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J. E. WELLS, M.A.

Editor.

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Editorial Notes.

ONE of the wisest gifts for educational purposes of which we have heard in a long time, was that recently made by a Mr. George, of Chicago, who has deeded a valuable farm of three hundred acres, near the city, to the Illinois Industrial Training School for boys. If hundreds of the waifs could be taken from the streets and slums of our cities and trained to become practical farmers, both the lads and the country would receive a blessing.

THOSE of our readers who may have occasion to send to the city for books or supplies, will do well to read carefully our advertising columns. Among others we may particularly mention Messrs. Vannevar & Co., whose advertisement is renewed in this issue. We have had in the past, as we doubt not many of our readers have had, personal experience of the promptness, care and fidelity with which this firm attends to business, and feel sure that those who may send their orders to them will find them satisfactorily filled at moderate prices.

By a recent Order-in-Council of the Government of Ontario, Mr. J. George. Hodgins, LL.D., was appointed Historiographer and Librarian of the Education Department, and Mr. Alexander Marling, LL.B., was appointed Deputy-Minister. The peculiar fitness of each appointment will be generally recognized. Dr. Hodgins' historical tastes and studies eminently qualify him for the duties of his new office, while his almost life-long connection with the work of public education in Ontario gives him an acquaintance with its history probably more comprehensive and minute than that possessed by any other man. His recent work, "The Ryerson Memorial Volume," which we should have noticed at length before, is, in itself, at the same time a monument to the author's painstaking industry and a valuable historical record. Mr. Marling's thorough familiarity with everything pertaining to the workings of the educational system of the Province, as well as his executive ability and uniform courtesy, will cause his appointment to be welcomed by all members of the profession and others having business relations with the Education Department.

THE Public Report of the trustees of the Kingston Collegiate Institute is a document of considerable interest to others as well as to the citizens of Kingston, to whom it is addressed. We had intended to deal a little more fully with some

points it suggests, but find that our space limits will not permit in this issue. The fees of this Institute have not only been materially lowered to outsiders, but the whole course, with the exception of Classics, Modern Languages and Science, has been made free to children of all residents, while the charge for the exceptional subjects to such pupils is but \$1 per teaching month. This is a move in the right direction, and is worthy of imitation in other High Schools and Collegiate Institutes.

ONE fact incidentally brought out in the Report of the Kingston Collegiate Institute has surprised us not a little, and will surprise those of our readers to whom it may be new. It is that the authorities of Queen's University have established a preparatory department in Classics. One of our correspondents elsewhere hits hard at Queen's for making this arrangement. We recognize fully the right of that or any other voluntary institution to make any arrangement it thinks best adapted to promote the cause for which it exists. At the same time we cannot refrain from expressing our regret that such an innovation should have been thought necessary, as it will almost inevitably tend to injure the efficiency not only of Kingston Collegiate Institute, but of all Institutes and High Schools in the East, or elsewhere within the territory from which Queen's draws her students. We should be sorry to accept the rather uncharitable explanation suggested by our correspondent, nor can we for a moment believe that the secondary schools referred to are not in a position to do the work of preparatory classical training more efficiently than it is likely to be done in any extemporized department of a University whose proper sphere lies outside of and beyond such elementary work. And yet, apart from one or the other of these untenable alternatives, we are unable to imagine any sufficient reason to be for Queen's new departure. While we are ready to advocate, as shown in another column, any scheme which tends to afford a wider variety in the kind and extent of the educational courses set before the youth of Ontario, we should regard the object in view as hindered, rather than helped, by any lowering of the recognized standards, or cheapening of the established degrees. We are the more at a loss to understand this movement at Queen's, because of its obvious tendency to discount and discourage the scheme for uniform Leaving Examinations, which is just now before the public, and of which Principal Grant has been supposed to be the foremost advocate. We hope for more light.

THE prospects for the erection of a new building for Wycliffe College, in this city, seem to be good. The *Evangelical Churchman* says that two friends of the College have announced their intention to give \$10,000 each towards the building fund, on the condition that other \$30,000 be subscribed. There ought to be little difficulty in securing the fulfilment of such a condition.

THE Secretary of the newly formed Science Association requests us to point out how desirable it is that all the Science teachers in the Province should become members, and thus give their influence and aid to promote the cause of Science teaching in Ontario. We cheerfully comply with the request, because we believe the aim to be a good one, and have great faith in the power of associated effort. The Modern Language Association is evidently becoming a power, by reason of the energy and enthusiasm of its promoters and members. Why should not the Science teachers be equally in earnest in their special department? The names of those wishing to become members may be sent to the President, Vice-President or Secretary. (See Report in last issue.) The \$1 subscription fee should not be forgotten.

WE gave in our last issue, amongst other examination papers, those on Hygiene and Temperance, set at the East Middlesex and Kent Promotion Examinations. It may be of interest to teachers to learn that in the report accompanying the list of the 134 successful candidates at the last Entrance Examination in East Middlesex, it was stated that a larger proportion than usual succeeded. The explanation is, that though "the papers were, on the average, much more difficult than those set at the preceding examination, several candidates were carried over the minimum total required, 367 marks, by the bonus out of a possible 80 allowed on the new subject, Hygiene and Temperance, which has been regularly taught in a majority of the East Middlesex schools ever since it was made an option on the programme of studies six or seven years ago." Here is an inducement of a very practical kind, in addition to those supplied by considerations of physical and moral profit, for taking up these subjects in all the schools.

THE question of free text-books in the schools is from time to time mooted in the city papers. There is a good deal to be said in favor of the view that free books should be supplied in the same way as free tuition. As a matter of economy, a large saving might be effected in this way, first in the original cost of the books, as they could be had more cheaply in quantities; second, in that the books would be used until worn out, instead of being laid aside as worthless as soon as the owner has passed into a higher grade. Objections are not, however, wanting. There is a healthful stimulus to the child in the possession of a brand new text-book, which would be

lost, to a large extent, were he only to be promoted to use some soiled, dog-eared copy that had already passed through several hands. Many parents would object to this on other grounds, but, then, those to whom the cost is a trifle could still procure new books for their own children if they pleased. The plan is at least worth discussing, as the cost of text-books is quite a tax on many a poor man's or woman's earnings.

COMPLAINT is being made in British Columbia that the Minister of Education is too nearly autocratic in the management of the Public schools. In that Province it appears that, "with the exception of a small contribution from each of the four cities possessing free High schools, every dollar of the cost of the Public schools, of all grades, comes direct from the public treasury." This fact, on the sound political principle that the Government must be held responsible for the expenditure of the public money, will, we suppose, justify the exercise of very large powers of management and control by the Education Department. But it is clearly an undesirable state of things, and cannot, we should suppose, be long continued in this democratic country. The Ontario system, in which both the money and the management are supplied by the localities interested, is much better. Even here complaint is sometimes made of too much regulation by the Department, and the tendency will probably be more and more towards full local control. The educational influence upon parents of a system which takes the duty of educating their children so largely out of their hands, must be very bad. Parents need to be made to feel more rather than less heavily the pressure of parental responsibility in this matter.

THERE are few things more surprising in connection with the working of our educational machinery than the seeming indifference of parents to the character and management of the schools, as shown by their lack of interest in the election of trustees. Year after year the same story is told of school trustee elections, at which scarcely a baker's dozen of electors take the trouble to put in an appearance. And yet the efficiency of the schools is more completely in the hands of the trustees than in those of any other persons, or body. They select the teachers, and the character of the school depends more upon the kind of teacher or teachers employed than upon any other or all other conditions. The indifference referred to is inexplicable from almost every point of view. Heads of families are usually on the alert where the expenditure of their money is concerned, to see that they get value for it. Yet the school trustees of this Province expend yearly more than three millions of the people's money—money raised, too, mainly by direct taxation. If parents were fully alive to the vital importance of the office of trustee, in its relation to the best interests of their children, the annual school election would be considered first instead of last in its claims upon their attention.

Educational Thought.

AN ARAB SAYING.

REMEMBER, three things come not back;
The arrow sent upon its track—
It will not swerve, it will not stay
Its speed; it flies to wound or slay.

The spoken word so soon forgot
By thee; but it has perished not:
In other heart's 'tis living still,
And doing work for good or ill.

And the lost opportunity,
That cometh back no more to thee.
In vain thou weepst, in vain dost yearn,
Those three will nevermore return.

The Century Bric-a-Brac.

FOR every purpose, whether for action or speculation, I hold that quality to be the most valuable, which is quite within our own power to acquire, and which nature, unassisted, never yet gave to any man. I mean a perfectly accurate habit of thought and expression. Such is, as far as I can see, one of the very rarest accomplishments.—*Lord Stanley.*

IF we work upon marble it will perish; if we work upon bronze time will efface it; if we rear temples they will crumble to the dust; but if we work upon immortal souls, if we imbue them with right principles of action, with just fear of wrong and love of right, we engrave on those tablets something which no time can obliterate, but which will grow brighter and brighter to all eternity.—*Daniel Webster.*

I THINK that the influence of a good man and a good woman, teaching ten or twelve children in a class, is an influence in this world and the world to come which no man can measure and the responsibility of which no man can calculate. It may raise and bless the individual. It may give comfort in the family-circle, for the blessing which the child receives in the school it may take home to the family. It may check the barbarism even of the nation.—*John Bright.*

THE artist, excluded from the society of his fellows, becomes morose, indifferent and inactive. The teacher who is isolated becomes a fossil; he needs contact, from time to time, with the great army of progress. His ideas must be broadened and elevated. Social intercourse, observation, comparison, mental conflict—these are the conditions of professional growth and professional usefulness. Each teacher needs the experience of all teachers.—*Selected.*

OH! how hard it was to get into shape, *their* (the pupils'), shape and fit, the twists and corners of blocked and ignorant minds. But it was glorious work. There was wonderful freshness in those schools (in the suburbs of Gloucester), a most exhilarating sense of life touching life, of freedom and reality, after the heaps of knowledge, which, like sheaves of corn on a threatening day, had had to be loaded up, and carted in against time at school and college. This wrestling with mind was a different world from the knowledge world and its loading up. It was like landing on a new continent for the first time, with a glad liberty of space to explore, and reclaim; a glad liberty of going on, and going on, and going on exploring and making pathways in unknown lands.—*Thring.*

THE educational papers most helpful to teachers are those published by experienced educators and filled with practical hints and suggestions for the school room. It is not learned disquisitions on the philosophy of education that the young and inexperienced teacher needs in his arduous work. He wants to acquaint himself with the methods and appliances of the most successful teachers, and thereby gain wisdom and efficiency. It is in this way that the aspiring teacher is to obtain the key to the vast treasury of pedagogical knowledge which has accumulated from the labors of the past. The teacher who makes a diligent use of the means of improvement within his reach will be amply repaid in being qualified to discharge his duties with credit to himself, with satisfaction to his patrons and with honor to the profession.—*B. W. Williams, in Texas Journal of Education.*

Special Papers.

*ADVANCED ENGLISH SCHOOLS IN RURAL DISTRICTS.

BY J. H. SMITH, P. S. INSPECTOR, ANCASTER, ONT.

MR. PRESIDENT, LADIES AND GENTLEMEN,—To-day I can adopt almost the exact language of St. Paul, and say that I am happy to be called upon to discuss certain matters that pertain to the welfare and happiness of the farming community, because I know that you, Mr. President, are an expert in all things that concern them, that will add to their usefulness and increase their prosperity, for from your youth up you have been intimately associated with them, you know their wants, and sympathize with their noblest aspirations. It is therefore a more pleasant duty for me to introduce this matter to the consideration of the members of this Association than it would be under different circumstances. The thoughts that I shall present have been floating through my mind for some time past, and though they may be somewhat crude in form, yet I trust there will be found sufficient truth in them to merit some discussion. I do not for one moment entertain the idea that I shall say all that can be said favorable to the proposed scheme, nor do I flatter myself that I am capable of answering all objections that may be raised to the details as now developed, for I am fully persuaded that the principle underlying this subject is sound, and merits our most thoughtful consideration. Our educational work has been rapidly developing of late years, and something of this nature is required to round off and fill out our otherwise admirable system.

The age in which we live, when compared with those of former times, has not inaptly been called the practical or utilitarian age. Old ideas and old theories are respected, not for their age alone, but for their inherent value. Everything is now subjected to the keenest criticism, the most rigorous scrutiny, as well as the most searching analysis. Whatever fails to respond affirmatively to these tests is cast aside as of little or no value, while that which passes this ordeal successfully is valued more for its worth in the every day affairs of life than for any other specific quality. Theories, as theories, are quietly falling into the rear in the march of mind, while the van is being crowded with common-sense thoughts and matter-of-fact conclusions. The dust and cob-webs of centuries are being brushed away rapidly, by the ruthless hand of practical utility. In science, in art, in literature, in education, in fact everywhere, things that are hoary with age and venerable with years, fail to command the respect once accorded to them. It seems as if the decks are being cleared for action, and that we are entering upon another and more important phase of that great struggle, the struggle between right and wrong, between intelligence and ignorance. Apparently the command has been given to close up the ranks and prepare for action. Even among the most highly civilized nations, there are great problems to be solved, problems of civil government, of the relation that capital and labor should bear to each other, as well as those that bear specially upon the renovation of society in many of its most important features.

And while I would not for one moment underestimate, or seek, in any way, to depreciate the value of the other agencies engaged in up-building society, and elevating the great masses of mankind, yet I feel that in this work, as in the solution of the great problem referred to, the schools of the future are to play a very important part. The sphere of their influence is steadily enlarging, but not to the extent it should be, nor with the force they can and shall command. Our present school system, though practically less than half a century old, has brought our own fair Province well to the front among the nations, and has given us a world-wide reputation. And now that the pulsations of a national life are beginning to throb through the arteries of our young country, the need of trained and cultivated intellect, of high aspiration and noble endeavor, must be apparent to every thoughtful person. Nor should these advantages be

limited to the few who may enter the learned professions; they must permeate the whole of society, for to quote the words of the late John Bright: "Palaces, baronial castles, great halls, stately mansions, do not make a nation; the nation in every country dwells in the cottage."

And how are these things to be obtained? and in what way shall we reach the nation that dwells in the cottage? Evidently the schools must become an important factor, for they can be so located as to reach the people, and become centres from which much good shall emanate, while the teachers shall become trustworthy agents in this great and noble work. I have unbounded faith in the work done in the school-room, and the utmost confidence in the integrity and unselfish devotion of the teaching profession. One of the greatest and most important interests of this country, the education of the young, is now confided to their care, and they are proving themselves worthy of this great trust. Politicians will of necessity work for party advantage, and in their anxiety to score a party victory may even sacrifice some of the dearest and most cherished interests of our country.

But no such temptation besets the pathway of the teacher. Dealing, as he does, with the intellectual and moral natures of those who are to shape the future destinies of this land, he eschews the schemes and devices of the political partisan, and seeks to unfold, in all their fulness and power, the hearts and intellects of those who are to be our successors in developing the resources of our native country. This is his great work, and none but the noblest and best in the land should be entrusted with it.

If the trend of the times is toward the practical and useful in our educational work, and I am decidedly of that opinion, then I can see no reason why a class of schools, specially adapted to meet the wants of the farming community, should not be established throughout our rural districts, but on the contrary there are strong reasons to be urged in favor of such a step. Our High Schools and Collegiate Institutes, situated as they are usually in some centre of population, do not meet the wants of these people, either as to location or course of study. These secondary schools, as a rule, are so inconveniently situated as to render them almost valueless to the great majority of farmers, as places of intellectual culture for their families. It is true that there are quite a number from the rural districts who attend these schools, but they are either the children of well-to-do farmers, or of those who are prepared to sacrifice a great deal for the education of their families, and who desire to fit their sons for one or another of the learned professions. Looking at this matter fairly from whatever point of view we may select, there is only one conclusion at which we can arrive, and that is, so far as location is concerned, the present system fails to meet the reasonable requirements of our agricultural population.

The course of study is not such as to commend itself as being well adapted to give the intellectual culture necessary for those engaged in agricultural pursuits. There is a strong belief in the minds of not a few of the leaders of our educational thought, that only certain subjects of study should be used as instruments in training and developing the mental faculties. But to me it seems more reasonable to suppose that true intellectual culture can be, and is, best obtained by the study of those subjects which naturally belong to the line of life which the student purposes following. This has been recognized in the past, and is now, to a limited extent, acted upon in the preparation of the course of study for these secondary schools, because in the curriculum there are now four optional courses open to the student—a classical, a modern language, a science and a commercial course. It does not require very keen discernment to see that these options furnish valuable information and useful knowledge to the student in preparing him for his life work, and that they are selected for their utility.

The principle of utility has been acceded to by our educational authorities, but only to a limited extent, and that directly in the line of preparation for the learned professions or commercial life. Nothing is being done to keep the young men of talent and education on the farm, or induce them to take up the study of agriculture as a life calling. The facts seem to point in an entirely different direction, so that the farming community are

looked upon as the great recruiting ground of the the professions and commerce. No one can look into the early history of the leading men in commercial, professional and political life, without finding that either they or their fathers were closely connected with farm life.

Now, if it be true, and, in our opinion, the evidence points strongly that way, that many of our best young men forsake the farm and seek advancement in one or other of the learned professions, there must be some cause for it. If, therefore, we can diagnose the case with sufficient accuracy to determine what some of these causes are, then we have made some progress toward a solution of this problem. There are two primary causes to which we may fairly assign the bulk of the evil complained of. These briefly stated are, (1) There is a desire common to the majority of mankind to avoid manual labor, and secure what to them seems to be a more genteel or respectable means of earning a livelihood; and (2) The influence exerted by our educational system aids in perpetuating this view, by directing the mental activities of our young people along the line of the learned professions. These two causes are very closely connected, and seem to be inter-dependent the one upon the other.

In regard to the first we will simply pass it by as not bearing directly upon our educational work, and turn our attention more particularly to the second. In considering this statement we are led to enquire, Is it true? and our answer is that the general trend of our educational work is directly in the line of the University, and hence toward the learned professions.

It must be apparent to the most ordinary observer that the great part of the work done in our High and Public school leads directly towards a professional career. The idea is rapidly spreading that in these schools the best interests of a large number of our young people are, to a greater or less extent, sacrificed to conform to this tendency in our educational work, and the time has arrived when we should ask ourselves the question, Whither are we drifting? This tendency will be more clearly seen if we look somewhat carefully at the various examinations candidates are required to pass, and the direction in which these are leading our young people. The lowest is that for admission into our High schools, and the course of study in our Public schools is so arranged that pupils of twelve or fourteen years of age, if reasonably well taught, have but little difficulty in passing this ordeal. Next in order comes the literary examination for a public school teacher's certificate; then follow the matriculation examinations in law, medicine, divinity and arts. Now, it will be observed that these examinations are literary in their nature, and are based upon the somewhat broad and comprehensive course of study prescribed for our High schools. The combined influence of the course of study and the associations surrounding the student while attending school lead directly to either a professional or literary career in life. Recent changes have placed the teacher's examinations more directly on the line of a University course than formerly, and now First-Class teachers' certificates are granted to students who reach a certain standing in the University course. In addition to these purely literary schools, there are Normal and Model schools for training teachers, and medical, theological and law schools for students desirous of entering any of these professions. Should any further arguments be necessary to prove the statements already made, we have only to turn to the official records for their confirmation. From the last report issued by the Minister of Education for 1887, we learn that there were 15,344 pupils enrolled in the Provincial High schools. Of these, 1,100 were preparing for matriculation into one or other of our Universities, 723 for the learned professions, and 5,777 for teachers' non-professional certificates; making a total of 7,600, or nearly 50 per cent. of the total enrolment. Against this we have 1,733 who are taking up the commercial course, and not one solitary student devoting himself to the study of agriculture.

From what has already been said it is quite clear that these secondary schools, whether we look at their location, the course of study pursued, or their influence in determining the vocation to be followed by the student in after life, do not meet

* An address delivered before the Ontario Teachers' Association at its twenty-ninth Annual Convention, at Niagara-on-the-Lake, August, 1889.

the demands of to-day in the matter of the education of farmers and their families. We have therefore to look to some other source of supply to meet this demand, and the only other source available is the Public school. These schools fully meet this demand so far as convenience of location is concerned, but fail so far as the course of study is concerned. Scattered throughout this Province are to be found upwards of 5,000 purely rural schools in which are employed nearly 6,000 teachers. In about 700 of these schools, owing to the largeness of the attendance, two or more teachers are required to do the prescribed work, while in the remaining schools only one teacher is employed. If in these rural schools then, the prescribed course of study is fairly well carried out, then the limit for Fourth Class work is sufficient to tax the energies of our best teachers. Neither the time nor the attention can be given to the advanced studies prescribed for Fifth Class work, without neglecting something else equally as important. Much less can time be found for the special studies necessary for the proper education of farmers, without almost completely changing the course of study as well as the limit table now prescribed for the Fifth form.

The Public schools, as at present organized and managed, are not sufficiently broad and comprehensive in their course of study to meet the present and future requirements of education in our rural municipalities. It is certainly an open question, and one well worthy of our most careful consideration, whether it is advisable to interfere in any way with our Public schools, more particularly with the work done in the first four forms. The course of study for these classes is sufficient for the pupils for whom it is prepared, but not for a complete education, nor for such an education as every pupil in our rural schools should receive. It therefore seems necessary, view it from what point we will, to establish at convenient places in our various rural municipalities, a class of secondary schools in which agriculture and kindred subjects pertaining to farm life should be recognized as the principal subjects of study. The following sketch was prepared for, and published in the *Live Stock Journal*, of Hamilton, by the present writer:

"To make our meaning clear and prevent any possible misunderstanding as to the nature of these schools, and the class of work to be done, it may be as well to explain more fully the following points: (1) Under whose management shall they be placed? (2) What shall be the length of each session? (3) What shall be the course of study? (4) How shall they be supported? It may be as well to state that we shall consider the two classes of schools, rural and urban, separately, and shall proceed to answer these questions as they bear upon rural schools. Now, in regard to the management, the writer would place these under the charge of township boards, in municipalities where such boards exist, and in all other municipalities under the jurisdiction of the township councils. These boards or councils, as the case might be, should have power to use any schoolhouse in the municipality, or the township hall, for holding such school or schools. They should have power to determine the number of such schools, the location of them, the employment of properly qualified teachers, and furnishing the necessary equipment for the proper conduct of such schools. They should have authority to provide means to meet the necessary expenses, either by levying a rate on the assessable property, or by applying to the municipal council for the amount required. In regard to the length of the sessions, it must be borne in mind that these schools are intended for boys over 14 years of age and for young men, so that they will necessarily be winter schools, to be opened, say, about the 1st of November, and closed about the 1st of May. This will enable these young people to attend an advanced school during the winter season, and leave them free to assist on the farm during the busy summer months. To anyone acquainted with farm life, especially in the older settlements, it is well known that the great majority of young people have more leisure time during winter than they use with advantage to themselves or their friends. Now, it is very desirable, and the writer believes, quite practicable, to utilize this time for mental improvement, and so far as his observation has gone, no more feasible plan has been proposed. It may be remarked further that these schools are to be opened each day at 10

a.m., and closed at 3 p.m., having four-hour sessions, and thus leaving these young people free to do the chores around the farm, both before going to and after returning from school.

"The course of study should embrace the following subjects, viz: (1) The different kinds of soil; their formation and cultivation, together with the best means of improving each kind; the productions of these soils. (2) The mathematics of the farm, which should include land measurement, laying out the farm into fields, measurement of solids, surfaces, hay in mows so as to estimate the weight, grain in piles and in bins so as to estimate the quantity, of cattle so as to estimate their weight; a full set of accounts, or more properly speaking, a complete system of farm book-keeping; mechanical drawing with use of instruments, so as to be able to prepare a working plan for any ordinary building. (3) The breeding, rearing, feeding and care of all classes of live stock found on the farm, together with the symptoms and remedies of the more common diseases from which live stock suffer; and (4) Literary work, which should include the critical reading of some standard English author, composition, correspondence, and practical English. It remains now to determine how these schools are to be supported. This can be done by the Legislature giving a fixed grant to each school that has been kept open during the time fixed by the law, as it does to County Model schools and High schools. This grant should be supplemented by a similar grant from the county council. In addition to these, fees should be charged, and the balance paid from township funds.

"In all our schools, both Public and High, the course of study should be practical, and so prepared that the knowledge received and the instruction given should be along the line of life which the student purposes following. An ideal education can only be given to those who have the time to devote to it, and possess the means to carry it fully out. But for those who are compelled to leave school before they are sixteen years of age, and battle with the realities of life, to provide themselves with food and raiment, a more practical education is required. What is wanted is such training and such knowledge as will assist them in their daily struggle for a living. To such, an ideal education is positively injurious, since it practically unfits them for becoming bread-winners, because they have neither the time nor the means to pursue it sufficiently far to make it valuable, and they find themselves with only a partial education that has not fitted them to face life's difficulties. The writer is strongly of the opinion that something in the line of practical and industrial education will have to be grafted upon our present system before it will be complete, and serve the purpose for which it was designed. We have not made progress in this direction. Our system is a most excellent one, and one that we should all feel proud of, and doubtless do, but there is room for improvement, and we cannot refrain from expressing the opinion that the line we have marked out is the line in which these improvements must come."

Book Reviews, Notices, etc.

Moffatt's Outlines of English History. Moffatt's Outlines of Geography. With forty-two Maps and Diagrams. London: Moffatt & Paige.

These are new editions of text-books which are largely used in England. The latter has been carefully revised and partly re-written.

New York State Uniform Examination Questions. September, 1887, to August, 1889. First, Second and Third Grades. Complete, with Answers. New York and Chicago: E. L. Kellogg & Co.

This volume contains the questions issued to the School Commissioners of the State by the Department of Public Instruction. The answers also are given.

Essentials of Method. A Discussion of the Essential Form of Right Methods in Teaching, by Charles De Garmo, Ph.D. (Halle), Professor of Modern Languages in Illinois State Normal University. Boston: D. C. Heath and Company.

"There are certain necessary and universal characteristics of all rational methods of teaching. To discover, through an analysis of the mental activities involved in knowing what these essential elements of a good method are, is the function of this volume. The above, from the author's preface, is a concise description of this work.

The Modern Language Examiner. By E. A. Rowe (Sen. Mod.), B.A., T.C.D., French and German Master, S. Peter's School, York, London: Relfe Brothers, 6 Charterhouse Buildings, Aldersgate.

This little work is a *questionnaire* in French and German Grammar and Idiom. Its distinctive aim is, by repetition of questions on the chief difficulties in the grammar of those languages, to prepare the student for such tests as the Locals, the Army and other public examinations in England. It will be useful to all teachers of those languages.

Blackwood's English Grammar and Analysis. Standards III, IV, V and VI. William Blackwood & Sons, Edinburgh and London.

These twopenny and threepenny pamphlets complete the series, the first parts of which have been before noticed. The whole series is well adapted to lead the pupil on by gentle gradations to an intelligent and comprehensive knowledge of the structure of the English Language and the functions of its various classes of words.

The Parts of Speech and How to Use Them. Boston: Ginn & Company.

This little work of 90 pages, in paper, constitutes Part Second of a Series of Elementary Lessons in English, Teachers' Edition.

Practical Exercises in Commercial French. By W. E. Bayles. Price, 1s. London: Relfe Brothers.

A useful little work, designed to enable the student to read and write in French, market reports, commercial news, shipping intelligence, etc.

The Second Reading Book. By Eben H. Davis, A.M., Superintendent of Schools, Chelsea, Mass. Price, 40 cts. J. B. Lippincott Company, Philadelphia.

An attractive little book, well printed, prettily illustrated. The lessons seem to be well chosen and arranged.

The Art and Science of Conversation, and Treatises on Other Subjects Pertaining to Teaching, by Harriet Earhart Monroe. A. S. Barnes & Co., New York. Price, \$1.00.

This is really four little books bound in one volume. It embodies the experience of many years of successful teaching. Part I, "Essay Writing Made Easy," suggests the best methods of leading students to enjoy composition. Part II contains "Twenty-five Talks by the Teacher on the Development of Character." Part III treats of "How and What to Read," and aims to give the best methods of inspiring a love for good literature in young people. Part IV gives valuable suggestions for attaining skill in conversation.

Notes of Lessons for Young Teachers. With Models from actual Examination Papers. By John Taylor. 16mo. Cloth. 50 cents. Boston School Supply Co.

This is a comprehensive little book, by one who served many of the best years of his life as teacher of a large school. He explains the Essential Features of a Lesson, sketches the Plan of a Lesson, discusses the Subject Matter of a Lesson, gives valuable hints on the Manner of a Teacher, with a short chapter on Tact, and shows how to Prepare and Give a Lesson.

EVERY teacher needs a little paste or mucilage almost daily, and teachers generally find it difficult to keep a supply on hand. No school-room can well afford to be without it, and we give the following recipe, which will give an excellent and inexpensive paste. Call at the drug store for five-cents' worth of gum tragacanth, put it in as much water as it will absorb, and add a few drops of oil of cinnamon to prevent souring. Add a little water from time to time, and you will not find your mucilage all gone when you need it most.

Primary Department. ...

ORTHOGRAPHY.

ARNOLD ALCOTT.

"SPELLING is the corner-stone, the grand, underlying subterfuge of a good education."

So said Squire Hawkins, in that exceedingly interesting and instructive story, descriptive of life in the back-country districts of the Western States, "The Hoosier Schoolmaster."

Of course, the educationist of America to-day does not believe so intensely on this subject as did our friend, Squire Hawkins. Nevertheless, as much of one's intercourse in the world is done in writing, it is obvious that we are known by our composition, by our chirography, and by our orthography.

To many, spelling gives no trouble. Memory has served them generously, and the path of our English orthography, with all its stumbling-blocks and needless stepping-stones, is traversed with apparent ease. But alas, for those who are weaker just along this line, because they cannot reason out the peculiarities of our orthography.

We give you the following ideas, which we have gleaned from successful educationists, and which we have practically tested, because we believe that they may help these brainy skeptics to surmount the formidable difficulties found on the highway leading to correct spelling.

Before describing one method, permit me to remind you of a few fundamental maxims, which, we all know, should be observed in the teaching of spelling:

(a) The relative position of the letters in a word, appeals definitely to the eye, and, therefore, spelling is largely a subject for *eye-training*. Also, from the foregoing, it is certain that the reading lessons should be kept ahead of the spelling lessons.

(b) The element of *time* is very important in impressing and in fixing a word in the mind. Oral spelling has many advantages. We would not discard it altogether. But we should try to have the word spelled in a neat, staccato manner. For example, take the word *Mediterranean*. Our pupil, when spelling orally, should divide it into syllables, thus, *Me-di-ter-ra-ne-an*. Again, take the word *Canada*, which should be analyzed thus: *Ca-na-da*.

Now for one special method: The teacher has selected the words from the reading lessons. The time for spelling has come, and

1. She writes on the board a word, and immediately begins to question about it. For example, the teacher says, "Name the silent letters, if any, *Mary*."

"Name any peculiar sound or sounds in the word, *John*."

"Give me a sentence with this word in it, *Gertie*."

"Tell me its meaning, *Charlie*."

In short, the questions should be succinct, and are intended to help *define* the word.

This is done quickly, for we have trained our pupils to answer questions promptly, decisively and politely.

We may refer to a former number of the *JOURNAL* for information in regard to the answering of questions.

The teacher keeps on writing down words, and also continues this rapid interrogation.

2. When all the words are written on the board, the class pronounce and spell orally every word.

3. Next the teacher draws over her "curtain." What useful articles these curtains are!

4. Now, the teacher tests the memory of her class in the following way, which is somewhat of a game: She tells them to write down all the words they remember, and as nearly in order as they can.

5. Then, after a short time has been given, she pulls back the curtain, and the pupils draw comparisons between what they have written and what is on the board.

6. Next, the scholars copy into their exercise-books the words which they *mis-spelled*, or which they *forgot*.

The foregoing is the *preparation* lesson.

By carrying out number (6), we enable our pupils to concentrate their attention on that which they do not know.

The next day the teacher dictates the words, sometimes separately and sometimes in sentences.

Now, about the *examination* of the work. Some days the teacher corrects the slates herself. Then again, for variation and for development, the pupils exchange slates, and correct from the black-board.

Our scholars do not examine their own slates. Why? Because we cannot trust them? Oh, no, not that. But it is one of the frailties of our humanity to be able to detect the notes in other people's eyes, while at the same time we do not see the beams in our own. Bobby Burns put the idea truly, when he said,

"To see oursels' as ithers see us,
It wad frae mony a blunder free us."

PLANS FOR INTERESTING READING LESSON.

RHODA LEE.

My object at this time is not to enter into a lengthy discussion of the various methods of teaching reading, as I assume that every teacher has a knowledge of these, has decided on the most meritorious, and has adopted it. If she believes that with her present system she is doing her best possible work in reading, let her be satisfied; if not, let her look around. We all know, by the way, that it is sometimes a very poor thing to be satisfied. Satisfaction debars progress, and you may be sure something is organically wrong if you feel the tranquil peace of self-righteousness and satisfaction creeping into your school work.

Reading may be divided theoretically into two parts.

1st. Gaining knowledge of the subject.

2nd. Expressive reading.

The first, of course, is preparatory to the second. No thought can be given till thought has been gained and assimilated; and reading without a thorough understanding of the words and thought of the passage, is merely a parrot-like repetition of senseless sounds.

A glance at the programme of most teachers will show two distinct kinds of reading lessons, namely, preparation lessons and reading proper.

The preparation lessons will include practices and gymnastics in expression, emphasis, articulation, inflexion, etc.; but in these, if they be properly understood, there will be no lack of interest. It is in the drill on unphonic and other new words, contained in the lesson to be read, that we find difficulty in interesting the children.

If this be so, we must contrive some means of making the lesson attractive. The words *must* be known, as any attempt at expressive reading without a perfect knowledge of the words, is highly absurd.

In teaching new words we should keep a few lessons in advance of where the class is reading, so that when the children arrive at a certain lesson, by frequent use and application they are quite familiar with the words and their meaning.

One device in which the scholars displayed great interest was the ring and star. I sketched a large circle, and in it placed a star. In each point of the star and in each space between the star and circle I placed a word. As the word was placed we talked about it and made use of it in a dozen or more short sentences.

The words were also numbered and drilled upon, by pointing, erasing, replacing, underlining and encircling with colored crayons.

Then the numbers came into use. On pointing to 1, 3 and 5, a scholar stood and read the story, "Bess is good." Again, 2, 4, 3 and 5 read "Her muff is good." This plan might be varied by giving the numbers and asking a scholar to read the story thus indicated.

For variety each word might be written on a slip of paper and pupils allowed to pick out certain words.

When children begin to read in books, we always find difficulty in holding their attention and having them *keep the place*. This, I think, is a universal experience. The children certainly require some incentive and a great amount of encouragement and

assistance to form the habit of close attention to the book. There is considerable difference between the teacher's bright face and the cold printed page of the First Book. It is certainly a change from the enthusiastic and spirited phonic reading lesson, yet we can warm up the atmosphere of the book a great many degrees in numberless ways. Encourage the beginners to take great pride in their position and that of the book, endeavoring to obtain definiteness in all their movements.

The following plan for forming the habit of attention to readers has been used successfully for some time. A number of small stars were cut out of red cardboard, and also larger ones of gold, five red being equivalent to a large gold star.

At the reading lesson the steadiest, most attentive row, in which, of course, no one lost the place, was awarded a red star. They had small brass drawing tacks in the centre and could be readily affixed to wood work of any kind. When one has sufficient blackboard, the stars might be made with colored crayons.

The interest continued all the year round, as the competition lasted a month only, and at the end of that time the stars were taken down, the record placed in a book and a new start made.

Occasionally I have a "watchman" stand in front of the class and pick out the most attentive boy or girl and the steadiest book. But the word "watchman" is too good a name to be confined to one scholar. You will find it an exceedingly inspiring term to apply to all your little folks, training them to be watchers of themselves, of heart, hand and tongue.

Generally avoid lengthy readings, and hear as many as possible in the time allotted. Call on the wanderers, and give those who have difficulty in following the reading, practice alone.

Reading from the same book day after day, must, even with the best reading, grow a little monotonous, but this can easily and effectively be remedied. Collect children's Sunday school papers, old magazines and story books, and mark the easy reading in them.

These pieces may be cut out and pasted on cardboard or heavy brown paper to preserve them, and this will be very interesting work for Friday afternoons. A mere suggestion of help required will be sufficient, and your scholars will come armed with scissors and mucilage bottle ready to assist in forming the school library. When all is done the cards may be assorted and numbered and distributed on certain days for reading, in place of the regulation books.

Short stories may be written on paper and distributed for reading, additions to these being made of original stories by the children themselves.

I have but one further suggestion that will prove a good exercise in sight reading.

Obtain a copy or two of some juvenile magazine, such as *Treasure-Trove* or *Babyland*, and use it for a reader. Select scholars to come to the platform and read from it, calling on the most attentive listener to continue the story. I have mentioned but very few of the plans for variety in reading, and have scarcely done more than touch on them, but, to those who feel the need of greater interest and wider scope in this subject, I hope they will at least be suggestive.

POWERFUL is habit—the force of perseverance—in the moral and spiritual world; and for that reason education effects such a transformation of mankind—because it is a selection of proven habits.—*Heinrich Byron*.

IN place of the usual monthly examination in geography, history or grammar, have each pupil bring one or more questions, according to the size of the class. Place these in a box and have each pupil draw one and give an impromptu answer. The class is to pass judgment as to whether they are right or wrong. If wrong, the question should be replaced in the box and the whole shuffled. Each pupil should have the privilege of drawing until he finds a question he can answer. No record is to be kept of such an exercise, but it gives the teacher a chance to study the pupils under new conditions, gives the class a chance to "size up" their mates, and gives an opportunity for reciting under unusual circumstances.—*N. E. Journal of Education*.

For Friday Afternoon.

BLOW, WIND, BLOW.

Now the snow is on the ground,
And the frost is on the glass;
Now the brook in ice is bound
And the great storms rise and pass.
Bring the thick, gray cloud;
Toss the flakes of snow;
Let your voice be hoarse and loud,
And blow, wind, blow.

When our day in school is done,
Out we come with you to play.
You are rough but full of fun,
And we boys have learned your way.
All your cuffs and slaps
Mean no harm, we know;
Try to snatch our coats and caps,
And blow, wind, blow!

You have sent the flowers to bed;
Cut the leaves from off the trees;
From your blast the birds have fled;
Now you do what you may please.
Yes; but by and by
Spring will come we know,
Spread your clouds, then, wide and high,
And blow, wind, blow!

—St. Nicholas.

THE TEN FIGURES.

WE are the jolly figures ten
That puzzle the brains of little men,
And scatter their wits
Around in bits
Until they're ready to vow "Old Nick"
First invented arithmetic.

Our leader bold, so tall and prim,
Is Figure One; you all know him.
While just behind
Him you will find
The honest face of Figure Two,
His bangs done up in a "curlieue."

This ox-yoke form you'll all agree
Belongs to none but Figure Three,
Who just precedes
And therefore leads
Another mathematic bore—
Ugly, hump-backed Figure Four.

Shaped like a reaper, in full view,
The Figure Five now stares at you;
And well you know
Next in the row,
With body big, and crooked neck,
The Figure Six you must expect.

This lanky form with lengthy snout,
Is Figure Seven without doubt,
While at his heels
Like tangled eels,
There passes by, with waddling gate
Old, familiar Figure Eight.

Upon one leg, with quite a curve,
Stands Figure Nine, you will observe,
And then rolls past
The least and last—
For Figure Naught would helpless be
Without our aid and sympathy.

The school boy who, with visage grum
Hunts for the answer to his sum.
Vows we all cheat
And use deceit,
Because he's muddled in his mind,
And can't our combination find.

But if he'll keep quite calm and cool,
And study each example's rule,
He'll testify
That we won't lie!
Is every schoolboy's record clear
On this one point? Not all, we fear.

—Golden Days.

English Department.

ENTRANCE LITERATURE.—THE VISION
OF MIRZA.

SECOND READING.

Several dropping unexpectedly.—Explain who are meant by this class of persons.

Catching at everything.—Give some instances, real or imaginary, as examples or illustrations.

Some were looking up.—Describe, in your own language, apart from allegory, the meaning of this sentence.

In the pursuit of bubbles.—What are some of the bubbles referred to?

Some with scimitars.—Addison probably has in mind here specially the vast numbers who are killed in war, though the allegory may include all kinds of deaths by violence. The persons running to and fro may be meant to indicate simply those who kill others, as soldiers, etc., but are more probably intended to denote the few rulers and generals whose feuds and ambitions drive such multitudes of their fellow-beings to slaughter.

Vultures.—The vulture is marked by a long beak hooked at the end, and by having some part of the head, and, in some cases, of the neck, bare of feathers. It is a cowardly bird, and does not kill its own prey, but feeds on dead carcasses and offal. The king vulture is a native of Central and South America. It soars to a great height. Addison would probably know it simply as a voracious carrion bird.

Harpies.—The Harpy of Grecian mythology was a hideous winged monster, of fierce and loathsome aspect, represented as famishing with hunger, living in an atmosphere of filth and stench, and defiling everything it touched. The name is, however, applied to a species of falcon, or eagle, which is of great size, with hooked bill, short wings and legs, and has the power of erecting its head feathers into a great ruff or crest. It inhabits the great tropical forests, and preys chiefly on quadrupeds. It has great strength and fierceness. The name *harpy* is also applied to the marsh hen, or duck-hawk. But from the connection, Addison no doubt intended to denote the harpy eagle.

Raven.—A well-known species of crow of great size. Can you distinguish it from the common crow?

Cormorants.—The cormorant is a sea-crow, being web-footed and pursuing its prey, which consists of fishes, by swimming and diving. It can dive to a great depth. The common British cormorant is nearly three feet in length. It has a long bill, rounded above, and with a strong hook at the point. The cormorant is proverbial for its excessive voracity.

Several little winged boys.—These are, of course, the Cupids, or loves. The name Cupid in Latin signifies *desire*. There were legions of little Cupids, who, in the Greek and Roman mythologies, are always described as chiefly winged boys, armed with bows, arrows and quivers. Their darts could pierce not only human beings, but the fowls of the air, the fishes of the sea, and even the gods on Mount Olympus. Why are they described as perching only on the middle arches?

Envy, avarice, etc.—Do you think Addison means each of these passions to correspond with a particular one of the birds of prey above mentioned, that is, does the vulture denote envy, the harpy, avarice, and so forth? If so, can you point out the grounds of the special resemblances?

Cast thine eye on that thick mist.—Let the bridge and its accompaniments be represented on the blackboard, if possible, as suggested in the former lesson.

Rock of adamant.—Why of adamant? What is symbolized?

The clouds still rested on one half of it.—Addison refrains from marring the picture of the delights awaiting the good in the regions of bliss (Heaven) by any attempt to depict the miseries of the lost in the regions of despair. The pupil should be made to dwell upon the various scenes in this delightful picture, and note how skilfully the writer has woven in the different sources of pure pleasures and

joys with which we are familiar on earth. There is beauty to delight the eye, music to charm the ear; variety of scenery, pleasure of companionship, etc.

Every island as a paradise accommodated, etc.—There is a fine and consoling thought wrapped up in this sentence. Even the joys of the future state would be disappointing if they failed in adaptation to the various capacities and tastes of those admitted to them.

I.

Define carefully the meanings of the following words, giving derivations when you can:—*Structure, speculation, scimitar, melancholy, prospect, dissipate, adamant, innumerable, harmony, paradise, superstition, supernatural.*

II.

Distinguish the following pairs or triplets of words:—*Contemplate, perceive, observe; mirth, jollity; perpetual, continual; penetrate, pierce; degree, kind; envy, avarice; huge, immense.*

III.

Compose sentences containing each of the following words:—*Posture, comprehend, infest, habits, garlands, myriads, harmony.*

IV.

Mark carefully the pronunciation of the following:—*Contemplate, multitude, scimitar, ocean, innumerable.*

Question Drawer.

WE deeply regret that, by some inadvertency for which we are quite unable to account, two or three errors crept into the answers to questions in this department in our last issue. One of these was particularly unfortunate and misleading, that, namely, to the question of "Subscriber," who asked if candidates for third-class certificates (non-professional) would be examined in Euclid at the Midsummer Examinations in 1890. To this we answered, "Yes. Geometry (Books I., II., III., with easy deductions), is in the list of subjects prescribed." The form of the answer would at once suggest to most of our readers that we had *second-class* in mind in giving the answer. In fact, we found it difficult to believe, when our attention was called to the matter, even the evidence of our own eyes that the question concerned, not second, but third-class. We are very sorry if the blunder has caused trouble to any of our readers. If we mistake not, we had, in previous numbers once or oftener given the correct answer to the same question, viz., that Euclid is NOT required for third-class.

Another error of less importance was contained in the answer to "Enquirer's" question. We should not have attempted to answer this at all, for, as we confessed, we were unable to understand it clearly. Our mistake was in intimating that it is illegal for the chairman of a Board of Trustees to give any other than the casting vote. That is true in reference to the chairman of a school meeting of ratepayers, as per Sec. 18 of the Schools Act, but by Section one hundred and eleven of that Act it is provided that the chairman may vote with the other members on all questions, and that, in case of a tie, the motion is lost.

We should, perhaps, have added, for the information of "Teacher," that the University of Toronto accepts the standing of candidates who have passed the examinations of the Department of Education for First or Second Class Teachers' Certificates, *pro tanto*, at any Junior Matriculation examination, except in the case of candidates for scholarships.

While we shall do our best to guard against such inaccuracies in the future, we may again say to inquirers that it is much better for them to address all questions touching the School Law and the Departmental Regulations, directly to the Secretary of the Education Department. Much of the information sought through our columns might be had with less delay from the nearest High School master, who, no doubt, would readily and courteously give it. The Question Drawer, which is no part of our proper work as journalists, has been opened for the purpose of giving to our patrons, so far as our access to sources of information

may enable us, information not easily procurable on educational topics. But it is impossible for us to hold in mind the details of school courses and regulations, with changes that may be from time to time made, and in looking the matter up there is more or less liability to error. It happens, moreover, that the same questions are sometimes asked us again and again, and the answers to many are necessarily of such a nature as to interest very few of our readers. With these explanations, we are still ready to serve our friends to the best of our ability in the Question Drawer, as well as in every other department of the paper.

PLEASE publish the names of the books used in the Normal School Course.—J. B. MCD.

[In addition to the books prescribed for Forms I.-V. of Public Schools, the following are authorized for Normal Schools, viz.: Browning's Educational Theories, Hopkin's Outline Study of Man, Fitch's Lectures on Teaching, Baldwin's Art of School Management (Canadian Edition), Manual of Hygiene, Houghton's Physical Culture.]

(1) WILL there be an Entrance Examination next July?

(2) What definitions other than those given in the Public School Geography should be taught to an Entrance class?—J. W.

[(1) Yes. (2) We cannot undertake to tell you. We should suppose that the authorized text-book would contain all that are absolutely necessary.]

1. (a) WHAT is meant by "committee of the whole," when used in connection with a legislative body or a society? (b) Is business transacted in the same way when the House is in "committee of the whole" as it is at other times?

2. In analyzing a sentence according to the form given in the Public School Grammar, where would you put Predicate Adjectives or Predicate Nouns?

3. "In the ranks of the Austrian you found him, He died with his face to you all,
Yet bury him here, where around him,
You honor your bravest that fall."

Parse "Austrian," "yet"; give the relation of "around."—INQUIRER.

[1. (a) "Committee of the whole" is an abbreviation of "committee of the whole House." It is, therefore, the whole House itself sitting as a committee, with a chairman instead of the Speaker presiding. (b) The proceedings in committee are conducted nearly as when the House is sitting, but somewhat less formally, as, in committee, a motion need not be seconded in order to be debated, and members are at liberty to speak any number of times on the same motion, instead of but once, as when the House is sitting. 2. After the verb, singular, in the objective after preposition of. It is a patrial noun, derived, i.e., from the name of a country. Yet is a conjunction, connecting bury, or the sentence of which bury is the verb with found and died, or the sentences of which they are the verbs. It suggests a correlative "though," which would probably have been used in prose, thus, "though you found him, and though he died, etc. yet." Around marks the relation between "him" and "You honor your bravest."

HAS the School Board in a town the power to prohibit children from attending school until six years of age, if such prohibition be considered in the best interests of the school and the children?—T. H.

[No, it has no such power. Sec. 6 of the Public School Act provides that "all Public Schools shall be free schools, and every person between the age of five and twenty-one years shall have the right to attend some school."]

(1) "THE first of Pitt's financial measures—his plan for gradually paying off the debt by a sinking fund—was undoubtedly an error; but it had the happy effect of restoring public confidence."—Green.

(I.) Explain fully "sinking fund."

(II.) Why was this sinking fund an error?

(III.) How did it restore public confidence?

(2) (a) He says that he goes if he wishes. (b) He says, "She has gone."

Are the above sentences examples of *Indirect Narration*? If so, please change them to *Direct Narration*.—W.D.C.

[I. (I.) A "sinking fund" may be briefly described as a fund created by putting aside, at stated intervals, either a certain fixed sum of money, or the proceeds of a certain specified tax, or other source of income, to accumulate, at compound interest, for the payment of a debt which falls due at some future date. (II.) Pitt's sinking fund is regarded as an error, because, as was shown in 1813 by Dr. Hamilton, the nation was, in effect, not only borrowing the money with which the sinking fund was created, but was actually obliged to pay a higher rate of interest on the money thus borrowed—since every additional loan contracted tended to increase the apparent debt, and so to lower the national credit—than could be obtained for the money set aside for the sinking fund. The "sinking fund" method is, nevertheless, still used, partly, we suppose, because, while it is desirable to provide gradually to meet a debt coming due at some future date, the creditor may not be willing to accept small annual payments in advance of maturity, and partly, no doubt, because, in these days, the borrower whose security is undoubted may obtain a larger sum at a lower instead of a higher rate of interest than a smaller. What Pitt did may be illustrated by the case of a man who, needing \$100 for a term of say fifteen years, instead of borrowing that sum, as he might have done, at five per cent., borrows \$200 at six per cent., in order that he may put \$100 into a sinking fund to accumulate at five per cent. compound interest. Though the latter will about pay the \$200 at the end of the fifteen years, the same result would have been reached by using \$5 a year of the \$6 paid as interest on the extra \$100, to reduce the amount of the other hundred. Were the rate of interest the same on the \$200 as on the \$100, the result would be the same by both methods, but it is clear that the nation was the loser by Pitt's method, in consequence of the increased rate of interest he had to pay on the larger loan. (III.) Public confidence was restored by the belief that in this way the national debt, which threatened to be crushing, was being provided for, and would be reduced or paid. 2. (a) is an example of indirect, (b) of direct narration. "He said, 'John has gone,'" is a direct, "He said that John had gone," an indirect mode of stating the same thing. In the one case, the exact words of the person reported are used, in the other those words are changed to suit the indirect or oblique form introduced by the conjunction.]

Correspondence.

THE MILITARY ACADEMY IDEA.

To the Editor of the EDUCATIONAL JOURNAL.

THE happy thought of a military academy does not seem to have occurred to anybody in Canada. At least it has never been carried out in this country so far as I am aware. There can be no doubt it is a "happy thought." Having just returned from a very pleasant visit to one of these unique institutions—the Cayuga Lake Military Academy at Aurora, New York—I feel a trifle enthusiastic on the subject, and it has occurred to me that those readers of the JOURNAL who may not be familiar with this form of educational effort might be pleased with a few words of description. The academy named is one of a great many based upon the military idea, and flourishing in various parts of the Union. It is a private school, owned by the firm of White & McAlpine, the latter gentleman (who, by the way, is a Canadian, a graduate of Sackville, N.B.,) acting as headmaster. The curriculum embraces the work required for matriculation at the standard universities of the country, and is, accordingly, about the same as that in use in our own high schools and collegiate institutes. Mr. McAlpine is assisted by four professors, each of whom has, of course, his own special branches. One of these (if I may be pardoned for making exceptional allusion to him) is Prof. Karn, a brilliant graduate of both Vienna and Paris, and one of the most interesting scholars it has ever been my good fortune to meet. But I must come at once to the point, which is the system on which the academy is

conducted. It is for boys only, from twelve to twenty years of age. On entering, the pupil at once goes into military uniform—the pretty cadet dress of the American army—and with the clothes he takes on the discipline of a soldier. From the reveille, which is sounded in true military style at the seemly hour of half-past six, to the final order under which the troops march to bed at night, everything is done on the army pattern. It was interesting to note the promptitude with which the lads bounced out of bed at the bugle sound, and with what expedition they donned their uniforms and presented themselves in line, when, a little later, the bugle-call for breakfast was given. Instead of scrambling pell-mell to the dining-room, as the boys in an ordinary boarding school would have done, these lads stood at "attention," and waited for the order Face! March! whereupon they proceeded in admirably regular step to the meal awaiting them. Having reached their chairs (for each boy marched directly to his own place) they awaited the order "Seats!" before taking their positions at table. At the end of the meal, the commanding officer (the headmaster) gave the orders "Attention! Stand—face—march," whereupon, with the same soldierly deportment, the company proceeded to the school-room for morning devotions.

I need not go into minute details of the whole day's procedure, my object being merely to bring out the idea. I think it an excellent one, for not only has the soldierly discipline a valuable physical influence upon growing boys, but it enables the instructors to secure a command of their attention—and that with the proud willingness which inspires a good soldier to obedience—which could not be obtained in any other way. I have no sympathy at all with the military spirit which is prized by some people, but great good can be got out of military routine without any appeal to the pugnacious element in human nature. It seems to me that the military academy has solved the question of how to secure the highest degree of order and attention in school consistently with the pleasure and benefit of the pupils. Why cannot some enterprising Canadian educationist take up this idea? The military academies throughout the United States are popular and successful. Why shouldn't they prove equally so with us?

J. W. BENGOUGH.

LEAVING EXAMINATIONS.

To the Editor of the EDUCATIONAL JOURNAL:

SIR,—I have pleasure in complying with your request, in last issue of JOURNAL, for an expression of opinion by high school masters on the proposed "Leaving" Examinations.

I do not favor the proposed change. I believe that the high schools and teachers are already too much under the thumb of the Education Department. I am not sure but that the present Minister has been gradually usurping the functions of the University Senate. If he keeps on, as he has begun, soon there will be no need for such a body. If their only business is to record the wishes of the Government, they are about as useless as the Dominion Senate. The proposed scheme would, if adopted, give the Department greater power without any compensating advantage to the University. It would be taking the very important function of examining out of the hands of a body of men and handing it over to one man. Our experience of the Departmental examinations does not justify us in running so great a risk. I believe it will be very generally admitted that the University examinations are conducted with greater satisfaction to all concerned than the Departmental examinations.

Uniformity of examination is a very desirable thing, but will the proposed scheme secure it? I can see no guarantee that we shall have fewer examinations to prepare for than we now have. Will it raise the standard of matriculation? Queen's, already, has a "preparatory" department, which, if I understand it, is intended as a sort of large net to scoop in all the little fish that slip through the meshes of the "Leaving" Examination.

I believe that some better scheme can be devised—one that will secure uniformity and one in which the country will have confidence. However, I am not going to argue the question; I merely express my own views. Yours, etc.,

M. M. FENWICK.

BOWMANVILLE, Jan. 23, '90.

BUSINESS NOTICES.

We direct attention to the announcement of the merits of the "Concise Imperial Dictionary." It is our intention to handle this Dictionary in connection with the JOURNAL, and we offer it in the best binding, and the EDUCATIONAL JOURNAL for one year, both for \$5.50, plus 14 cents for postage. Subscribers who are paid in advance may deduct the amount they paid for one year, send the balance, and have the book at once. This gives the party the JOURNAL for \$1.00.

THE holiday season is, in many cases, the season also for removals and accepting new positions. We trust that no teacher who now gets the JOURNAL, and who changes his location, will forget the formality of notifying us, so that the necessary change may be made in the address. This should be attended to in any case, even if the visits of the paper are no longer desired. Otherwise, under our present rule of not cutting off a teacher's name unless he wishes it, the paper will continue to go to his old address at his risk. A post card is sufficient for all purposes of notification; and this courtesy may save both the subscriber and the publishers much unpleasantness at a later period. It is rather a severe punishment, when our sole offence is that of trusting a subscriber, to be told that the party left the locality months ago, and knows nothing about the paper. A notification in all cases of removal is suggested under every form of business rule. We hope that every teacher who removes may feel that he needs his paper as much in his new location as he did in the old.

TEACHERS' CONVENTIONS.

Lennox and Addington, at Napanee, Feb. 6 and 7.
Lincoln at—Feb. 13 and 14.
East Lambton, at Watford, Feb. 20 and 21,
West Lambton, at Petrolia, Feb. 27 and 28.

Will Secretaries of Associations, or Public School Inspectors, have the kindness to forward us programmes of their meetings, for announcement as above. Also, will Secretaries please send an epitome of the more important business transacted, for publication in the JOURNAL.

Editorial.

TORONTO, FEBRUARY 1, 1890.

THE SCHOOLS OF THE FUTURE.

WHATEVER opinions may be formed in regard to the merits of the plan for "Advanced English Schools in Rural Districts," outlined in Inspector Smith's article, which we reproduce in this number, few who have given thought to the matter will doubt that the defects in our present school systems, to one of which he calls attention, are real and serious, and that an earnest effort should be made at an early day to remove them. In spite of many modifications and improvements there is still a want of flexibility in all our schools, from public school to college, which makes it impossible to secure the best results in individual cases, or even in those of the great majority of pupils.

This fact is equally obvious, whether we take the strictly educational or the more practical view of the true end of school education. Let a thoughtful observer go into any school of any grade and consider the case of almost any individual pupil or student. How rarely will he find reason to believe that the best is being done that might be done for that individual. If the observer believes that the chief end of an educational process should be to strengthen and develop the intellectual faculties, how rare will be the instances in which he will not be able to perceive that the circumstances do not admit of this being done in the best possible manner for

the individual student. Each is placed under more or less of disadvantage or disability by reason of the fixed character of the courses and of his relations to fellow-students, or to the whole school. Very few are pursuing just the studies, and pursuing them just according to the methods, which would secure the very best results, so far as he himself is concerned. If, again, we approach the inquiry from the point of view of those who deem it the true end of school education to fit the scholar for the practical duties of life in his own particular sphere, this lack of adaptation becomes still more obvious. As Mr. Smith shows, there is usually an almost utter want of relation between the subjects and courses of study and the probable future occupation and wants of the individual.

These deficiencies in our educational systems are, we are well aware, largely the outcome of conditions and circumstances which cannot be changed. No doubt the old Socratic method, in accordance with which a philosopher, standing head and shoulders above the rank and file of the community, attached to himself a few disciples who followed him whithersoever he went, and with whom he conversed and reasoned as individuals, adapting himself to the abilities and idiosyncrasies of each, and subjecting each in turn to a process of mental gymnastics which called into exercise his utmost powers, was and still is the best for the individuals who are fortunate enough to be able to secure such exceptional advantages. But that is a training which is, in the nature of things, within reach only of the few. It suited the ideas of an age in which mental culture was the monopoly of the privileged few; it is wholly unsuited to these democratic times, when the noble aim is to bring education within the reach of all. The very fact which is one of the chief glories of our day, the fact, viz.: that education is now to be brought within reach of the masses as well as of the classes, is that which gives rise to some of the worst defects in the work of education itself. These defects are, to a large extent, irremediable in all schools in which the teacher has to deal single-handed with large classes of pupils. The limit beyond which it is possible to deal with each as an individual is soon reached. Beyond that the ablest of teachers has simply to do the best he can under difficulties, always conscious that he must content himself with doing much less than the best possible for each, and so falling far below his own educational ideal. The defect may be largely remedied when parents and the public are educated up to the point of greatly enlarging the expenditures for educational purposes, and so greatly increasing the numbers and improving the quality of both teachers and schools. Though this happy day may be distant, it is well for all educators to keep their eyes steadily directed towards it. It is useful sometimes to dwell upon defects which may seem largely theoretical, as the best means of helping progress in the right direction. Such progress, of a very substantial kind, is even now within reach, in many places, by the simple process of increasing appropria-

tions and adding to the number of teachers employed.

It is not necessary for us to add to what Inspector Smith has so well said in reference to the need of the special class of schools for which he pleads. The case he makes out, for what we may call English Agricultural Schools in rural districts, is strong. It cannot be denied that the influence of our High and Public schools bears very powerfully in the direction of a professional or a commercial career, and that the overcrowding of every avenue leading to such pursuits is largely the result of this influence. Many, no doubt, regard such a tendency as the natural outcome of a process of education in itself, apart from anything special in its character. There is no sufficient reason why this should be the case. The fact that education has hitherto been sought as a means to an end rather than as an end in itself, sufficiently accounts for it. We see no reason why, at some future day, the occupation of a practical farmer or machinist may not come to be considered just as genteel as that of a merchant or a lawyer. Why not, if the one man were as well educated as the other?

Omitting, for want of space, several other observations which occur to us in this connection, we must take a short cut to the point we set out to reach. Such schools as those advocated by Inspector Smith will, in our opinion, when established, be simply a very important step in the right direction. The goal will still be far off. What that goal appears to us to be like we can indicate at present only by a few questions. Why should the various stages in the educational course be so distinctly marked and so far apart as they now are? Why should so little inducement be held out to a pupil who has passed the Entrance Examination to enter the High school, unless he or she is prepared to complete its full course? Why, and here the case is still stronger, should there be so little inducement to the student who has completed the High school course to proceed further in the educational career unless he or she can see the way clear to a B.A. degree? Why, in other words, should these halting places be set so far apart? There must be thousands of those who have completed Public school and High school courses and who are unable to continue their studies for three or four years longer, who might, if there were sufficient provision and inducement, go on for one or two years, with very great advantage to themselves. Some, of course, do so; but the prevailing feeling is that it is of little use to take, for instance, one or two years of a University course, unless the whole undergraduate course, at least, can be completed. This feeling is due, partly, no doubt, to the fact that no diploma is awarded, and consequently no distinct recognition given to the student who takes a shorter course. It is largely due also, we believe, to the fact that, as the University courses are usually arranged, a portion of the course seems comparatively useless, save in its relation to the whole. It is felt to be fragmentary, ending nowhere and leading nowhere in particular.

Do not these facts point clearly to the necessity either of great changes in the courses and methods of our universities, or of the establishment of various other intermediate institutions, giving shorter courses, complete in themselves, and more or less closely related to a wide variety of occupations in life? In so saying let us not be supposed to be in favor of any lowering of the standards in regard to the University degrees at present conferred. We may develop our idea more fully in another number.

Examination Papers.

COUNTY OF DURHAM AND TOWN OF PETERBOROUGH — PROMOTION EXAMINATIONS, DECEMBER 18TH AND 19TH, 1889.
GRAMMAR.

SENIOR III. TO JUNIOR IV.

LIMIT OF WORK.—For the III. classes : Juniors, Part I. Public School Grammar. Seniors, to page 100, omitting lessons XXV and XXVI.

1. (a) How many parts in every statement?
(b) Define each part and explain its use in the sentence.
2. Write the following so that each make all ns more than one, giving the rule for making the change in each case : wolf, brush, monkey, mouse.
3. Analyze as fully as you can :—
(a) That *man's* son, *John*, returned to his father's home *last* week.
(b) In the yard *near* the fence stands a *garden* rake with a *broken* handle.
4. (a) Tell the part of speech each italicised word in No. 3 is.
(b) Write out the phrases in (b) part of No. 3, and tell the kind of each.
5. Mary said to Jane, "You may come with me to see the chickens if you will give them your dinner and allow me to keep mine." Write this sentence correctly without using a pronoun.
6. Classify the words in :
His fast *horses* and *their careful* drivers work *steadily* every day from *morning* till *night*.
7. Parse, as fully as you can, the italicised words in No. 6.
8. (a) Define case, relative pronoun, copula.
(b) What is the case of the words *John*, *father's*, and *handle*, in No. 3?
(c) Write a sentence using the same pronoun in two different cases.

JUNIOR IV. TO SENIOR IV.

LIMIT OF WORK.—Public School Grammar, to page 151.

1. Define conjunctive adverb, co-ordinate conjunction, intransitive verb, predicate adjective.
2. (a) Name the modifiers of the predicate.
(b) Write a sentence with the subject modified by an adjective, a noun in apposition, and a relative clause.
3. (a) Define a relative pronoun.
(b) Write a sentence containing a relative pronoun in the objective case, and underline the relative pronoun.
4. Write : (a) the feminine of sir, heir, hero, man.
(b) the principal parts of burn, sit, sell, fall.
5. Correct, giving reasons :
(a) Circumstances alters cases.
(b) Between you and I, them is the ones.
(c) Who did he hurt?
6. Change the nouns, pronouns, and pronominal adjectives in the following sentences into the plural

number, and make the other necessary changes that the sentences may be correct.

- (a) "I shall begin by taking the boy's statement as correct," says the master.
- (b) The lady and her sister's child will go to see my brother's farm to-morrow.
7. When summoned to *surrender*, he fired at one of the leading assailants *who was killed* instantly.
(a) Give full analysis of the above.
(b) Write out the clauses and tell their kind.
(c) Parse the words in italics.

LITERATURE.

SENIOR III. TO JUNIOR IV.

LIMIT OF WORK.—Reading lessons to be thoroughly taught. Juniors, to page 119. Seniors, whole book. For memorizing, extracts beginning on pages 44, 73, 81, 93, 110, 132, 155, 162, 177, 214, 221, 240. Six to be learned in each class.

(Write answers in complete sentences with book open.)

1. Page 121, beginning with "At this eruption."
(a) Give for each word or expression a meaning which may be put for it in the passage ; *eruption, stream of lava, inhabitants, cinders, awful crater*.
(b) Distinguish between *stream* and *river, boats* and *vessels, slowly* and *steadily*.
(c) Define *crater, lava, city*.
(d) Write short notes on *Vesuvius, Naples, Pompeii*.
2. Page 205, first paragraph:
(a) Give for each of the following a meaning that may be put for it in the passage ; *distributed, open situation, horizontal limbs, largely*.
(b) Write a note on *Cedar of Lebanon* ; where is Lebanon?
(c) Why does Canada, Its and Pine begin with capitals?
(d) Name, and give the use of, the mark (-), in side-walk.
(e) Account for the two n's in tanning, while tan is spelled with one?
3. Page 214 :
(a) Explain the meaning of *rampart, darkly, bayonets*.
(b) Who was Sir John Moore? How and where did he meet his death?
(c) Explain the lines
By the struggling moonbeam's misty light,
Lightly they'll talk of the spirit that's gone
From the field of his fame fresh and gory.
(d) "That the foe and the stranger," (5th stanza); who was the *foe*? What is the force of the word *stranger* in this stanza?
(e) Give in your own words the substance of the first half of the poem—as far as "thought of the morrow."

JUNIOR IV. TO SENIOR IV.

LIMIT OF WORK.—Reading lessons, to be taught as indicated in the preface, to page 161. Special Literature lessons, selections commencing on pages 23, 25, 35, 37, 54, 74, 80, 99, 105, 107, 115, 121, 145, 151. For memorizing : short extracts to page 161, and extracts on pages 35, 74, 105, 121 and 145.

(Write answers in complete sentences with book pen.)

1. Page 105 :
(a) Give in your own words the meaning of the 5th stanza.
(b) Explain the references in the expression : *the heart of Rachel, funeral tapers, life clysiian*.
(c) Distinguish between *crying* and *weeping, farewell* and *good-bye, benedictions* and *blessings*.
(d) Write the emphatic words in lines 1, 2, 4 and 5.
(e) Distinguish between *assuage* and *stay* in last stanza.
2. Page 109, last paragraph.
(a) What is a *ridge, a Prince, a proverb*?
(b) Explain the meaning of *overhanging, virtually, forbore*.
(c) Explain the expressions, *companions in arms, let the child win his spurs, let the day be his*.
(d) "Overhanging the field." What field?
(e) Change the sentence beginning "I am, he said," (bottom of page 107) from direct to indirect narration.

3. Page 35:

- (a) Explain the meaning of *indignant mien, country's gods, matchless wrongs, Roman rods, pitiless as proud*.
- (b) "British warrior-queen." What was the country in which she lived then called? What is it now called?
- (c) From what country did the Romans come?
- (d) Give in your own words the meaning of the last two stanzas, page 36.
- (e) Give the names of the different punctuation marks in the 5th stanza, page 35, and explain their use in that stanza.

UNIVERSITY OF TORONTO — ANNUAL EXAMINATIONS, 1889.

JUNIOR MATRICULATION.

BOTANY.

PASS.

Examiner—J. J. MACKENZIE, B.A.

NOTE.—Six questions constitute a full paper. No more are to be answered. All candidates must take questions 1, 2 and 3. Candidates for Honors must take questions marked *

- *1. Give an accurate description of the plant submitted.
- *2. Refer it to its proper position among Phanerogams, and mention several allied Canadian species.
- *3. Illustrate fully by drawings the structure of the ovary in the plant before you.
- *4. What do we understand by dioecious flowers? Mention some Canadian examples.
- *5. Give an account of the different methods of distributing the seed, illustrating your examples from the Geraniaceae, Compositae and Borraginaceae.
- *6. Give an account of the peculiar characters belonging to Saprophytic and Parasitic plants, and mention some Canadian examples of each.
7. Define the following terms : culma, stolon, rhizome, tendril, prickle and spur. Give example of plants where they occur.

CHEMISTRY.

ARTS : PASS. MEDICINE : HONORS.

Examiner—ANTHONY MCGILL, B.A., B.Sc.

NOTE.—Candidates for Honors and Scholarships will take all the questions. Other candidates will take the first three, and any two of the remainder.

1. Combustion is merely a case of chemical combination. How would you show experimentally that in the case of two gases A and B, mutually combustible, it is as true that A burns in B, as that B burns in A? Give specific names to the gases chosen in illustration of your answer ; and diagrams of the apparatus you have employed, or seen employed.
2. (a) Describe a mode of preparing each of the oxides of carbon, with diagrams of apparatus needed.
(b) Calculate the weight of materials required to produce 10 litres of each gas.
3. Ten grams of sand, 10 grams of sulphate of soda, and 10 grams of hydrochloric acid, are thoroughly shaken together with 1 litre of water. How would you effect the separation of the ingredients?
4. Define Specific Heat, and give an account of any work you have done in determining the specific heat of a solid ; with diagrams of the apparatus used.
5. What would you expect to happen in each of the following cases? Give equations :
(a) Barium dioxide is boiled with hydrochloric acid.
(b) Solutions of ammonium chloride and silver nitrate are mixed. The solution is filtered clear from any precipitate, and evaporated to dryness. The dry residue is strongly heated.
(c) Calcium chloride in solution is mixed with solution of ammonium carbonate. The precipitate is dried, and strongly heated in a crucible.
6. What are the various impurities that exist in natural waters? Describe modes by which their presence in a particular sample may be determined, and how water containing them may be made pure.

Elocutionary Department.

ELOCUTION.

BY R. LEWIS.

EXERCISES FOR ECONOMY OF THE BREATH.

2. COUNT from one to ten in one breath five times, inhaling after each ten.

1. Count from one to fifteen, taking a breath between each number.

3. Read a sentence of not more than ten words, commencing with the lungs filled, in the following way:—(1) Read the sentence by syllables, taking a breath after each syllable. This exercise should be often repeated, until it becomes easy. (2) Read half the sentence in one breath, but still syllabically; take a full breath, and read the remainder similarly. Repeat until the exercise becomes easy. (3) Read the whole sentence syllabically, but in one breath. Repeat as before. (4) Read the sentence in one breath, with regard to just expression, and not syllabically. (*Oscar Guttman.*)

The sentence selected should at first be an easy and a short one, varying in length with the age of the pupil. The breathing must be inaudible, inhaled nasally, and by the action of the abdomen. The voice must be pure, but not loud.

After each of this set of exercises, practice Farinelli's exercise, Sec. V. 1, especially if pupils are fatigued.*

DISTINCT PRONUNCIATION.

Articulation, or the finished and correct sound of letters in words, so as to present each word as a perfect whole, in every group of words embracing a phrase or a sentence, stands foremost in its claims in elocutionary training. It is emphatically the neglected branch of the art. The voices of children are rich in all the modulations and inflections necessary to expression. They fail, as they advance in age, for want of sustained training. But they learn to speak with correct pronunciation and perfect articulation, only by imitation of correct examples. Pestalozzi gave young children difficult words to pronounce, without regard to the meaning, to practice their articulating organs, and the writer of these articles has recited to pupils, for imitation, with most satisfactory results, passages of literature of a high order, from the Bible, from Shakespeare or Milton, etc., with all necessary expression and the strictest regard to articulation. It is not supposed nor intended that young pupils should understand the thought of such passages; but they are impressed by the force, the solemnity, or, as the case may be, by the humor of the recitation, and have voice and ear trained unconsciously in habits of appropriate and just expression. Due care should also be observed with such exercises, that they are not overdone nor done too often, as there is the danger of cultivating a formal and stilted habit, which would inevitably "o'erstep the modesty of nature," and pass into mere mannerisms.

In the phonic exercises that follow, the attention and practice of the pupils will be required:

(1) To the action exercised by the speech organs: the lips, the tongue and the parts of the mouth, the teeth, the gums and the palate, with which the tongue comes in contact, the uvula and the nasal passages.

(2) To the varying sounds of the vowels, not less than nineteen in number.

(3) The full and finished sounds of consonants, especially when they are the final letters of words, and of letters in unaccented syllables.

The youngest children can and should learn the modes of organic action used in speaking. They should be able to describe them. The physiology of the subject is very simple, and, if a chart representing the structure of the visible organs were exhibited to the class, it would be understood, and aid the instructions of the teacher. One rule should be rigorously observed in every phonic exercise: the organs of speech are brought into forcible contact when letters are sounded singly or in words; but the finish of the sound is not accomplished until the organs brought into contact are promptly and

completely separated. Thus, in pronouncing *mob*, *cap*, *mat*, *did*, the lips in the first two words are pressed together when sounding *b* and *p*, and in the second two words to sound the *t* and the *d* the edge of the tongue is pressed against the front and sides of the upper surface of the mouth. This is all right; but the sound is not complete until the tongue descends to its normal position. This rule holds with every word and every letter used in a word, and its neglect is now almost universal when a consonant ends a word.

Phonic Drill with Vowels and Consonants.—The Readers used in the schools give abundant practice for sounding the letters. That practice ought to be frequent and regular. In every case of mispronunciation the word should be analyzed, read by sounding distinctly the letters forming it, not naming them, and the teacher should be able to present the best model by vocal examples. The vowel sounds present the least difficulties, but elocution and purity of pronunciation largely depend on their full and almost musical utterance. In the exercises for inflections and for all the modulations by which the voice becomes the powerful agent of expression, mastery in the sounding of the vowels is necessary. These suggestions apply especially to the long vowels. They should be sounded with the various forces, chanted, prolonged, sent forth expulsively, explosively, with tremor and with upward and downward slides.

It is not practicable or necessary in these brief articles to give lengthy tables of the letters. The fundamental vowel sounds are *A*, as in *ah*, *E* as in *he*, and *O* (or *oo*) as in *cool*. All the other vowels are produced from these three roots.* *A*, the Italian *a* requires the fullest opening of the mouth, wide enough to admit the thumb between the teeth with ease, tongue flat and still, larynx slightly elevated, the lower jaw depressed, the sound striking against the upper incisors. *E* is termed a lingual vowel; the opening of the mouth is very narrow, and the corners of the lips widely separated as in smiling; the tongue is arched towards the palate, and its sides pressed against the palate and back teeth. *O* (as *oo*), larynx depressed, and lips pushed forward, forming an opening nearly circular, as in whistling. In the word *moon* the sound is long, but in *bull* or *book* it is short.

Gymnastics.—Pronounce in succession, with full attention to action and form of the mouth, inhaling before each change and prolonging with pure tone the last sound: *Aeo, Oea, Aoe*; repeat six times, and many six times.

Vowels imperfectly or improperly sounded: *A*; this letter is sounded wrongly in *father*, as if spelled *fauther*; the *ü* should be sounded as in *ürn*; *läunch, läundry, göunt, hüunt, stüunch*—these, and words of a similar class, should be pronounced to rhyme with *äunt*; *vaunt* is an exception, being pronounced either *vaunt* or *vänt*.

A short is generally pronounced like *ü* or omitted; as *formäl* for *formal*; *mortle, fatle*, for *mortal, fatal*.

E long; *ë* is frequently cut short when its prolonged sound is necessary to powerful expression: "Be that word our sign of parting, bird or fiend, I shriek'd, upstarting."

E short, when in a final or unaccented syllable, is generally pronounced as *ü*; as *studant, inclement, elumant, conscience*; in each case the sound should be that of *en*, not *un*.

I long is a diphthong composed of *ä+ë*; some it should never be like *oi* in coin.

I short is, like short *ë*, one of the most abused letters of the language, being generally pronounced like *ü*; as *ability, charity, reciprocity, beautiful, divinity, correctly, ability, etc.*

O long, pronounced like *u* in unaccented syllables, as *agony*; correct sound *agony*, long *o* but unaccented.

O short, abused in *Gawd* for *Göd*, which, with expulsive force or with reverential tremor, has the best expression.

U long is a diphthong composed of *ë+öü*. It is generally pronounced like *oo*; as, *resooome, allooision, revoolution*. If the reader or speaker prefixes

*Dr. Ernest Brücke, of Vienna, quoted in the "Gymnastics of the Voice," by Oscar Guttman. This, and the "Principles of Speech," by Alex. Melville Bell, are the two fullest and most practical treatises in the language on these subjects. For "Articulation," Bell's stands foremost.

a *y* to the *z*, it will correct or prevent the abuse, as *revoolution*.

Y, as a vowel, has the same sound as *I*. In the word *my* it has only two sounds: when *my* is emphasised *y* has the long sound of *i*, as in *thy*; when not emphasised it has the short sound of *i*, as in *mit*, omitting the *t*. The common error is to pronounce it *mu*, as *mü* book. The reading lessons afford too little practice to each pupil for phonic drill. But the conversational practices and the questions of teachers and pupils afford abundant exercises to make the correct sounding of words and the letters forming them a habit. Hence, the teacher will find the best results attend rigorous correctness in *speaking* as well as reading English, in accordance with the rules of just articulation.

Mathematics.

All communications intended for this department should be sent before the 20th of each month to C. Clarkson, B.A., Seaforth, Ont.

CORRECTION.—In the solution of the Bookkeeping problem, January number, in Account sales, \$3,650.00 - 119 25 = 3,530.75 and not \$3,430.75; hence A's net proceeds are \$1,765 37½, and B's gain \$427.87½. With these amounts anyone can make the necessary corrections for B in (d), and A in (e).

[The Second Class Algebra paper (Junior Matriculation), to which solutions are given below, which was intended by the Editor of this Department to come in here, will be found in the last number of THE JOURNAL.—ED.]

SOLUTIONS.

I.—BOOK WORK.

$$\begin{array}{l} \text{II.—(1)} \\ \text{A.} \quad x - y \quad z \\ \quad 13 - 8 + 21 + 19 \\ \text{B.} \quad 19 + 6 + 14 + 7 \\ \text{C.} \quad 1 + 24 + 35 + 13 \\ 3A + C = 40 + 0 + 98 + 70 \\ \quad D = 20 + 0 + 49 + 35 \\ 4B - C = 75 + 0 + 21 + 15 \\ \quad E = 25 + 0 + 7 + 5 \\ 5D + 4E = 217 + 155 \\ \quad F. \quad 7 + 5 \end{array}$$

$$\therefore z = -\frac{5}{2}$$

$$\therefore x = 0, y = \frac{1}{2}$$

$$(2) \frac{ab}{2x} + \frac{b^2}{29} = \frac{5b}{z}$$

$$\frac{ab}{2x} - \frac{a^2}{3y} = \frac{b^2 - a^2}{ab} \quad \text{Subtracting, etc.}$$

$$\frac{1}{y} \left(\frac{3b^2 + 2a^2}{6} \right) = \frac{3b^2 + 2a^2}{2b}$$

$$\therefore y = \frac{1}{3}b; x = \frac{1}{2}a.$$

III—(1) Let $y = vx$, $\therefore xy = vx^2$, $y^2 = v^2x^2$. Substitute and divide, and we get

$$\frac{2 - 3v + 11v^2}{3 - 5v + 5v^2} = \frac{1}{3} \quad \text{or } 28v^2 - 4v + 3 = 0$$

whence $v = \frac{1}{14} (2 \pm \sqrt{-19})$. The values of x and y may now be obtained by a troublesome substitution.

(2) Multiply thro' by x and we get an equation in the form $y^2 + y - 6 = 0$

$$\therefore x = 6, -2 \text{ or } \frac{1}{2} (9 \pm \sqrt{21})$$

IV.—(1) If $a = 0$, given expression = 0, hence abc is a factor, and $(a + b + c)$ must be the other literal factor.

Put $a = b = c = 1$ in the given expression and we get numerical factor = 12; $12abc(a + b + c)$.

(2) Multiplying out and cancelling three terms in each part we get $xyz - 1 + 2x^2y^2z^2 + (xyz + 1)(x^2 + y^2 + z^2)$, or, $(xyz + 1) + 2(x^2y^2z^2 - 1) + (xyz + 1)(x^2 + y^2 + z^2)$. i.e. $(xyz + 1)(x^2 + y^2 + z^2 + 2xyz - 1)$.

V.—Bookwork. By the theorem.

$$\frac{x}{a} = \frac{x - y}{a - b}, \frac{y}{b} = \frac{4 - z}{b - c}, \frac{z}{c} = \text{etc.}$$

$$\therefore \frac{x}{a}, \frac{y}{b}, \frac{z}{c} = \text{product required.}$$

*An error occurs in this exercise. Correct thus: "Inhale through the nose with the mouth closed."

$$\text{VI.-(1)} \begin{array}{r|l} 3 & 12+21-20-86+ \\ 0 & 0+0+0 \\ +5 & +20+35+ \\ \hline & 4+7+0-17 \end{array} \begin{array}{l} 0+85 \\ 0 \\ 0 \\ 0-85 \end{array}$$

Answer. $-4x^3 + 7x^2y - 17y^3$.

$$\begin{array}{r|l} I & 1+0+0+0+0 \\ +I & +1+1+0-1-1 \\ -I & -1-1+0+1 \\ \hline & 1+1+0-1-1+0 \\ & 1+x-x^3-x^9+\text{rem } x^6 \end{array}$$

The next six terms evidently have the same coefficients repeated.

VII.—(1) If $x = \sqrt{-1}$, $x^2 = -1$, $x^4 = 1$. Also $x^3 = x^2x = -\sqrt{-1}$,

$$\text{Now } (x-1)^4 = x^4 - 4x^3 + 6x^2 - 4x + 1 = 1 + 4\sqrt{-1} - 6 - 4\sqrt{-1} + 1 = -4$$

(2) Rationalize and we get $(a + \sqrt{a^2-x^2}) \div x$

Now $\sqrt{a^2-x^2} = a(1-c^2) \div (1+c^2)$. Adding a to this we get $2a \div (1+c^2)$, and dividing this by the value of x we have $1 \div c$.

VIII.—Subtracting $10x - 12y + 12 = 0$
 or $5x = 6(y-1) = 6 \frac{m-x}{x}$
 $\therefore 5x^2 + 6x - 6m = 0$ etc., etc.

IX. Bookwork. If $x = \frac{3}{4}$, then $4x - 3 = 0$

$$\begin{array}{r|l} 4 & 24-46+29-6 \\ +3 & +18-21+6 \\ \hline & 6x^2-7x+2=0 \end{array}$$

or $(3x-2)(2x-1) = 0 \therefore x = \frac{2}{3}$ or $\frac{1}{2}$

X. By the theorem in V.

$$\frac{(b-c)x + aul}{(b-c)(a-b-c) + aul} = \frac{x}{a-b-c}$$

$\therefore (b-c)x + aul = \frac{x}{a-b-c} \times \{(b-c)(a-b-c) + aul\}$

Now the quantity $(b-c)(a-b-c) + aul = 0$ when multiplied out.

\therefore The dexter member $= 0 =$ sinister member.

(2) Similarly $\frac{x-y}{2(a-b)} = aul = aul$

$\therefore (x-y)c + (y-z)a + (z-x)b = 0$

Since $2c(a-b) + aul$ vanishes as in the preceding.

XI.—Use detached co-efficients and eliminate x thus:

$$\begin{array}{l} x \quad y \quad z \\ A \quad 0 \quad c \quad b-a=0 \\ B \quad c \quad 0 \quad a-b=0 \\ C \quad b \quad a \quad 0-c=0 \end{array}$$

$$Cc - Bb = D \quad ac - ab + (b^2 - c^2) = 0 \\ D - Aa \quad 2ab - (a^2 + b^2 - c^2) = 0$$

$\therefore z = (a^2 + b^2 - c^2) \div 2ab$, x and y by symmetry.

PART 2.

$$a^2 = abz + acy, \quad b^2 = \text{etc.}, \quad c^2 = \text{etc.} \\ a^2 - b^2 = (ay - bx)c = (ay - bx)(ay + bx) \\ = a^2y^2 - b^2x^2, \text{ and } b^2 - c^2, \quad c^2 - a^2 = \text{anals.} \\ \therefore a^2 - a^2y^2 = b^2 - b^2x^2, \text{ or } a^2(1-y^2) = b^2(1-x^2) \\ \therefore (1-x^2) \div a^2 = (1-y^2) \div b^2 \text{ and } aul = baul.$$

XII.— $1,000(1+r)^2 = 600(1+r) + 600$

$$\text{or } 5(1+r)^2 - 3(1+r) + 3 = 0$$

$$1+r = \frac{1}{10}(3 \pm \sqrt{69}) = \frac{1}{10}(3 \pm 8.3066)$$

The negative root does not apply, so that we get

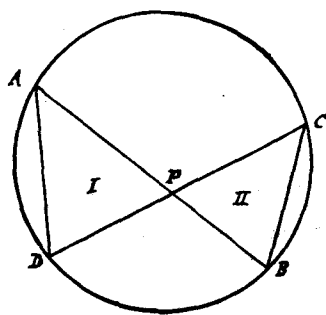
$$1+r = 1.13066; r = .13066; R = 13.066\%$$

XIII.—Let $x =$ side of inner square, and $y =$ width of walk.

$\therefore x + 2y; 2x + 2y, 2x + 4y$ are the lengths of the sides of successive squares, $\therefore (x + 2y)^2 - x^2 = 891$ and $(2x + 4y)^2 - (2x + 2y)^2 = 1,903$, whence $2y = 11$ and $x = 35$, $\therefore x^2 = 1,225$ square feet of ground.

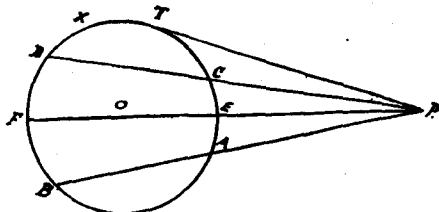
GEOMETRY.

WE here give some examples of modern methods in elementary geometry.



Hence the Δ 's I. and II. are equiangular, and hence the sides about the equal angles are proportional; thus we have A P : P D = C P : P B, and therefore A P . P B = C P . P D. Q.E.D.

When P passes without the circle we have still, by the principle of continuity, A P . P B = C P . P D; for if A D and C B are joined, as before, the same relations hold.



When the secant P C D becomes the tangent by increasing the angle at P, the points C and D coincide at T (double point), and C P . P D becomes P T², and thus, for the tangent, we have P T² = P A . A B.

Conversely, if T is on the circle and P T² = P A . A B, P T is a tangent at T. For if P T is not a tangent it must cut the circle at some second point x. Then P T . P x = P A . A B = P T², which cannot be true, unless P x = P T, i.e. unless T and x coincide, \therefore P T is tangent at T.

If one of the secants become a centre-line, as P E O F, let P E = h, P T = t, and the radius = r. Then P T² = P E . P F becomes t² = h (2r + h).

EXERCISES.

1. THE span of an arch is 120 feet, and it rises 15 feet in the middle. What is the radius on which the arch is constructed?
2. A conical glass is b inches deep and a inches across the mouth. A sphere of radius r is dropped into it. How far is the centre of the sphere from the bottom of the glass?
3. The earth's diameter being assumed at 7,960 miles, how far over its surface can a person see from the top of a mountain three miles high?
4. How much does the surface of still water fall away from the level in one mile?
5. Two circles, of radii ten and six have their centres twelve feet apart. Find the length of their common chord, and of their common tangent.
6. Two parallel chords are x and y , and their distance apart is d . Find the radius of the circle.
7. If h is the height of an arc, k the half of the chord, and r the radius of the circle, shew that $k^2 = 2hr$. Refer to Dupuis's *Synthetic Geometry* and Reynold's *Modern Methods in Elementary Geometry*.

ALGEBRA.

1. Find the three Cube Roots of Unity.—Let $x^3 = 1$, or $x^3 - 1 = 0$. Now $x^3 - 1 = (x-1)(x^2 + x + 1)$, thus $(x-1)(x^2 + x + 1) = 0$. This will be true on either of the suppositions $x-1 = 0$, or $x^2 + x + 1 = 0$. The first gives $x=1=x_1$ say. The second gives two values for x when the quadratic is solved.

x_2 , say, $= \frac{1}{2}(-1 + \sqrt{-3})$, and x_3 , say, $= \frac{1}{2}(-1 + \sqrt{-3})$. Hence x_1, x_2, x_3 are the cube roots required.

We can easily show by actual expansion.

1. $x_1^3 = x_2^3 = x_3^3 = 1$; and II. $x_2^2 = x_3$ and $x_3^2 = x_2$. We can also from this deduce $x_2^4 = x_2, x_2^5 = x_2$; $x_3^4 = x_3, x_3^5 = x_3$, etc., etc.

2. Factor $a^3 + b^3 + c^3 - 3abc$ into three linear factors. We know that $a+b+c$ is one factor for all values of a, b, c . Let us substitute then bx_2 for b and cx_3 for c throughout, and we therefore know

Euclid's proposition, 35, Book III. A B and C D are two chords intersecting in P.

To prove that A P . P B = C P . P D. Join A D and C B. Then $\angle A = \angle C$, and $\angle D = \angle B$, for they are in the same segments. Also the opposite \angle 's at P are equal.

that $a + bx_2 + cx_3$ is a factor of $a^3 + b^3x_2^3 + c^3x_3^3 - 3abx_2cx_3$. But from I. above $x_2^3 = 1 = x_3^3$; and $x_2x_3 = x_2x_2^2 = x_2^3 = 1$; so that the quantity $a^3 + b^3x_2^3 + c^3x_3^3 - 3abx_2cx_3$ becomes $a^3 + b^3 + c^3 - 3abc$, and, therefore, of this latter quantity $a + bx_2 + cx_3$, or if we like $a + bx_2x_3 + cx_2^2$ is one factor. Again let us substitute bx_3 for b , and cx_2 for c , and by a process exactly similar we get $a + bx_2^2 + cx_2$ also a factor of $a^3 + b^3 + c^3 - 3abc$; so that on the whole we have $a^3 + b^3 + c^3 - 3abc = (a+b+c)(a+bx_2+cx_2^2)(a+bx_2^2+cx_2)$, where x stands for either of the expressions $\frac{1}{2}(-1 \pm \sqrt{-3})$.

From this theorem many remarkable algebraical reductions can easily be effected. Example: If $U = ax + by + cz$; $V = ay + bz + cx$; $W = az + bx + cy$, shew that $U^3 + V^3 + W^3 - 3uvw = (a^3 + b^3 + c^3 - 3abc)(x^3 + y^3 + z^3 - 3xyz)$. Let s stand for the complex expressions above, then the factors of $u^3 + v^3 + w^3 - 3uvw$ are (1) $u + v + w$, which we see by inspection $= (a+b+c)(x+y+z)$. (2) $u + sv + s^2w$. Substitute the values of u, v, w in this, and we have $(ax + by + cz) + s(ay + bz + cx) + s^2(az + bx + cy)$. Collect x, y, z and we get from this

$x(a+cs+bs^2) + y(c+bs+as^2) + z(b+as+cs^2)$ which may be written $x(a+cs+bs^2) + ys^2(cs+bs^2+a) + zs(bs^2+a+cs)$, if we remember that $(s^3 = 1)$ and $1 = s^3$. The quantities in the brackets are now identical, so the second factor is really $(x+ys^2+zs) + (a+bs^2+cs)$.

(3) $u + s^2v + sw$. The reader may, in the same way, shew that this is $= (x+ys+zs^2)(a+bs+cs^2)$. So now the product of the three factors is

$(x+y+z)(x+ys^2+zs)(x+ys+zs^2) \times (a+b+c)(a+bs^2+cs)(a+bs+cs^2)$, and from the preceding theorem it is self-evident that this product $= (x^3 + y^3 + z^3 - 3xyz)(a^3 + b^3 + c^3 - 3abc)$. We have written this example out in full to show the power of this famous Cambridge "rub" which was for many years the exclusive property of those who received the esoteric doctrine of the college "coaches." In some future issue we propose to give a number of easier applications of the theorem for exercise and a few more illustrations. Meantime au revoir.

School-Room Methods.

ANSWER TO "QUEROR."

"ARE the classes in an ungraded school from the first up, after every opening (morning recess, etc.) supposed to follow the order of a programme?"

Reply.—I think the teacher should exhibit a time-table in the school-room, arranged as nearly as possible in conformity with the "Departmental Regulations." The teacher requires to be orderly and methodical in his arrangements, and work according to some plan or rule. Having a time-table, the children can see for themselves what is required of them, and they will thus be led to make preparations.

It also tends to prevent disorder, doubt and confusion. Still further, it enables visitors and parents to see for themselves what is being done. Should the programme be adhered to? Yes. Frequent changes lead (as I have said above) to doubt and uncertainty. If a teacher is faulty in his time-table, the presumption is, that there is an error in his school management. When one class is before the teacher, the other should be occupied in busy work, preparing reading lesson, transcription, writing numbers or tables, drawing grammar exercises, little ones with cubes or blocks, if you have them, mapping, writing words, etc.

When children return from recess, they should know exactly what they have to settle down to. Where a teacher is single-handed, the teaching power must be conserved as much as possible. The children should approach the blackboard in an orderly manner, and the teacher should so stand that he may be able to cast an occasional glance around the room. The 4th or 5th classes should have their work given them according to programme, and they should be expected to do it for themselves and be ready at the call of the teacher. Busy work and self-government are important factors in the management of a school.

Kinmount.

E. W. PAGE.

Literary Notes.

The *North American Review* for January, which begins the one hundred and fiftieth volume of that strong periodical, is one of the most important numbers ever issued. The first fifty-four pages are occupied by a discussion on Free Trade or Protection, in which the two sides of the question are ably and brilliantly presented by the Right Hon. William E. Gladstone and the Hon. James G. Blaine. Mr. Blaine's contribution is an answer to Mr. Gladstone's, and is published by special permission of the latter at the same time with his own.

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THEY that on glorious ancestors enlarge,
Produce their *debt*, instead of their *discharge*.
—Young.

THOSE friends thou hast, and their adoption tried,
Grapple them to thy soul with hooks of steel.
—Shakespeare.

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The author of the work is the celebrated Dr. Richardson, of England; and this book, though somewhat less bulky, being printed in smaller type, contains the whole of the matter of the English edition, slightly rearranged as to some of the chapters, to suit the requirements of our public school work. It is, however, but half the price of the English edition.

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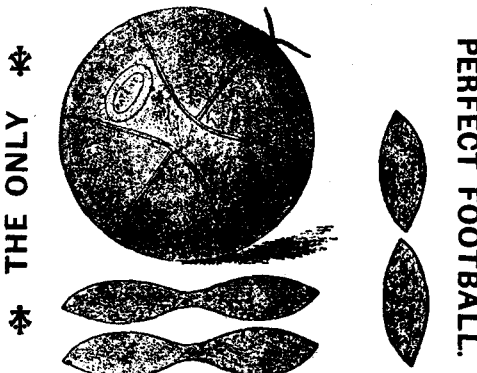
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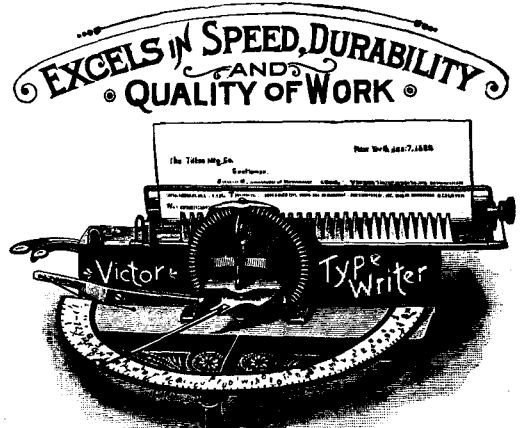
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JULY, 1890.

	PAGES.
1. The Vision of Mirza—	
First Reading...	63- 66
2. " " " Second Reading.	68- 71
3. To Mary in Heaven.....	97- 98
4. Flow Gently, Sweet Afton.....	98
5. The Bell of Atri.....	111-114
6. Ring Out, Wild Bells.....	121-122
7. Lead, Kindly Light.....	145
8. The Heroes of the Long Sault...	155-161
9. Lochinvar.....	169-170
10. A Christmas Carol.....	207-211
11. The Heritage.....	212-213
12. Song of the River.....	221
13. The Ocean.....	247-249
14. The Song of the Shirt.....	262-265
15. The Demon of the Deep.....	266-271
16. Edinburgh after Flodden.....	277-281
17. Canada and the United States...	289-201
18. The Forsaken Merman.....	298-302

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1. The Short Extracts. List given on	8
2. I'll Find a Way or Make It.....	22
3. The Bells of Shandon.....	51- 52
4. To Mary in Heaven.....	97- 98
5. Ring Out, Wild Bells.....	121-122
6. Lady Clare.....	128-130
7. Lead, Kindly Light.....	145
8. Before Sedan.....	199
9. The Three Fishers.....	220
10. Riding Together.....	231-232
11. Edinburgh after Flodden.....	277-281
12. The Forsaken Merman.....	297-302

TIME-TABLE OF THE EXAMINATION FOR 1890.

FIRST DAY.

9.00 A.M. to 11.00 A.M.....	Grammar.
11.15 A.M. to 12.30 P.M.....	Geography.
2.00 P.M. to 3.30 P.M.....	History.

SECOND DAY,

9.00 A.M. to 11.00 A.M.....	Arithmetic.
11.05 A.M. to 11.15 P.M.....	Drawing.
1.15 P.M. to 3.15 P.M.....	Composition.
3.25 P.M. to 4.00 P.M.....	Dictation.

THIRD DAY.

9.00 A.M. to 11.00 A.M.....	Literature.
11.10 A.M. to 11.40 A.M.....	Writing.
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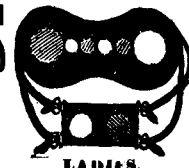


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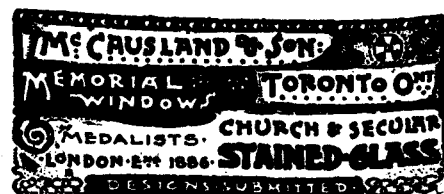
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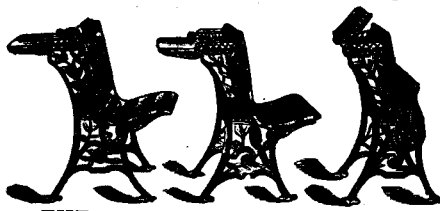
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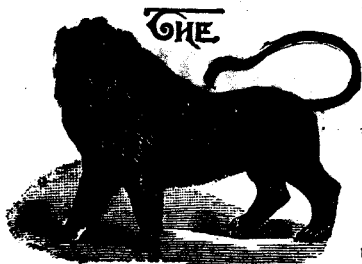
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