verb which expresses the matter of the assertion is shifted into the infinitive. So, too, at etiam litteras recitavit quas me sibi misisse diceret (Cicero 2nd, Phil. ch. 4), practically means "he read to the senate certain letters on the ground that (as he said) I had sent them to him"; but the literal translation involves the same confusion as above, "he even read letters because he said ('which he said'—quite literally, but the relative clause contains the reason for the reading of them) I had sent them.

THE CLASS-ROOM.

DAVID BOYLE, Editor, Toronto.

ARITHMETIC FOR JUNIORS.

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

1. A newsboy buys 144 newspapers each day at 10 cents a dozen. He sells them at 1 cent each. At the end of 6 days he has 8 old papers on hand. How much money has he made during the week?

2. A book agent bought 90 books at \$2 each. He sold them at \$3.50 each. His expenses were \$10. He was unable to collect for three books. How much did he gain or lose?

3. If a clerk receives \$640 a year, and his expenses are \$500 a year, how many years will it take him to pay for a house and lot worth \$1120?

4. How much water must be added to a gallon of milk worth 4 cents a quart, so that it may be sold for 5 cents a quart, and give a profit of one-half of cost?

5. A ton of coal is worth \$6.50, and lasts on an average 21 days. How much money will be required to buy coal from 15th Oct. to 15th May?

6. A man sold two houses for \$1500 each; on the one he gained $\frac{1}{3}$ of the cost price; on the other he lost $\frac{1}{3}$ of the cost price. How much did he gain or lose on the two houses?

7. Three men hired a horse for a journey from A to B and back again. Half-way from A to B they overtake a fourth man who agrees to pay his share of the cost for the distance he rides. He rides to B and back half-way to A. What should he pay, if the whole cost of horse is \$5?

8. How many square rods are there in 100 square chains?

9. Find the cost of carpeting a room 12 ft. by 16 ft. with carpet 27 inches wide at \$1.35 per yard.

10. There are 40 pupils in a room 36 ft. long, 30 ft. wide, and 15 ft. high. How many cubic yards of air are there for each pupil?

ADMISSION TO HIGH SCHOOLS.

Notes on Literature.

AUTUMN WOODS.

Bryant, William Cullen.—1784-1878. An American poet. He was a great traveller and a minute observer of nature. He was chief editor of the *Evening Post* for about fifty years.

"*Summer tresses.*"—The green leaves of summer.

"*Their glory.*"—The coloured leaves of autumn.

"*Not alone.*"—He has with him the south-west wind and the sunshine.

THE SKATER AND THE WOLVES.

"*Its fetters.*"—The ice.

"*Rencounter.*"—Meeting.

"*Jewelled zone.*"—A belt studded with jewels.

"*Benighted.*"—Overtaken by night.

"*The grim original.*"—Death itself—the original of the "picture" just mentioned.

"*Denizens.*"—Inhabitants.

"*Hint conveyed by the dogs.*"—What was the "hint"?

THE STAGE COACH.

Charles Dickens.—1812-1870. A great English novelist. He wrote at first under the name of "Boz." Some of his chief works are:—"Pickwick," "Oliver Twist," "Nicholas Nickleby," "Martin Chuzzlewit," "David Copperfield." He wrote of ordinary life and always with some good purpose in view. He visited America and France, giving public readings.

"*The boot.*"—The hind part of the coach.

"*He was all pace.*"—His manner was so quick that it made everybody else move quickly too.

"*Salisbury.*"—A town a little over eighty miles south-east of London.

"*Yokel.*"—A bumpkin.

"*Fantastic.*"—Whimsical.

"*Tom Pinch.*"—A character in "Martin Chuzzlewit."

INCIDENT AT BRUGES.

William Wordsworth.—1770-1850. A great English poet. He was educated at Cambridge and travelled on the Continent. He then went to live near Lake Windermere. He was a great friend of Coleridge. His chief work was the "Excursion." His language was marked by great simplicity. He was Laureate during the last seven years of his life.

Bruges.—A town in West Flanders noted for its manufacturing and shipping. Owing to persecutions it began to decline about the year 1600.

"*Prelude.*"—An introductory piece of music.

"*Measure.*"—The style.

"*Innocuous fire.*"—The rays of the setting sun glittering on "pinnacle and spire," but not injuring them.

"*Iron grate.*"—The grate before the window where she was singing.

"*The maiden at my side.*"—Wordsworth was accompanied by his sister on a visit to Belgium.

"*Less tribute,*" etc.—On account of the contrast between her own liberty and the imprisonment of the nun.

NUMBER AND ARITHMETIC.—II.

TAKE five blocks? put one block with five blocks. It is, perhaps, useless to make separate suggestions about the teaching of each number to ten inclusive, still I am sure that every primary teacher and supervisor should make the teaching of each of these numbers a very careful and prolonged study. Numbering is an essential thought-element; therefore, the learning of a number enhances power to think, just so far as limiting things by ones is concerned. The facts in six are: $1+5$, $6-1$, $6-5$, $2+4$, $6-2$, $6-4$, $3+3$, 2×3 's, $6 \div 3$, $6 \div 2$, $\frac{1}{2}$ of 6, $\frac{1}{3}$ of 6. These facts or judgments are to be discovered in six. Then, by constant repetition, they should sink into unconscious or automatic action; that is, when a particular relation of numbers is to be used in thinking, no mental action beyond a slight one of recollection should be necessary. The number of repetitions needed to sink any particular fact into automatic action depends entirely upon the result of each separate act; and each result is determined by the stimulus that aroused the act. A child, who, by measuring, discovers that there are 3 quarts in 6 pints, will thereby learn that there are 3 2's in 6, and that 3 2's are 6, with very few repeti-

tions. The more limitations by ones of real, practical things the pupil is called upon to make, the less the number of bare repetitions of words will be necessary.

THE reasons why figures should not be taught until ten is taught are :—

1. Ideas of numbers, limitations by ones grow *very slowly indeed*. In proof of this it has been shown that most children of five or six years of age, who have not had kindergarten training, do not know more than 3 when they enter school.

2. The teaching of figures instead of numbers is the fundamental mistake in the teaching of arithmetic. If the numbers and the relations of numbers could be really taught, using figures as the written signs of numbers, four-fifths of the time now spent in teaching arithmetic could be spent in learning natural sciences, and other important branches, while the science of numbers would be far better known than it is now.

3. Number is an essential element in thought power and the degree of that power, whether weak or strong, depends almost entirely upon the comprehension of the relations of one to ten inclusive. These relations measure all other number relations.

4. There is no necessity whatever for teaching number rapidly during the first two years of school life. The small numbers are the numbers in practical use by children, and for that matter by grown people.

5. The essential elements of thinking in numbers, are ideas of numbers, not figures; we cannot think in figures. These ideas, as has been said, grow very slowly indeed. Now, with the fact that figure-teaching is the great bane of all arithmetical teaching, is it not reasonable to suppose that the attempt to teach ideas of numbers and two distinct languages of numbers at the same time would result in a comparative failure? And in consideration of the fatal facility with which figures may be taught, is it a matter of surprise that children should take figures for numbers, thus defeating every purpose of number teaching?

6. Expression is a means of evolving

thought, and in teaching should be used for no other purpose. After ten has been taught, by using the oral language, the written language may then be made an excellent means of reviewing the work done, and of assisting in further evolution.

For these and similar reasons I would not use figures until ten has been taught. How long it takes to teach ten I cannot yet tell. I have yet to know of an instance of ten being thoroughly taught during the first school year.

NUMBER AND ARITHMETIC.—III.

FROM TEN TO TWENTY.—In the last number of this paper I gave reasons why figures should not be taught in the lowest grades, or until ten has been taught, so as to arouse great interest on the part of the pupils.

TEACH figures precisely as you teach words, by using the simple law of association. Show a number of objects and write the figure. Write the figure and have the pupils show that number of objects. Show a number of objects and have the pupils write the figure. This may be done with each number from 1 to 10 inclusive. It is a good plan to have the class at the blackboard; each pupil having a marked-off space two feet wide. The teacher may show the objects (of different kinds) and have pupils indicate the numbers they see by writing figures. The figures should be written neatly in columns. If a pupil is inclined to copy, give him a column to write by himself.

THE greatest pains should be taken from the first to have pupils write figures and signs very distinctly, and arrange their work neatly, and never do one bit of work carelessly. It takes time and patience to train pupils into careful habits, but the training pays a tremendous per cent. of interest. Special lessons should be given in making figures. Have pupils practice upon the blackboards, on slates and paper. This may be the order of difficulty in making figures: 1, 4, 7, 0, 9, 6, 5, , 2, 8.

THE learning and making of figures may be made the beginning of a great variety of written work. First, all the signs may be taught. We will suppose that the class is at the board; the teacher stands so that each pupil can see her and the objects she handles.

Teacher.—Please write what you see. The teacher shows 4 blocks and 2 blocks, and then unites them in one group. The pupils write, 4 and 2 are 6. The teacher shows 3 blocks and 3 blocks, uniting them after showing them separately. Pupils write 3 and 3 are 6.

Teacher—I know of a shorter way of writing *and*. The teacher erases *and* and writes + in its place.

Teacher—Now read it (shows 4 blocks and 5 blocks). Write this—and write *and* in the new way. Pupils write 4 + 5 are 9. In the same way *are* may be erased and = introduced. The purpose of these and the following exercises should not be mistaken; figures, signs, and arithmetical idioms (sentences) are to be associated with their corresponding ideas and thoughts so that the written languages of arithmetic may at sight bring the right thought into consciousness. That this is not generally the case, any teacher may ascertain by a few tests.

(To be continued.)

WATERLOO COUNTY TEACHERS' ASSOCIATION.

At the semi-annual meeting of the above Association, held in Berlin on the 10th and 11th September, the following was adopted:

"In view of the fact that the frequent change of teachers is caused by the insufficient financial remuneration, and is detrimental to educational interests we beg leave to make the following suggestions:—

"1. That all candidates presenting themselves for the Professional Third Class Examination be required to pay a fee of twenty-five dollars, said money to be disposed of by the Education Department in the interests of education.

"2. That the Minister of Education refund all moneys with interest at six per cent. (6%) paid by teachers into the Superannuation Fund, provided they have withdrawn or wish to withdraw their payments.

"3. That a committee be appointed annually whose duties shall be to investigate charges preferred against any teacher who attempts to oust a fellow-teacher by any means whatever, and should such preferred charges in the judgment of the investigating committee be proven, then it shall be the duty of the said committee to report to the Association the offender and the offence.

"4. That a teacher on resigning his position in a school shall immediately notify the aforesaid committee of the fact, that they may be in a position to assist intending applicants as to the probable salary, etc."

CONTEMPORARY LITERATURE.

THE HANDY COMPANION. Cleveland: Holcomb & Co.

This pocket volume of 250 pages contains useful information on a variety of subjects. The occasional attempts at wit are nearly all very bad.

COMPOSITION AND RHETORIC. By G. P. Quackenbos, LL.D. New York: D. Appleton & Co., 1885.

A new edition of an old and valued work.

William Blackwood & Sons, London and Edinburgh.

BLACKWOOD'S EDUCATIONAL SERIES. Edited by Prof. Meiklejohn.—Standard Readers, Books I.-VI.; Historical Readers, Books I.-III.; First and Second Picture Primers and Infant Picture Reader; Short Stories from English History; History of England for Junior Classes.

It is needless to comment at length on the good workmanship displayed in the books of

this series, perhaps with the exception of the Primers, in which the little pictures might be unfavourably criticized, although the type is good. Great care seems to have been exercised in selecting the material for the Readers, among which the Third Historical Reader deserves special mention, the concluding chapters being models in their way.

OUR COLONIES AND INDIA: How We Got Them, and Why We Keep Them. London: Cassell & Co.

It gives us pleasure to speak in favourable terms of this admirable hand-book and to bear testimony to the real value of the information to be found in its pages.

RELIGION IN HISTORY AND IN THE LIFE OF TO-DAY. By A. M. Fairbairn, D.D., Principal of Airedale College, Bradford. London: Hodder & Stoughton.

A Series of Six Lectures or Addresses originally delivered to the workmen of

Bradford form the present volume. The aim of the author in preparing them was to reach a certain number of the industrial class not often found in church. Readers will find in these lectures a thoughtful and scholarly presentation of certain truths too often out of sight and out of mind both with pupil and teacher.

MORAL LESSONS FOR GIRLS. I. On Taking Care. "The Steam Press," Lewesham, S. E., London.

This excellent moral essay is written in a clear, simple, yet interesting manner. It is intended to impress upon young girls the great duty of "taking care."

HINTS ON METHOD IN ELEMENTARY SCHOOLS ("Steam Press") is well named. The Hints are given by the Principal of a Training College, and are worthy the attention of teachers, both of elementary and advanced classes.

NOTES.

PETER S. CAMPBELL, M.A., first-class honours in Classics, University of Toronto, has been appointed Principal of the Hamilton Collegiate Institute, *vice* Mr. Dickson, now Principal of Upper Canada College. We wish Mr. Campbell great success in his new position.

WM. H. HUSTON, M.A., first-class honours in English, etc., and winner of the Gilchrist Scholarship, though he did not enjoy the benefit thereof by misunderstanding as to age, has been appointed to the position of English Master in the Toronto Collegiate Institute. Mr. Huston's scholarship and experience well fit him to discharge the duties of his position with acceptance. We congratulate him on his appointment.

THE readers of THE EDUCATIONAL MONTHLY are now being favoured with a

series of articles on "The Education of Teachers," from the pen of the Rev. Malcolm McVicar, Ph.D., LL.D., Professor in the Baptist College, Toronto. Dr. McVicar is eminently qualified to write on this important subject; he can speak to us with authority, as his observations are founded on experience gained in a life-long devotion to the work of a teacher, who received his early training in Canada, and who has organized and conducted more than one Normal School in the United States with marked success and ability. The first article of the series appeared last month, the next will appear in November.

THE BRITISH ASSOCIATION.—Sir Lyon Playfair, the new president of the British Association, which opened its meetings at Aberdeen on Wednesday, delivered his inaugural address on Wednesday night. The

subject of the address was the relations of science and the State, which, he held, should be more intimate, because, the advance of science was needful to the public weal. He pointed to the great importance attributed to the advancement of scientific education by the Governments of France, of Germany, and especially of the United States, and stated that we were inferior even to smaller countries—Greece, Portugal, Egypt, Japan—in the absence of organized State education. Scientific instruction in our middle-class schools was either insufficiently attended to or entirely ignored; but in spite of the obstinate tradition of classical education, the needs of modern life would force schools to adapt themselves to a scientific age. The change did not involve a contest as to whether science or classics should prevail, for both, he maintained, were indispensable to true education. The commercial enterprise and intelligence of Germans, Swiss, Dutch, and Greeks were already pushing aside English incapacity and, whole branches of manufacturers which

depend upon scientific knowledge were passing away from the country where they originated. Great Britain must follow the example of other European nations, and found schools for scientific and technical education. Referring to science in the Universities, Sir Lyon Playfair advocated larger grants from the State. On the relation of science to industry, he dwelt upon the immense aid which intellect had contributed to the advancement of every branch of industry. The economy of time and labour produced by the application of scientific discoveries was, he said, beyond all measurement. In fine, he stated that the English Government alone failed to grasp the fact that the competition of the world has become a competition of intellect. Without science no amount of learning would enable us to keep ahead, or even on a level, with foreign nations as regards knowledge and its applications to the utilities of life. At the close of the meeting, Sir Lyon Playfair announced that the membership had reached a total of 2,031.

BUSINESS.

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MONTHLY to their friends can have specimen copies sent free from this office to any address.

Our readers will observe that special attention has been given to the examination papers of this year in the July-August, September and October numbers of the Magazine; in many cases hints and answers are given, and for several papers solutions have been furnished to all the questions. We hope subscribers and others will show in a practical way their intelligent appreciation of the valuable work done by the editors of the different departments of *THE MONTHLY*.
