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Editorial Notes.

A VERY common mistake of inexperienced teachers, and of many that cannot be called inexperienced, is the making of too many rules. The more the child can be led to become a law unto himself, the better for all concerned. It is better for the teacher, for he is so far relieved of the irksome task of enforcing a variety of petty regulations. It is better for the children, whose moral judgments are educated by being constantly called on to pronounce on questions of right and wrong. And it is better for the community, for, while undue restraint in school is pretty sure to react in undue license out of school, the habit of self-direction and control formed in the school will follow the pupil into the street and the home.

GREAT stress was laid by some of the speakers at the Association on systematic physical culture and drill in the schools. These undoubtedly have a place in the curriculum of an ideal Public School, and are valuable in their place. But are we not in danger of overdoing this business, and taking out of the hands of Dame Nature a work which she is much more competent to do than any artificial trainer can be? Can it be doubted that a score of boys, turned loose on a spacious playground, to find their own amusement with bat and ball, or other games of their own choosing, will really gain more all-round physical development in one hour than the best system of scientific training can give them in three?

WE are giving a good deal of space to the report of the meeting of the Provincial Association, but it will be found that almost every line has a more or less direct bearing upon some phase of the teacher's everyday work. Hence we did not think that we could occupy the space with anything of greater practical interest and utility to the earnest teacher. Meanwhile, in order to provide, as far as possible, against the necessity of curtailing our regular departments, the publisher has, at considerable expense, added a cover to this number, thereby increasing the size of the paper by one-fourth. We feel sure that our subscribers will appreciate this evidence of our intention to give good measure, pressed down, and running over, and will advise their friends, if any are not yet subscribers, to join the long and growing procession. We are hoping for large additions to the subscription list during the numerous meetings of the Institutes in May.

WE beg leave to call attention, in no captious spirit, but in the interests of sound teaching, to a remark which is attributed by our reporter —it may be the result of a slip of the pen, or of the necessity for great condensation on his part—to one of the speakers at the Association. Mr. Irwin, of Flesherton, is represented as "inculcating obedience to the laws of the land, in so far as they are good." We feel quite certain that Mr. Irwin did not mean to put his statement in a way which implies that the citizen is under no obligation to obey the laws of the land unless they are, in his opinion, good. It is, of course, demonstrable that the good citizen is bound to obey the laws honorably, whether they are or are not good, in his estimation. Any other principle would lead to anarchy. The only exception is, we take it, in a case of conscience. Of course, it is not only the right, but the duty of every citizen to seek the repeal of every law which he believes to be not good, though he may not disobey or evade it in the meantime.

WE hold over other interesting matter in order to give to teachers the whole of Mr. Seath's practical and valuable address unbroken. The subject is one of great importance. From whatever point of view we regard it, it is difficult to name any one school acquisition which is of greater practical value in any condition and phase of life than the ability to read with distinctness, ease, and intelligence. It enables its possessor to minister, on a thousand occasions, to the pleasure and profit of others. In the family circle, the social gathering, and often in the public assembly, the man who can read with well-modulated voice, and with correct emphasis and inflection, becomes a benefactor to those about him. The same ability—which we hold to be, to a certain extent, necessary to the enjoyment and profit of even silent reading—opens to its possessor all the delights of literature of every kind, during his or her whole lifetime. Reading is the chief instrument by which we acquire knowledge, and have access to all the stores of thought and discovery which have come down to us through the ages. No argument can be necessary to show that it should have a foremost place on every school programme. This being the case, we think that Mr. Seath was happy in his choice of a subject, and that he has, if his words are heeded, performed a valuable service in calling attention to the very inefficient way in which this subject is dealt with in the majority of our Public and High Schools.

THE Education Department is, we believe, desirous of ascertaining the date of the foundation of each of the High Schools and Collegiate Institutes of the Province. To this end Dr. Hodgins, Historiographer of the Department, would be glad to receive any information touching the origin of any such school that may be in the possession of trustees, secretaries, or old inhabitants, in any locality. These schools have been of great service to the country, as well as to very many individuals. Many able men, whose services as principals and teachers in connection with them should be held in grateful remembrance, are long since dead, and their names are in danger of passing into oblivion. The people in each locality should take pride and pleasure in supplying Dr. Hodgins promptly with all the information they have or can get touching the origin and history of their school, and its most efficient workers in the past.

ONTARIO EDUCATIONAL ASSOCIATION.

Reported for THE EDUCATIONAL JOURNAL by Mr. John Spence, principal Clinton-street school, Toronto.

(Continued from last number.)

Mr. W. A. Sherwood, A.R.C.A., of Toronto, read an interesting paper on "Color in Nature and its Relation to the Schoolroom." He discussed the causes of color blindness, and disproved the theory held by some that it is caused by the excessive use of wine and tobacco, or narcotics of any kind. The main cause was due to the absence of color in our surroundings. Associate the children with colored objects in school and out of school, and this defect will almost entirely disappear. In most schools, there is an almost complete absence of color, as nature, whom we should closely follow, is lavish in the extreme. There are no primary colors in nature, but only secondary, and these only should be found in the schoolroom. All illustrations should be of such a nature as will please the eye. Much improvement of late has been made in schoolrooms. Complementary and contrasted colors should be used; green and brown being the prevailing nature colors, these should prevail in our schools and homes. They are most restful to the eye. Men who have been constantly associated with black and white colors have become blind. He pointed out the dangers of color blindness to such men as engineers. Scope for development should be given to the æsthetic habits of our pupils. Our text-books should have an agreeable variety of colors.

Miss E. J. Preston, of Ottawa, followed Mr. Sherwood in an intensely interesting paper on "The Elements of Our Population." In very choice language, filled with humor, she described the different nationalities that make up our population, noting their physical, mental, moral, social, and political proclivities. The experience of the United States in admitting all classes of men to make homes in their territory, without exercising any discrimination, was vividly portrayed, and should be a warning to us to exclude from our land all undesirable persons. Our desire for increased population should not influence the Government to act injudiciously in throwing wide open the vacant lands of Canada to any and all who choose to come. This paper will be published in a subsequent issue of THE JOURNAL.

Miss Davidson, of Crumlin, read a paper on "The Position of Physiology, Hygiene, and Temperance on the Public School Curriculum." The difficulty of getting any change in our educational system was illustrated by the trouble it gave to get this subject placed on the same footing as other subjects of the programme of studies. The teacher is obliged to counteract the effects of environment and heredity, and children must be taught that neglect on their part to develop themselves physically will entail future suffering. The preservation of health is a duty, and its neglect is physical sin, and leads to certain punishment. It is just as necessary to educate the child along physical lines as on any other. We should have a high physical ideal, and general rules for producing the ideal should be constantly impressed. There should be a fixed course of experiments in teaching the subjects. Each teacher should have a skeleton, mannikin, and charts, so that the instruction may be made as interesting as it is instructing and beneficial. Any teacher can obtain the different organs to be studied from home or the butcher. If you can't get your school board to procure you apparatus for teaching this subject experimentally, make your own.

Wednesday, April 8, 1896.

Mr. J. R. Brown, of Madoc, read a paper on "The Relation of School Work to the Occupations of the Public." He stated that the prosperity of the people depended upon the occupations of the people, and these occupations were the source of the wealth of the country. He advised joint meetings of teachers' and farmers' institutes, and urged that the people should be encouraged to read the newspapers to become well informed in the current history of the nation. He dwelt upon the natural resources, products, and occupations of the country and people.

Mr. W. Irwin, of Flesherton, read a paper on "National Patriotism." The first duty of every teacher is to instil a love of country into the hearts of his pupils, as being an obligation he owes to the State as well as to the child. Obedience was inculcated to the laws of the land in so far as they were good. The people make the laws through the legislators they choose, and these laws reflect the sentiments of the citizens. The evils of bigotry were pointed out.

Mr. Weidenhammer, Waterloo, read a very interesting paper on "Music in the Public Schools." The points made were that music was for the public good, rather than for the individual; that it was a powerful means for developing the emotional nature; that truth is vividly impressed by singing; that the thoughts went straight to the depths of the heart; and that sight-singing was as good an intellectual stimulus as the study of Latin.

A series of ten-minute addresses by eminent educationists was a feature of the session. The Hon. Minister of Education briefly reviewed the late legislation affecting educational interests. Among many things mentioned were the "continuation classes" to be established in public schools and liberally aided by public grants, for pupils who had passed the Public School Leaving Examination; the notice of the extension of the Easter vacation in rural sections was heartily applauded. The Minister declared that the teachers had many friends in the Legislature to protect their rights and see that no hindrances to the progress of education were allowed to exist. In alluding to the many difficulties and perplexities of the teacher's life and vocation, he urged his hearers to look on the bright side of things.

Mr. Parkin, Principal of Upper Canada College, said the teacher's life must be unselfish, being founded on love of a work that did not bring large monetary rewards. To avoid becoming mechanical should be the constant care of every teacher. He should have his heart centred in his work, not in the pecuniary gain to be secured. Stupid pupils should not be neglected. Teachers should be Christians, and should remember they are working out the great moral problem of creation.

Dr. McLellan spoke on "Moral Training." Dogma and doctrine never make moral nations. Moral training depends largely upon the personality of the teacher and the training he gives his pupils. Every subject should have a distinctly ethical effect. Literature is the best subject for the purpose, because it trains the imagination and emotional faculties. Imagination has been too much undervalued and neglected. Science and mathematics have an indirect moral effect.

Mr. Hughes, I.P.S., Toronto, made a plea for the so-called stupid children. His thoughts and sympathies were for them. They needed most help, and too frequently got the least. Most difficulties were physical and easily removed. Physical culture was the basis of moral culture.

Mr. Muir, of Toronto, author of the "Maple Leaf," spoke on "Patriotism." He reviewed our history and eulogized the deeds of the sons of Scotland settled in Canada. After a glowing description of our country's resources, he made an eloquent appeal to the teachers to fill their pupils with the spirit of patriotism, using as a means the noble deeds recorded in our history.

Mr. John Ball Dow, Whitby, of the Trustees Department, gave an address on "Our Rural Schools." He pointed out the weak points in the educational system. The full programme was not taught, and many of them were in charge of incompetent teachers. The defects in rural schools were due chiefly to youthful, inexperienced, poorly paid instructors, and bad accommodation and equipment. He advocated the abolition of Third Class certificates, the formation of township boards and larger sections.

Mr. Tilley, Bowmanville, I.P.S. for Durham, discussed the equipment of rural schools. The grounds are generally too small, rough, and barren, while the buildings are cheap and badly built, with no attempt made at ornamentation. Every school building and room should be decorated. Every school have a dictionary, a gazetteer, and an encyclopædia. Trustees ought to be compelled to attend to these things, and if a grant of public money were given, as in High Schools, they would soon be secured.

Mr. Parsons, of Delhi, read a paper on "Efficiency," in which he advocated the raising of the status of the Public School teacher to a higher standard as the best means of securing efficient work.

Miss McKenzie, of London, gave an interesting address on the "Transition from Home to School." She pointed out how great a change it is for the child. Hitherto Nature has been his teacher. As much of home as possible should be introduced into the school. Kindergarten methods should be adopted in the youngest classes of rural schools.

Mr. Jordan read a paper on the "Relative Rights of Principal, Parents, Inspector, and Trustees." He thought the principal should be an advisory member of the school board, and difficulties between parents, teachers, and trustees should be adjusted outside of school hours. He thought inspectors had sufficient authority.

Mr. Burritt, of Pembroke, discussed "Parents and Trustees." He said it was the duty of the latter to make every possible provision for the comfort and advantage of the pupil. His position between parent and teacher required delicate movement and great tact.

Mr. Davidson, of Newmarket, spoke on "Principal and Inspector." The inspector had a two-fold duty to perform, (*a*) to advise the teacher, (*b*) to acquaint the trustees with the exact condition of the school. His character greatly influenced the character of the work done in school. He should have great skill in testing the work of the teacher, and should have a clear idea of what qualities he was testing for.

Mr. Groves, of Toronto, outlined his ideas of "Classification and Management." The principal and teachers should determine the classification, as no one else is in a fit position to do this. The parent especially is unfitted to have any voice in classification, or promotion, because he is not likely to be unprejudiced.

Miss Loveck, of Ottawa, addressed the meeting on "The Importance of Kindergarten Training to the Youth of Canada." She showed how it taught the child to work for himself, and aroused his self-activity.

Mr. Putnam, of Ottawa, followed, and declared kindergarten work awoke the child's interest, and gave him much pleasure and amusement. The children are taught to perceive sound and color, and lose self-consciousness.

Mr. Ballard declared that time alone would tell how much benefit to the school has obtained through the kindergarten.

Rev. Mr. Jackson, of Galt, said that this training would make better mothers for future generations, and this was the greatest need of the country. All teachers should take the kindergarten course.

EVENING SESSION.

Wednesday, April 8th, 1896.

Prof. Baker, Toronto University, delivered the president's annual address. After thanking the association for the honor conferred on him by his election last year, he began his address proper by stating that the teaching profession is in a state of unstable equilibrium, rendering essential constant readjustment, which is accomplished by the annual parliament of the educationists of the province. The meeting of teachers in convention intensifies their interest in their great work, quickens their enthusiasm, and tends to unity of sentiment and action. The present meeting clearly emphasized the fact that education is a progressive science. He then dwelt upon the improvement being made in methods of teaching. Every effort is now being made to keep the creative faculties in equal activity with the receptive faculties. In Science teaching the greatest importance is attached to individual work on the part of the student; in History constant reference to original authorities is insisted on; a characteristic feature of the work in Political Economy is a gathering of facts by students for themselves. Educational methods in teaching English had not kept pace with the work of other departments, despite the fact that in this branch of study there are greater possibilities than in any other, owing to the equipment students bring with them when they enter upon the study of their mother tongue. The complaint is being continually made that our teaching of English does not produce men who speak and write their language correctly. While the teaching of English in the High Schools and Collegiate Institutes has made great advances, the same statement is true of the work done in the Universities. One reason for the advances made in other departments is that the receptive faculties are not cultivated to the exclusion of the creative faculties. In English teaching the appeal is almost entirely made to the receptive powers of the mind. Criticism can end only in the destruction of spontaneity and original-

ity. In the sciences students have to do real work for themselves, not merely to watch the work of others, or look at it after it is done. What would be thought of the Art School which presented to its students the masterpieces of great men and women for contemplation only, and in which the brushes and pencils were but seldom handled by them? Just the reverse of this is done in all our schools of art. When Flambert took Guy de Maupassant to make him a French writer he did not train him by giving him lectures in French, but set him at work on real themes, some of them of the greatest simplicity, the description of a tree, for example. It is claimed that only those can take mathematical and scientific courses who have natural aptitude for them, and this is a confession that many take the English course who have no aptitude for it, for it is surely a fact that great natural aptitude is rarer in English than in the other subjects. This is owing to the way the subject is treated. If it were dealt with in the same way as Mathematics or Science, the inapt ones would be forced out and specialists in English would be such as possessed the true literary and artistic instinct, not those who misunderstood fondness for literature for power therein. The last year or two of a university course in English should be devoted to original work, in which students should be compelled to show their ability to follow the style of any given author, and to give evidence of a meritorious style of their own.

He then referred to the papers read at the association as consisting of three classes : (*a*) Those of general educational interest, (*b*) pedagogical topics, (*c*) literary and scientific subjects. He hoped the association would realize the necessity of keeping the last two well balanced.

In speaking of the University extension movement, he said he thought it might be engrafted upon our educational system by combinations of districts among High School specialists. Many of these teachers would be eager to hold positions as lecturers in this movement, and earnest men and women would study arduously in it if some definite object could be accomplished thereby. It would be necessary to make University subjects popular, and bring them within the apprehension of those whom circumstances and environments have deprived of an academic education. The ability to do this is an evidence of the highest professional qualification. He suggested that groups be formed in different parts of the province of six or ten High Schools, whose teachers would undertake to give lectures in each other's towns. They could and would be assisted by the learned and zealous men of other professions, and lecturers from the universities could be brought to their aid.

Professor Baker paid a high tribute to the work and value of the primary schools, and suggested that they might, with profit, devote more time to comparative study. A series of papers on primary education in Germany, Switzerland, and France would be exceedingly instructive and interesting. He thinks results in German primary schools are superior to results in ours.

When speaking of Physical Education he referred to the resolution passed last year by the High School department requesting that it should be optional, and also quoted the regulations of the Education Department dealing with it. He read some interesting statistics showing that it was very badly neglected in the High Schools ; was promising in the Collegiate Institutes ; and in the Public Schools was so well developed that if an invading army were to disturb our peace they would be able to place a quarter of a million trained cadets in the field upon the shortest notice. He then declared that physical training should be assiduously carried on under the most careful supervision. We all agree with the aphorism, *sana mens in corpore sano*, and yet while we carefully attend to the *mens sana* we systematically neglect the *corpus sanum.* Physical training should be definite, and not left to the unguided and sportive vagaries of youthful spirits. In a well-considered system of education, sports should bear the same relation to physical culture that the literary societies do to the ordinary work of the school or college. Unguided sports may have as vicious an influence on our physical nature as the most debasing literature has on our mental and moral nature. Our indifference may be explained by the origin of our system of education in mediæval monasticism, which regarded the body as a vile and unworthy thing. Other countries are paying the greatest attention to physical culture. An international exposition will be held this year at Innsbruck, and at Athens the Olympic games are revived. We in Canada cannot afford to lag behind, and teachers especially should not be unfaithful to their duty in respect to this important matter.

He then touched upon the sex question in education, remarking that we must accustom the public mind to the thought that women should in numbers enter the other learned professions. Upon resuming his seat the able lecturer was warmly applauded.

Mr. J. L. Hughes, of Toronto, Inspector of Public Schools, in the absence of Dr. Bourinot, whom parliamentary duties kept at Ottawa, gave an interesting and instructive address on " The Influence of the Kindergarten in Higher Education." He began by outlining the influence of Froebel in breaking down the barriers of conventionality and bringing women forward in the work of education. He said he did not advocate the placing of women at the head of the educational system, but thought that the men and the women best fitted for educational work should do that work. One of the distinctive features of the kindergarten system was that the child was made the chief agent in his own discipline. Froebel changed the system of educating children from coercion by others to creative effort by themselves. We were now learning to apply Froebel's method of self-activity. He defined the difference between activity and self-activity as understood by Froebel and illustrated in his methods of teaching the child. From him we learned the value of object-teaching as well as of play. He was the first teacher to make play an inseparable part of the work of education. He aimed at developing the moral nature as well as the physical. Manual training is developed from the kindergaten ideal, and when this ideal is understood the people will furnish the money to develop it. Froebel's system recognized the co-ordination of the intellectual, physical, and moral faculties in his system of development.

CONVERSAZIONE.

Tuesday, April 7th, 1896.

Tuesday evening the delegates in attendance at the association met in the Chemical and Biological Buildings of the University of Toronto. Many of the citizens who had secured cards of admission took advantage of the opportunity to inspect the equipment of these buildings devoted to instruction in science. The staff were in attendance, and experiments were performed by them. Dr. Small gave an illustration of how photographs are secured by the Roentgen process. Mr. Hodgson gave interesting talks on electrical conductivity, and Mr. Elliott showed the process of electrolysis. Experiments were made by Mr. Allen to determine poisons.

President Loudon welcomed the visitors in an affable and interesting address on behalf of the University authorities. He was glad to greet them as members of a great brotherhood and sisterhood, and constituent parts of the national system of education.

The Minister of Education, the Hon. G. W. Ross, said that he hadn't words adequate in which to represent the greatness of the gathering, representing, as it did, all branches of the educational system of Ontario—the kindergarten, with its two hundred gentle, tender-hearted, lovely women ; the Public and Separate Schools, with their nine thousand accomplished and faithful teachers ; the High Schools and Collegiate Institutes, with their six hundred highly-cultured instructors ; and representatives of the eighteen or twenty thousand trustees, with whom the teachers liked to be on the best terms. The Province owed much to the efforts of the indefatigable and intelligent teachers of the different schools, but it also owed a great deal to the enterprise and activity of the trustees who had so liberally endowed the land with fine schoolhouses and equipment. He was particularly glad to see them in this building, representing, as it did, the culminating point of the great school system and the representative of its unity, which, he declared, was unique. In England, with its centuries of progress and culture behind it, there was nothing like such an organized system of chool co-operation as we had in Ontario. In looking over the various departments, it was difficult to say which was most important, or to which the scholars owed most. At the annual convocation of the University, as he watched the two hundred or so graduates pass before the Chancellor, he often wondered to which part of their school lives they were most indebted for the training for good citizenship which they had just finished. It might have been down in the kindergarten, or in some Public School some wise, energetic, and faithful teacher had given the needed impress to his character ; or it might have been done in the High School or college. For all that the school system could and did do, they all had great reason to be grateful. He welcomed them all for the work they were doing in the uplifting and upbuilding of this great Dominion. It was not the attainment of great scholarships that was most essential to national life. It was more important to know that in their schools were more than ten thousand men and women laying broad and deep the foundations for lofty ideas in the rising generation, who were making them honest, truthful, and manly, making them better citizens than were their fathers, and instilling into their plastic minds principles that would cause them to make the greatest efforts to raise their nation higher than it had ever been before. That was why the State aided the schools, and this was the return the State asked from them. He had no doubt the association would show him that he had forgotten many things, and would suggest various improvements. In conclusion, Mr. Ross said that ten of his happiest years were spent in teaching, and for ten years he had had the direction of the schools, sometimes with happy results, but he believed the future would show that they had all been doing a great work for their country.

The president of the association, Professor Baker, responded to the greetings of welcome and returned the thanks of the association for the warm welcome they had received. Mr. Ross had climbed every rung of the educational ladder, and the general opinion of the teachers of Ontario was that his experience eminently fitted him for the position of Minister of Education. The teachers were glad to recognize one of themselves occupying this exalted station, and proud to know him to be one of the ablest and most eloquent speakers in this Dominion. For twenty years Mr. Loudon had been associated with the great University, and had been the author of many of the acts of administration, and ex-students were glad to see him keeping abreast of the scientific spirit of the age. This was an age of conventions, because knowledge was so rapidly diffused that no one could keep pace with it. He must needs cull for himself, and occasionally meet with his fellows and compare notes. There was no inclination now to make secrets of inventions. They were given to the world for its profit and advancement. He then referred to the new building in which they were, and declared it was a great satisfaction to teachers to know that no great discovery in science could be made which could not be exemplified and tested and receive fresh application in its laboratories. He referred to the kindness of the professors in throwing the building open for the inspection of the visitors, and read a cablegram from the National Union of the teachers of England now assembled at Brighton, sending fraternal greetings and good wishes.

LORD TENNYSON AND THE HORSE.

A gentleman farmer, some years ago, happened to be at Haslemere station, when Mr. Tennyson arrived there carrying a heavy parcel of books. His own carriage was not to be seen, and so he was glad to accept the neighborly offer of a lift home. Going up the steep hills to Blackdown, Mr. Tennyson, with his characteristic consideration for animals, suggested that they and the books were too heavy far a small pony to drag. They therefore got out and walked some distance in front of the trap, until suddenly it was discovered that the books had dropped out by the way. Mr. Tennyson was asked if he would stand by the pony's head while its owner went back for the books. These were found a hundred yards or more down the hill; and on his return he found that the pony had been very restive. Knowing its dislike to strangers he asked how Mr. Tennyson had managed to keep it quiet, and was astonished to find that this had been accomplished most effectually by the device of holding a watch close to the animal's ear.

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Editorials.

"THE NEW GEOGRAPHY."

AMONG the old subjects of school study which have undergone, and are destined to undergo, radical changes in treatment under the influence of what is enduring in the principles of the "new education," there is probably none which afforded a more inviting field for useful innovation than geography. It would be hard to conceive of any subject occupying a large share of time and attention in a school programme, and making smaller demands upon the thinking faculties proper, and so contributing less to their real development than geography, as it was dealt with in the schools not very many years ago. Practically it was a mere *memoriter* exercise, save that in some exceptional cases some time was more or less profitably spent—according to the knowledge and teaching ability of the schoolmaster—in the discussion and explanation of some of the more elementary principles of the science—for such it then became—on its mathematical side. But in the average school, and to the average pupil, it is hard to conceive of anything much drier, or making less demand for the exercise of the intellectual faculties proper, than geography as ordinarily learned; *i.e.*, simply as an interminable series, we had almost said "jumble," of natural and political outlines and divisions.

This old process has already undergone a very great change for the better. Geography is now being made, in the better classes of schools, very much more a study of the world as a place for habitation by all the diversified of living things, but especially by human beings. In the observation of the relations between diversities of soil, climate, and configuration of surface, on the one hand, and the characteristics of different tribes and races of men, and their habits of life and modes of thought and speech, on the other, there has been opened up a line of inquiry which invests the subject with deep intellectual and moral interest, and so places it at once among those best adapted for strictly educational uses.

But Geography has scarcely got fairly settled on this new and higher level in the *curricula* of the new education, when another question emerges, touching its proper place and limitations. This question is, in essence, whether geography shall be defined as a description of the earth as it is, without reference to the past, or whether the scientific spirit, which is bound to dominate all educational processes, logically and rightfully demands that it shall include inquiry into the causes, as well as the effects, of those diversified features which play so important a part in the history of the human race. This question is discussed in an interesting article by Albert Perry Brigham, under the heading, "The New Geography," in *The Popular Science Monthly* for April. Coming to the main question, Mr. Brigham says:

"Geography is sometimes defined as a description of the earth as it is, without reference to its past. One author has called it the science of distribution, but well adds that because it is a science it cannot rest in a mere record, but must have the causes. The new movement has simply applied the evolutionary principle to geography, giving it the life and freedom which this doctrine has imparted to all other sciences in our day. It has been seriously asked whether the new notion of geography does not confuse it with geology. Thus the minority report of the Conference on Geography to the Committee of Ten criticizes the majority report as bearing too plainly the marks of the geologist's hand. It may as well be frankly admitted that geography and geology overlap. All sciences transgress each other's boundaries, and all bounds in Nature are largely matters of convenience. Geology never truly interpreted terrestrial history until, with Hutton and Lyell, it took to studying geography. Nor will the geographer understand the earth which he sees until he takes account of geology. Land forms cannot be truly seen or faithfully described until seen and described in the light of their origin. Such forms will hide themselves from the student who thinks they are dead. For him they might nearly as well be buried. The geologist who seeks, for example, the causes of volcanism will find help in his study of the distribution and relative action of existing volcanoes—in other words, he cannot keep from geography. The geographer, in his turn, needs the perspective of ancient volcanic history, if he would appreciate his own facts. Because he has commonly had no such vista, he has burdened generations of boys with the solemn blunder that a volcano is a burning mountain. Thus we may vindicate for each science its own centre while granting a generous measure of common facts. The difference is in the point of view, the aim, and method of treatment; the geologist seeks largely that which has been, the geographer that which is, and each must be known in the light of the other. It is precisely the case with two biologists, one of whom studies living, the other fossil, forms. The day is past when they can work apart; yet none would deny that their fields are reasonably differentiated."

The natural relation between the two sciences, geography and geology, may be readily granted. That it follows that at least some general knowledge of the one is necessary to an adequate comprehension of the other may not be so readily admitted. It would be easy to establish a somewhat similar relationship between geography and botany, or geography and natural history, since it is not easy to see why the changes wrought in the soil of the earth and in the animals which inhabit it, by chemical agencies, should not be as worthy of inquiry as those wrought by mechanical agencies. But our purpose is not now to argue the question, but only to set forth the views of those who advocate the claims of the "new geography." The following extract, in addition to the preceding, will make this tolerably clear. All will readily agree that practically the "new geography" must be relegated chiefly to the High schools and colleges, though the teacher of geography in the elementary schools will be very much the better for a knowledge of its leading facts and principles:

"What place is the new geography to have in our system of education? This just now is the question of importance and the centre of much discussion. Geography in the lower schools has served to impart a group of facts about the world which respectability and convenience require a youth to have. Cultural value has not been enough considered, and from the

higher schools the subject has more often been absent. With the tendency of the times, geography has of late been taught to the child more from out-of-door and local facts, and so has come nearer the new geography in its spirit. But the teaching yet lacks breadth and strength, because the principles of the subject have not yet become available to teachers, except in favored centres. That geography of the new type lends itself to the training of the reason there can be no question. The causes of geographic forms arouse inquiry in nearly all persons. Minds of all grades become alert when the origin of soils, rocks, fossils, valleys, terraces, lakes, swamps, hills, waterfalls, mountains, and continents is explained in common language. A discreet teacher, at home in the subject, has no difficulty in bringing the main doctrines of geographic development within the comprehension of children. It is not hard to conceive a country of hills and valleys as a surface partly worn toward a goal of lowland denudation, and then to find in the forms visible from the schoolhouse window ever-varying episodes in this history. It is not to be understood that this larger conception will be put upon the pupil at the outset; he will rather proceed from the minor passages of the land history to its main and grand movement. The brook, gravel bank, ravine, and hillock will lead to a mental picture of the township, county, state, and continent. And it is not to be forgotten that the animals and plants, clouds and storms, climate and productions, highways, cities, and all other material of geography will have their place in the teaching; it is only held that they will gather new meaning as they take their places in a comprehensive scheme of geographic development. It is of small account that the new teaching has what may be called a geologic aspect; names matter little when only rational knowledge of geography is concerned."

SCHOOL GOVERNMENT.

"IT is not the teaching but the discipline that makes the profession so often irksome, and life itself sometimes a burden." We dare say there are hundreds of our readers whose feeling at the close of many a weary day is something not very unlike the above. If only the children would be "good"; if by some means they could be induced to become quiet, and orderly, and attentive, without so much expenditure of effort and time by the teacher, then, indeed, would the work of instruction become a delight. There are, no doubt, exceptions. A happy few may have governing power of some kind as a natural endowment. By virtue of native mind force, or moral power, or ever-ready tact, or we suspect, still oftener, of a larger, closer sympathy with the mind and heart of childhood, they are able to keep the complicated machinery of even a large schoolroom in easy and almost frictionless motion. Happy, indeed, are such among schoolmasters and mistresses!

There is another class, all too numerous, we fear, who reach the same end, so far as outward manifestations are concerned, by a very different process. These are the men and women of the harder, harsher stuff. Their minds are of coarser fibre. Their ruling force is an inflexible will. Their sceptre is a rod of iron. Their pupils must be quiet, orderly, obedient, or take the consequences. When those consequences involve keen pain, and keener humiliation, the great majority of children may, of course, be taught to dread and shun them. Such a rule is sure to involve much of injurious harshness, much of injustice, much lack of sympathy and discrimination. The moral effect can scarcely ever be good; it must often be very bad indeed. But the teachers referred to are not of the kind who go home to torture themselves with questionings as to the wisdom and justice of the day's proceedings. They are not made miserable by the fear that the punishment was inflicted on the wrong party in this case; that it was given in a passionate and hateful spirit in that case; that the impression left upon such and such a tender nature may be permanently harmful; or that the whole tone and tendency of the discipline may be hardening and morally injurious. They have done their duty according to their notion of duty; they have earned their pittance; and they go forth to give themselves up to other thoughts and pursuits. These may be, and often are, the more successful teachers, as success is generally estimated, but they are scarcely to be envied even by the supersensitive.

We have the fullest sympathy with the young teacher who finds his or her whole course made rough and thorny by the tendency to restlessness and disorder in the schoolroom. Nothing but daily experience can develop the power and wisdom essential to successful government. Yet there are many difficulties in the path of the young teacher that may be avoided; many cases in which a few hints from the experience of others may save from painful and costly mistakes. Space limits make it impossible to say in an article one-half of what occurs to one to say by way of help and encouragement. The young teacher who is thoroughly in earnest must study to overcome. Study the words and methods of successful teachers as set down in books and educational papers. Study human nature, child nature, as exhibited in the schoolroom. Determine to understand each individual child as far as possible, and find the key to unlock both mind and heart. Have faith in children, not expecting them to be angels, but believing that each has an inclination, half-formed perhaps, to do right; a heart and a conscience that can be reached and wrought upon, and gradually made self-governing power.

Above all, study self. Be determined to know the weak spots in your own character, and to strengthen them. Self-rule is the first condition of all right ruling of others. When complete self-mastery is attained, mastery of others will be comparatively easy. Determine to be what you would have the children become.

Do not forget physical conditions. We have often said this in substance, but it needs to be constantly repeated. When you find the control of yourself and of the school slipping out of your hands, don't give way to excitement and nervousness. Call a halt. Stop and think. What is wrong? Is the ventilation good? Have the children been kept too long in one position, or at one exercise? Nothing, not even childish petulance or perversity, is uncaused, and the exciting causes are oftener than we think external.

Keep the children busy. Govern them through their activities. See that every one has something to do, and a motive for doing it. These are golden rules. To carry them into effect involves trouble, thought, work. But it is trouble, thought, and work which pay. To preserve decent order in a school of fifty or sixty children when half of them are idle is impossible, or possible only by virtue of an arbitrary and cruel despotism from which a sensitive nature may well shrink.

Finally, for we must stop, enlist the children on your side. Get them to help you in the matter of government. Consult them. Nothing will please them better. Few things will do more to make them quiet and thoughtful than to point out the objectionableness of this and that kind of disorder, and ask their advice as to the best mode of preventing it. Thus get them to feel that the school is *ours*, not *yours*. In thus getting children to help govern themselves, in making them feel that they are helping the teacher to keep order and make the school what it ought to be, lies the secret of much of the tact in government which often seems so wonderful to the uninitiated.

Our best thanks are due to friends who have kindly sent us some excellent contributions. These we shall use as soon as possible.

High School Entrance and P. S. Leaving Department

EDITED BY

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Headmaster Boys' Model School, Toronto, Ont.

With the assistance of several special contributors.

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HIGH SCHOOL ENTRANCE AND PUBLIC SCHOOL LEAVING EXAMINATIONS.

The High School Entrance and Public School Leaving Examinations will begin this year on Thursday, July 2nd, and will be conducted as per time tables.

ENTRANCE—1896.

Thursday, July 2nd.

A.M. 8.45.....Reading Regulations.
9.00-11.00....English Grammar.
11.10-12.40....Geography.
P.M. 2.00-4.00....Composition.
4.10-4.45.....Dictation.

Friday, July 3rd.

A.M. 9.00-11.00....Arithmetic.
11.10-12.20....Drawing.
P.M. 1.30-3.00.....History.

Saturday, July 4th.

A.M. 9.00-11.00....English Literature.
11.10-11.40....Writing.
P.M. 1.30-3.00.....Physiology and Temperance.

Reading to be taken on the above days at such hours as may suit the convenience of the examiners.

PUBLIC SCHOOL LEAVING—1896.

Thursday, July 2nd.

A.M. 8.45.....Reading Regulations.
9.00-11.00...English Grammar.
11.10-12.40...Geography.
P.M. 2.00-4.00...English Composition.

Friday, July 3rd.

A.M. 9.00-11.00..Arithmetic and Mensuration.
11.10-12.20..Drawing.
P.M. 1.30-3.00...History.
3.10-5.10...Bookkeeping and Penmanship.

Saturday, July 4th.

A.M. 9.00-11.00...Algebra and Euclid.
11.10-12.30..Physiology and Temperance.
P.M. 2.10-400....English Poetical Literature.

Reading may be taken on the above days at such hours as may suit the convenience of the examiners.

CANADIAN HISTORY.

PART III.

Parliament continued to meet at Newark till 1797, when it was removed to York, Newark being considered too near the frontier of an alien nation. Major-General Hunter succeeded Governor Simcoe in 1799, the latter having been transferred to the government of San Domingo. The Province of Upper Canada steadily increased in wealth and population; but the evil effects of irresponsible government soon began to be felt. The Executive Council, composed of the governor and five members of his own appointment, soon assumed and exercised all the administration of the colony. Nearly all the departmental officers were special favorites of the government, who looked down with a sort of aristocratic exclusiveness upon the yeomanry of the country. This led to the formation of two parties—the *one* zealous supporters of an irresponsible executive, and the *other* advocates of a larger measure of constitutional administration.

In Lower Canada the difficulties were even greater than those in Upper Canada, on account of racial and religious differences.

Great as these quarrels between the Assemblies and the Executives were, they were dropped for a time in order to meet a common danger.

THE WAR OF 1812-14.

Causes:

(1) The war between England and France.

(2) Napoleon's Berlin Decrees.

(3) Orders in Council, passed in England, prohibiting neutral vessels from trading with France. The claim also of the British Government to the right of search for British naval deserters in American vessels.

(4) The Americans were exasperated by the publication of the secret correspondence of Captain Henry, a renegade adventurer, sent out by Sir James Craig, Governor-General of Canada, in 1809, to ascertain the state of feeling in New England towards Great Britain. He reported a disposition to secede from the Union, and afterwards sold the correspondence to the American Government for $50,000. This incident was used as a war-cry to incite the Americans to active hostilities. The Democratic party, then in the majority in the United States, was favorable to France and bitterly opposed to Britain.

(5) Declaration of war by the United States, June 18, 1812.

The three campaigns.—(1) The campaign of 1812; (2) the campaign of 1813; (3) the campaign of 1814.

The campaign of 1812.—The American plan of campaign was to invade Canada with three armies: (1) The army of the west, under General Hull, to cross at Detroit; (2) the army of the centre, under General Van Rensselaer, to attack the Niagara frontier; (3) the army of the north, under General Dearborn, to attack Canada by way of Lake Champlain. General Dearborn was appointed commander-in-chief.

Events:

(1) Capture of Fort Michillimackinac by Captain Roberts.

(2) The surrender of Detroit by General Hull, Aug. 16, 1812. Brock, Proctor, and Tecumseh were present.

(3) The armistice.

(4) The battle of Queenston Heights, Oct. 13th. General Brock was killed

(5) Repulse of the Americans at Fort Erie.

(6) Defeat of General Dearborn at Lacolle. He retires to Plattsburg.

(7) The Americans were successful on the sea. They gained several victories over British men-of-war, and they controlled the great lakes.

SUMMARY.

Canadian Successes: Campaign of 1812.

(1) Capture of Fort Michillimackinac.
(2) Capture of Detroit.
(3) Victory of Queenston Heights.
(4) Victory at Lacolle.

British Failures:

(1) British men-of-war defeated.
(2) The control of the lakes by the Americans.

Campaign of 1813.—The American Plan of Campaign: To send three invading armies as in 1812.

Army of the West, under General Harrison.
" " " Centre, " " Dearborn.
" " " North, " " Hampton.

General Sheaffe succeeded General Brock as Lieutenant-Governor of Upper Canada.

Events.—(1) Americans defeated at Frenchtown. (2) Capture of Ogdensburg. (3) General Dearborn and Commodore Chauncey capture York. (4) Fort George taken by the Americans. (5) Failure to take Sackett's Harbor. (6) Americans defeated at Stony Creek. (7) The failure of the Americans (and their surrender) at Beaver Dams. Here relate the incident in which Laura Secord took an important part. (8) The defeat of Captain Barclay by Commodore Perry on Lake Erie. Note the results. (9) The retreat of Colonel Proctor and Tecumseh from Detroit. (10) The defeat at Moraviantown. Tecumseh killed. (11) The defeat of the Americans, under General Hampton, at Chateauguay. (12) The defeat of the Americans at Chrysler's Farm. (13) The retreat of General Vincent from Niagara to Burlington. (14) The Americans, under General McClure, burn the village of Newark (Niagara) and abandon Fort George. (15) Lewiston, Youngstown, Black Rock, and Buffalo burned. With the burning of Buffalo, December 30th, 1813, the campaign closes.

Campaign of 1814.—The campaign opened in Lower Canada.

Events.—(1) The successful defence of Lacolle

Mill. General Wilkinson had advanced from Plattsburg and invested the British at the stone mill of Lacolle. (2) Capture of Oswego by General Drummond and Sir James Yeo. (3) The surrender of Fort Erie to the Americans. (4) The defeat of the British at Chippewa. (5) Battle of Lundy's Lane, where the Americans were defeated. The retreat to Fort Erie. (6) Capture and burning of Washington by the British. (7) Failure of the attack on Plattsburg, September 11th, 1814.

On December 24th, 1814, the Treaty of Ghent was signed, which restored to Britain and the United States their losses; but it did not settle the points in dispute. Two weeks after peace was formally made, a bloody battle was fought at New Orleans.

The foregoing is not intended, in any sense, as a list of facts to be dictated to pupils, but merely as a guide to the order of events which should be amplified.

For minute details of this war, consult Kingsford's History of Canada, Vol. VIII., and M. Edgar's "Ten Years of Upper Canada in Peace and War."

GEOGRAPHY.

THE BRITISH EMPIRE.

BY MR. R. W. MURRAY.

Many teachers engaged in preparing pupils for the Entrance Examination find a difficulty in securing anything beyond the ordinary text-books on the subject, and this is especially the case in the subject of geography. The geography for the Entrance Examination is that of the British Empire mainly (though not altogether confined to that), as may be seen by referring to recent papers set for this examination. A few general facts gleaned from Meiklejohn's "British Empire" will, no doubt, be found interesting and helpful.

1. *Introductory.*—The British Empire is the largest, strongest, most populous, and wealthiest in the world. Its area (9,000,000 square miles) is one-sixth of all the land; its navy has command of the seas; its population (327,000,000) is about one-fifth of all the inhabitants of the globe; its annual revenue is £210,000,000 sterling. Besides, she holds the keys of all the waterways upon the planet.

2. *Resources.*—The British Empire, lying in all latitudes, furnishes its inhabitants a great variety of products, and the interchange of these gives rise to a commerce vastly superior to anything the world ever saw. Britain possesses the greatest wheat granaries of the world, as well as the largest wool markets. In wool manufactures, in timber forests, in diamond mines, she is first of the nations. No country surpasses her in the output of coal, iron, and copper. She is second to China in the production of tea, and she grows the finest coffee in the world. Great Britain and the United States are running a race in the production of gold and iron.

3. *The commercial position of Britain.*—Great Britain is not only first in the size of territory and in population, but is easily first in manufactures and in commerce. Her mineral resources, so essential to manufacturing, are greater than any other country excepting the United States, and the United States is nearly as large as the whole of Europe. This position of Great Britain in regard to manufactures and to commerce is the result of a combination of a number of circumstances that have never come together before in all the history of civilization.

Among others may be mentioned the immense quantity of cheap power in the shape of coal; the economic application of that power by means of steam; the thoughtfulness, courage, and enterprise of her merchants and manufacturers; the large number of highly-trained, careful, and skilful workmen; the easy and cheap communication by railway, canal, and telegraph; the possession of large capital; and the ever-growing trade of her ever-growing colonial empire.

Britain is first in the production of textiles, manufacture of metals, machinery, chemicals and paper, and steel rails. Of the tonnage of all the ships that pass through the Suez Canal, Great Britain has 79 per cent., France 5½ per cent.

4. *The growth of the British Empire.*—Ever since the reign of Henry VII., who sent Cabot to explore in the New World, the empire has been increasing. The sixteenth century saw the beginning of the colonial empire in the settlement of Newfoundland in 1583. The seventeenth century saw the contests between Puritan and Cavalier, which led to the settlements of Virginia in 1607, of Massachussetts in 1620, and of Maryland in 1636. The eighteenth century witnessed the victories of Clive and of Wolfe, and added India and Canada. It also saw the secession of the United States. The nineteenth century has brought in the Australian colonies and those of South Africa and has been the century of emigration.

5. *The British possessions: how acquired.*—The regions now held by Great Britain in all parts of the world have been acquired either by force of arms, as in the case of Cape Colony and Hong-Kong; by purchase, as in the case of Singapore; or by settling on the ground and cultivating it, as in the case of Australia and New Zealand.

6. *Constitution of the Colonies.*—There are three kinds of constitution. There are Crown colonies, as Jamaica, Gibraltar, etc., ruled by officers appointed by the Crown. The second class of colonies consists of those which possess representative institutions, but not responsible government, as Western Australia, Natal, etc. The third class possesses representative institutions and responsible government, as Canada, the Cape, colonies of Australia, etc. In the third class the Crown appoints no officer except a governor, while in the second class the Crown appoints the chief public officers.

7. *The office of Great Britain.*—The acquisition of such immense territories, so populous and so fertile, and so far remote from one another, has developed the carrying trade of Great Britain. That she may continue to be the trader and newscarrier of the world, she is compelled to be the guardian of the waterways. Britain has taken possession of islands in every ocean to use as telegraph stations or as coaling stations for the promotion of commerce, and for the guarding of the highways of that commerce against the possible attacks of foreign ships of war.

8. *Coaling stations.* — The great commercial route to the east is guarded by coaling stations at Gibraltar, Malta, Aden, Kurachee, Bombay, Colombo, Cocos Islands, Singapore, and Hong-Kong. The southern route, by the Cape of Good Hope, has stations at Lisbon, Gibraltar, Madeira, St. Vincent, Sierra Leone, St. Helena, Simon's Bay, and Port Louis in the Mauritius Islands. On the route to the west, on account of the short voyage, there are none needed. But in the West Indies there are coaling stations at Jamaica and St. Lucia. In Australia, the stations are Adelaide, Melbourne, Newcastle, and Brisbane.

These coaling stations have their own defences independently of the navy. This is so that the navy may be free to sweep the seas in search of the enemy; to blockade her ports; to harass trade, and to attack the foreign possessions. The stations have fixed, floating, and submarine defences.

LANDMARKS OF THE GROWTH OF THE BRITISH EMPIRE.

1. Newfoundland, 1583.
2. Virginia, 1607.
3. Massachusetts, 1620.
4. Maryland, 1636.
5. Jamaica, 1653—taken from the Spaniards.
6. New York and New Jersey, 1674—wrested from the Dutch.
7. Gibraltar, 1704—taken from the Spaniards.
8. Indian Empire begins 1757—Clive wins the Battle of Plassey.
9. Canada, 1759—Wolfe captures Quebec.
10. United States secede, 1776.
11. New South Wales, 1788—A convict colony.
12. Ceylon, 1796—taken from the Dutch.
13. Malta, 1800—taken from the French.
14. Tasmania, 1803—a settlement.
15. Cape Colony, 1806—taken from the Dutch.
16. Mauritius, 1810—taken from the French.
17. Singapore, 1824—purchased.
18. Assam, 1826—taken from Burmah.
19. West Australia, 1826—settlement.
20. Port Philip (Victoria), 1836—settlement.
21. Aden, 1839.
22. New Zealand, 1840.
23. Hong-Kong, 1842—ceded by the Chinese.
24. Natal, 1843.
25. Sind, 1843—annexed.
26. Punjab, 1849—annexed.
27. Vancouver, 1849—a Crown colony.
28. Victoria, 1851.
29. Oude, 1856—annexed.
30. British Columbia, 1858.
31. Queensland, 1859—becomes separate from New South Wales.
32. British Kaffraria, 1860—separated from Cape Colony.
33. The Fiji Islands, 1874—annexed.
34. British North Borneo, 1881.
35. New Guinea, 1885—annexed.

SOLUTIONS.

Pub. Sch. Arith., page 190, No. 2.

AB = 35′, CD = 27′, AC = 18′ 7″, DB = 23′ 11″.

Draw CM and DS perpendicular to AB. Then if AM = x′, ∴ SB = (8 − x) feet.

In △'s CAM and DSB,

$(18' 7'')^2 = x^2 + p^2$

$(23' 11'')^2 = (8-x)^2 + p^2$

$\therefore (18\frac{7}{12})^2 - x^2 = (23\frac{11}{12}')^2 = (8-x)^2$.

From which x is obtained. Then p may be obtained. (Euc. I. 47.)

And △'s CAM and EAN are similar

∴ their sides are proportional, etc.

Page 192, No. 10.

GD = 23.29 chains, and GF and ED are 2.40 and 3.64 chains respectively, ∴ FE is 17.25 chains. Then the figure consists of three triangles and a rectangle, the area of which may easily be found.

Page 193, No. 25.

Contents of the original $= \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{8}$ cub. ft.

The height is reduced to 5.85″. Therefore the area now of the top will be

$\frac{1}{8}$ cub. ft. $\div \frac{5.85}{12}$, and this will be product of length and breadth, which are equal.

$\therefore \sqrt{\frac{1}{8} \div \frac{585}{1200}} = \sqrt{\frac{30}{117}}$ feet. Solve and reduce to inches.

P. S. Arith., page 112, No. 40.

1. The L.C.M. of 20, 24, and 30 is 120. The common multiples are 120, 240, 360, 480, 600, etc.

To leave 15 for remainder on each count the number may be 135, 255, 375, 495, 615, etc. To contain 25 evenly and still to leave 15 remainder, with divisors 20, 24, and 30, the number must be 375, which is the least that contains 25.

Page 151, No. 101.

The minute hand gains 11 minute divisions while it goes 12 minute divisions, since it goes 12 times the rate of the hour hand.

(*a*) Reckon from 1 o'clock. The minute hand is 5 minute divisions behind, therefore it must gain 5 minute divisions to overtake the hour hand. Since the hour hand marks one hour, the minute hand must gain $5\frac{1}{2}$ minute divisions, which it does in going $\frac{12}{11}$ of $5\frac{1}{2}$ minute divisions = 6 minute divisions. Time is 1 hour 6 minutes.

(*b*) Similarly from any hour. Take 6 o'clock. The minute hand must gain 33 minute divisions, which it does in going $\frac{12}{11}$ of 33 minute divisions. Time is 6 hours 36 minutes, etc.

PEN-AND-INK DRAWING.

ARTICLE II.

BY MR. A. C. CASSELMAN.

The drawings presented in this issue are by Master Ross Murray, of the Senior Fourth Class in the Model School, and Messrs. Neilson, Carefoot, and Currie, of the School of Pedagogy.

No one can fail to see that each drawing shows

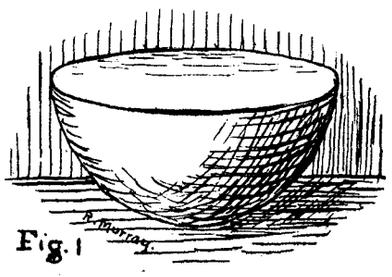

Fig. 1

the individuality of the person who made it. All follow the same method of suggesting surface, shade, and shadow. As each practises drawing with the pen, each will develop a style of his own, and will, by careful study, see that different kinds

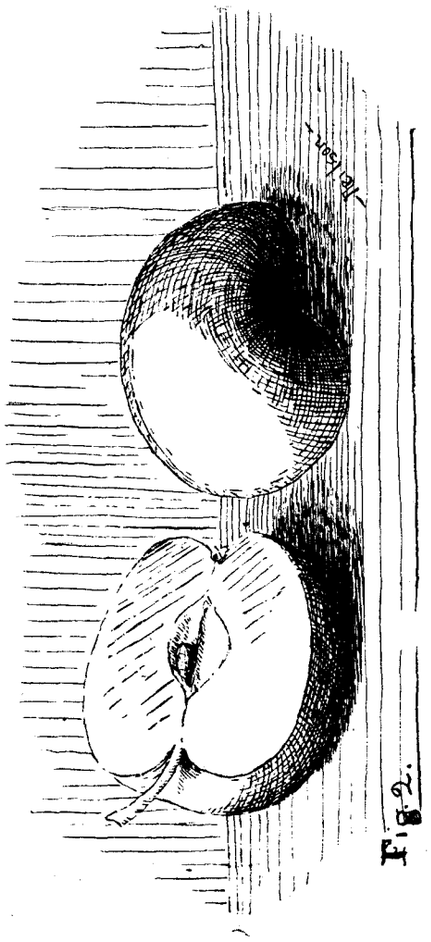

Fig. 2.

of surface can be suggested by lines drawn in any direction. But, in the beginning, you must teach expression of surface by some standard method. The one explained in the last article has always seemed to me to be the best one, and the results obtained justify its use. Still, if any other method

Fig. 3.

of teaching a pupil to suggest surface is found to be better than this one, by all means use it. Just as each pupil will develop a characteristic style of handwriting from being taught the standard type forms of the letters, so will those who persevere in drawing develop a peculiar style. Because one person develops a peculiar style and is successful in its use, it does not follow that we should adopt his individuality, and it is doubtful if we would be successful if we did. What is more, we should be only imitators, and an imitator seldom advances beyond his master. Study the style of every pen-and-ink artist, and see what you can incorporate in your own. Make what you get from others wholly your own.

In the examples shown here the outline is shown quite clearly. Strictly speaking, there is no outline in nature. What we represent by a line in outline drawing is where one shade ends and another begins. As a student continues the work further, outline will not be so prominent. The more you look for light and shade in a subject, the less prominence will be given to line. After making some advancement in shading, seek for tone and color, their relative values, and their expression.

When studying a subject, look for mass first. By partly closing the eyes, you will shut out unimportant details that must not be made too prominent in a drawing. Beginners do not grasp the whole subject; they see some particular part fully, and as it impresses them more than any other part they express it more prominently. To give proper value to all parts of a drawing, compare all details of the subject first. Settle upon the important points, carefully express those first, and those parts that are of less importance are to be slightly expressed, or left out altogether. Do not crowd your drawing. If you do, it will appear flat and uninteresting; besides, you cannot hope to give all the facts a photograph would. Strive to be truthful, but truth does not consist of putting in every little stamen of a flower or every hair on a stem or leaf of a tree.

The advice in the above paragraph applies more particularly to the class of drawing that should be taken up at this time of the year. It is a good time to get away from type models and *uninteresting solids* of the schoolroom. All lifeless things are uninteresting at this time of year. Try to bring some of the life and joy and happiness of the outside into the schoolroom.

Study nature, and express it by drawing. Encourage the pupils to bring twigs with bursting buds on them; flowers that grow so plentifully everywhere in the country now. Study these. Help the children to see the beautiful in nature, so that they will appreciate the beautiful in art. Let every child in the whole school, whether it is a graded or ungraded one, partake in this nature study and the expression of it. Your pupils will awaken from their sleep in the drawing lesson; they will see that copying, and tracing paper, and ruler are dead things. If they feel the joy and happiness of the springtime to which the flowers have contributed so much, they can't help putting some of that feeling into their drawings. Never draw a wilted or dead flower. Let them all be freshly plucked, or dug up roots and all. Hold the flower or sprig in the hand while drawing. Your preliminary chat will call the pupil's attention to the main points, and their drawings should show these. Don't draw the flower for your pupils. Let each draw what he sees in his own flower.

Someone will say that this will not fill the book for Entrance. "Fill the book!" How I hate that expression! Many do fill the book, at least one-half of it, and the engraver and printer has done the other half, and they think they know how to draw. The pupils are not to blame. Instead of copying a figure in the space in the drawing-book, try the drawing of some flower. Now is a good time to throw off the fetters and shackles that bind you. Don't look through the eyes of anyone else; if you persist in doing that, you will see only what he sees and as he sees.

PUBLIC SCHOOL LEAVING.

BOOKKEEPING.

The requirements in this subject for the Public School Leaving Examination are single entry bookkeeping, commercial forms, and general business transactions. By an oversight the term "journal" appears in Circular No. 10, issued by the Education Department. The word "journal" should be

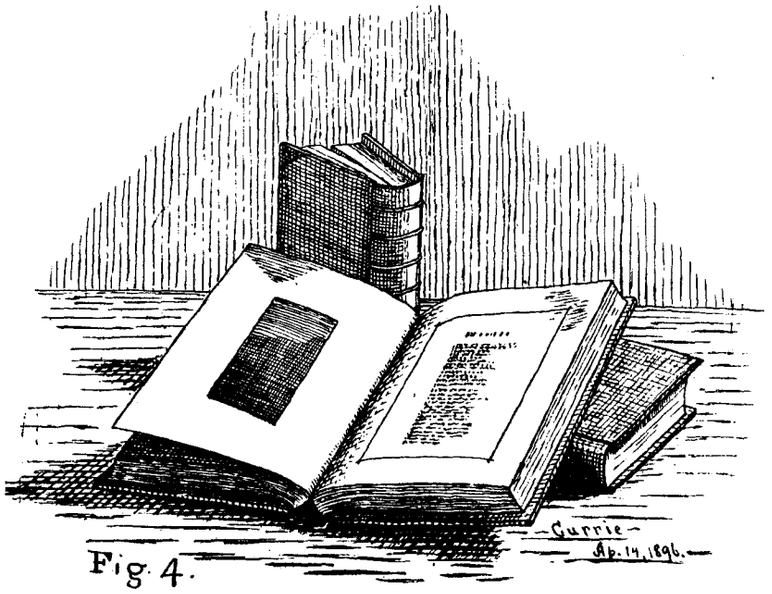

Fig. 4.

omitted. In other respects the circular is as was intended. The books required for Single Entry, are Day Book, Ledger, Cash Book, Bill Book, and Inventory Book. The Day Book and Ledger contain personal accounts only. A record of all cash transactions will appear in the Cash Book. The Bill Book is divided into two parts, *one* for Bills Receivable and the *other* for Bills Payable. When either a bill receivable or a bill payable is paid in cash, an entry will be made in the Bill Book and in the Cash Book. When all the items of the Day Book are posted, the Ledger, Cash Book, and Bill Book will contain a record of all transactions carried on during the business period. A statement of the Resources and Liabilities of the firm can therefore be compiled from these three books and the Inventory Book; and, by a comparison of the difference between the Resources and Liabilities,

and the amount invested, the gain or loss can be determined.

The main defect of Single Entry is its incompleteness ; it does not show how gains and losses have arisen.

Candidates should be prepared to write out accurately the following forms : Business Letters, Promissory Notes, Cheques, Drafts, Orders, Receipts, and Due Bills.

NOTES AND ANSWERS TO QUESTIONS.

Asbestos, Asbestus.—True asbestos is not found in Ontario. The so-called asbestos of Renfrew county is *chrysotile;* a kind of fibrous serpentine. It contains about 13 per cent. of water ; real asbestos does not contain water. The following formulæ will show the composition of these two similar minerals :

(1) Asbestos (C_aO, MgO, SiO_2)
(2) Chrysotile (H_2O, MgO, SiO_2)

Barmecide Feast.—This expression means a feast where there is nothing to eat. It originates from the Barber's story of his sixth brother in the Arabian Nights. Barmecides was a distinguished Persian family, often referred to by Mohammedan poets and historians. The word Barmecide is used to express the uncertainty of things on which we set our hearts.

Heath.—In indicating the pronunciation of this word, in the issue of April 15th, the "e" should have been marked long ; the "a," of course, is silent.

You will find notes on "The Raven," in THE EDUCATIONAL JOURNAL for April 1st, 1896, p.340.

In conducting a "public examination," special attention should be given to the regular work of the school. Lessons should be conducted by the teacher in charge, assisted by visiting teachers, if any are present. Towards the close of the day, an entertainment might be given, and it is at this stage that a trustee should be asked to preside. The schoolroom should be decorated with plants and flowers, if possible. In many localities a "free lunch" adds greatly to the enjoyment of those present at an examination. In no case should a public examination be a mere "exhibition," given for the purpose of amusing the visitors. The teacher should endeavor to interest those who attend in the subjects of study, for a considerable portion of the day at least. It will then be found that the entertainment part of the programme will be enjoyed all the more and the teacher's work appreciated better.

No. 2. Problems suitable for Entrance classes, in issue of March 16th :

From the conditions of the question

A can row 3 miles in 1 hour
B " " 4 " " 1 "
C " " $4\frac{1}{2}$ " " 1 "
D " " 5 " " 1 "

$\therefore$ A " " $\frac{3}{5}$; B, $\frac{4}{5}$; C, $\frac{9}{10}$; and D 1 the distance rowed by the last named.

No. 6. Problems, suitable for Entrance classes, in issue of March 16th :

Rate of rowing down = once the distance down.
" " up = $\frac{99}{64}$ of " " "
$\therefore$ " stream = $\frac{1}{2}$ of $\frac{4}{64}$ of " "
$\therefore$ " " = $\frac{1}{32}$ of " " "
= $\frac{1}{2}$ mile.
$\therefore$ Distance down = 16 miles.

No. 7. Problems, suitable for Entrance classes, in issue of March 16th :

Rate in still water = 10 miles per hour and rate of stream = 2 miles per hour, $\therefore$ rate down stream = 12 miles per hour, and, since he rowed down for 10 hours, the total distance down = 120 miles.

Rate up = 8 miles per hour.
$\therefore$ Time in rowing back = $\frac{120}{8}$ hrs. = 15 hrs.

No. 5. Arithmetic, in issue of February 1st.

Since 75 is the difference between the square of two consecutive numbers, it is, therefore, the product of 1 and the sum of the two numbers, $\therefore$ 75 = the sum of the two numbers.

$\therefore \frac{75-1}{2} = 37$, which is the smaller of the two numbers, and 38 is the greater.

No. 3. P. 242, H.S.A.

Let P = annual payment.
Then $P(1.07) + P = \$1,500\,(1.07)^2$
$\therefore$ $2.07\,P = \$1,717.35$.
$\therefore$ $P = \$829,637$.

Grammatical analysis of p. 109, Fourth Reader.

—"On the top of a windmill ..... he forbore to interfere." Compound sentence, having both members complex.

A. On the top ..... fray. Independent complex clause.

(*a*) Of which ..... field. Adjective clause, modifying "windmill."

(*b*) Whilst ..... fray. Adverbial clause, modifying "remained."

(*c*) Who ..... before. Adjective clause, modifying "Prince," "descriptively."

B. (And) when ..... interfere. Independent complex clause.

(*a*) When his father ..... gained. Adverbial clause, modifying "forbore."

(*b*) That the victory ..... gained. Noun clause, object of "saw."

Detailed analysis.

A. I. King.
II. The.
III. { Verb, —— remained.
{ Complement, bareheaded.
VI. (1) On the top ..... field ; (2) for whatever reason ; (3) clause (*b*).

(*a*) I. Tower.
II. (1) The ; (2) solid ; (3) of which.
III. { Verb, —— is.
{ Complement, — to be seen.
VI. (1) Still ; (2) on the ridge overhanging the field.

(*b*) I. Prince.
II. (1) The ; (2) young ; (3) clause (*c*).
III. Went.
VI. (1) Forward ; (2) with his companions in arms ; (3) into the thickest of the fray ; (4) whilst.

(*c*) I. Who.
III. Had been knighted.
VI. (1) A month before.

B. I. He.
III. Forbore.
IV. To interfere.
VI. Clause (*a*).

(*a*) I. Father.
II. His.
III. Saw.
IV. Clause (*b*).
VI. When.

(*b*) I. Victory.
II. The.
III. Was gained.
VI. Virtually.

USES OF NOUNS.

1. *Subjective.—Canada* is our home.
2. *Predicative* (to subject).—Our home is *Canada*.
3. *Predicative* (to object).—They made him *king*.
4. *Objective.*—France lost *Canada*.
5. *Object* of a preposition.—He came to *town*.
6. *Indirect Object.*—He gave the *man* a penny.
7. *Attributive.*—My *father's* house.
8. *Appositive.*—My friend, the *hunter*, carries his rifle.
9. *Adverbial.*—He arrived last *night*.
10. *Nominative Absolute.*—The *sun* having risen, we proceeded on our journey.
11. *Nominative of Address.*—O *solitude*, where are thy charms ?

COUNTY OF BRANT PUBLIC SCHOOLS—PROMOTION EXAMINATIONS.

December, 1895.

PHYSIOLOGY AND HYGIENE—JUNIOR 4TH TO SENIOR 4TH.

Value, 100. Questions of equal value. Only 7 to be attempted. Time, 1 hour.

1. Explain the meaning of "Physiology" and "Hygiene."
2. How many bones in the human frame ? Group them, giving the number in each group.
3. What is the principal function of the bones ? What are joints ? Name the principal kind of joints and where found.
4. What agents move the bones ? What is their general appearance, their composition ? How do you name their extremities attached to the bones ?
5. Name the organs employed in digestion. Which are the principal ones ?
6. Give an account of the teeth. Classify them. State their composition and function.
7. Describe the stomach and intestines. State where they are located. Name other organs in same cavity.
8. Trace the food from the time it enters the mouth until it passes into the circulation.
9. What changes are effected in the food : (*a*) Before swallowing ; (*b*) in the stomach ; (*c*) in the duodenum; and (*d*) the causes of the changes.
10. Describe the effects produced : (*a*) In the stomach ; (*b*) liver ; (*c*) brain ; (*d*) system generally, by the habitual and inordinate use of alcohol and tobacco.

COMPOSITION—SENIOR 2ND.

Value, 100. Questions of equal value. Last 2 compulsory. Time, 1 hour.

1. Make a sentence out of the following words : Boy, the, knife, table, cut, the, with, his.
2. Correct the errors in the following : (*a*) next thursday will be the 27th of June ; (*b*) I believe that's them, for they said they was *comin'*.
3. Correct the following : (*a*) I saw a man, on the hill with a white hat ; (*b*) I saw a man cutting peas with a Roman nose.
4. Fill in (*a*) —— ran a race ; (*b*) —— will finally reach the sea.
5. Fill in (*a*) The good boy —— ; (*b*) The girl, obedient and studious
6. Can you correct this ? Saddle me the ass and they saddled *him*.
7. Make these right : Mr. John Smith, Esq. ; Dr. Jones, M.D.
8. Write sentences, using the following words properly : (*a*) Pain, pane ; (*b*) straight, strait ; (*c*) aunt, ant.
9. Write the story of the "Lazy Frog."
10. Write a letter to your teacher.

COMPOSITION—JUNIOR TO SENIOR 3RD.

1. Write in your own words the story of either : (*a*) The White Ship, or (*b*) The Farmer and the Fox.
2. Write a letter to a distant friend, giving an account of (*a*) Your school and school fellows.
3. Write a note for your mother to the grocer, telling him to send to your home 10 lbs. of loaf sugar and 10 lbs. of coffee, and to charge them.
4. Correct (*a*) I seen that the ball was going to be ketched with half an eye. (*b*) Please don't be angry with me I haven't done nothing. (*c*) I'm as good as her. (*d*) Queen victoria lives part of the time at windsor on the thames. (*e*) Try and meet me after school.
5. Combine each set into a sentence and punctuate : (*a*) Tom wore a hat. It was made of straw. It was a small hat. It was white. It had a narrow rim. (*b*) We followed the path. It was a narrow path. It was a winding path. It was made by cattle. It led to a glen. There were many rocks in the glen.

Values—25, 25, 10, 20, 20.

COMPOSITION—JUNIOR TO SENIOR 3RD.

Agnes C. Purves, examiner. Time, 1 hour.

1. Define "Sentence." Name and distinguish the different kinds of sentences, giving examples of each.
2. Write two complex sentences each containing an adjective clause, also an adverbial clause denoting time, using as subjects : (*a*) good girls ; (*b*) our school.
3. Write two complex sentences each containing an noun clause about : (*a*) long lessons ; (*b*) the minister's sermon.
4. Expand the italicized words in the following into phrases : (*a*) His *mental* anguish was great. (*b*) The *moneyed* men were interested in the scheme.
5. Change so that a progressive action will be denoted : (*a*) When the teacher approaches your desk. (*b*) Conscience makes cowards of us all.
6. State the difference between "direct" and "indirect" narration, giving examples.
7. Change from active into passive form : (*a*) James carried little Mary's books to school. (*b*) The sun melted the ice in the pond.
8. Change from passive to active : (*a*) The little boy was bit by that ugly black dog. (*b*) Four great battles were won by Marlborough.
9. Write a letter to a distant friend about anything you please. Rule space for an envelope, and in it write name, address, etc.
10. Write in your own words the story of "The Little Midshipman."

Values—10, 10, 10, 10, 10, 10, 5, 5, 15, 15.

Special Papers.

HOW TO IMPROVE READING IN THE PUBLIC SCHOOLS.

An address to the Public School Inspectors' Section, by JOHN SEATH, High School Inspector.

(Revised for publication,)

The subject of the discussion you have asked me to introduce, "How to Improve Reading in the Public Schools," assumes, of course, that the present condition admits of improvement.

You know how reading is taught in your inspectorates, and what the results are throughout the schools of a county. You cannot know, however, what the results are throughout the province. As a preliminary, therefore, it will be well for us to realize what the general situation actually is. It so happens that, for the last five or six years, I have, at my annual visit to each High School, examined and graded the reading of the last class of entrants then in attendance. In many cases, of course, the pupils have, for good or for evil, been under the instruction of the High School teachers for some months; and my results include those of the comparatively very small number that enter from the Separate Schools and other institutions. Let me say also that I have taken as my standard what I have found to be the results attained in the best Public Schools of the province, and have looked for merely distinct articulation and fair expression; that is, for intelligible and intelligent reading. For evident reasons, I have had to select the test passages from the High School Reader; but the selections taken have been as easy as most of those in the Fourth Book—as easy, no doubt, as ordinary sight-work ought to be. Besides, my object has been to ascertain whether the habit of reading well had been formed, not how the pupils had been taught the reading lessons in the preparatory schools. On the whole, therefore, it is, I think, fair to regard these results as indicative, approximately at least, of the character of the best work done in reading in the Public Schools.

To bring my statement up to date, I will give you the results of my inspection since January, 1895. During this period I examined the schools in Toronto and those east of this city, with twenty-two in the west, in addition—in all, about three-fourths of the High Schools in the province.

Now, as to the results: Of 2,542 examined, 14 per cent. were good, 33 per cent. fair, 41 per cent. poor, and 12 per cent. bad. The 41 per cent. I have ranked as poor might just as well have been ranked in the lowest grade, but I thought it well to reserve the fourth grade for those that were atrociously bad.

Assuming the general correctness of my data, it is evident, therefore, that there is much room for improvement in reading in the Public Schools this province. My present task is to show how, from my point of view, the desired improvement may be made.

To some extent I am an outsider, for it is over twenty years since I had any direct connection with a Public School; but I base my strictures and recommendations on my observation of the results of Public School work as seen in the Entrance classes, and on the non-professional work for Public School teachers, as seen in the High Schools, on discussions I have had with educators in many parts of the province, and on communications I obtained recently from those who seemed to me to be in a position to form reliable opinions on the subject.

I propose to discuss the situation under the following heads:

I. Defects in the reading of the pupils prepared in the Public Schools.

II. Defects in the teachers of the Public Schools.

III. Defects in the Public School appliances; and

IV. Defects in the school system as a whole.

I. THE PUPILS' DEFECTS.

To put the matter concisely, these are, for the most part, the defects found in their ordinary speech, intensified by their want of familiarity with the words and thoughts of their reading lessons. Pupils cannot articulate distinctly; they have not a proper knowledge of the sounds of the language; their intonation is defective; and they cannot adapt their voices to the correct and natural utterance of the thought and emotion symbolized in the printed page.

(1) First, then, as to Bad Articulation.* This shows itself in various ways, some of which I will illustrate; thus: *wus* for *was*, *fur* for *for*, *git* for *get*, *runnin'* for *running*, *'n* or *un* for *and* (not once in a hundred times is *and* fully pronounced); *las' steps* for *last steps*, *mus' go* for *must go*, *winda* for *window*, *thish year* for *this year*, *azh usual* for *as usual*, *las' cheear* for *last year*, *unaty* for *unity*, *opporchunity* for *opportunity*, *juty* for *duty*, *Henery* for *Henry*, *Febuary* for *February*, *figger* for *figure*, *visable* for *visible*, *spur't* for *spirit*, *ba'rn* for *baron*, *pote* and *pome* for *poet* and *poem*.

Now, what is the cause of this bad articulation which is almost universal and is one of the worst defects in reading?

It is, in the first instance, a *national*, not merely a *provincial*, defect; and this increases the difficulty of the situation. Every uncultured Briton has the defect, and some cultured ones, too. The natural tendency in speaking is to draw back the tongue with its tip pointing in an upward direction, whilst there is a strong disinclination to push the lips out and use them in articulation. Another noticeable tendency in our speech, which contributes to bad articulation, is the increase of accent at the expense of the unaccented syllables. This I need not illustrate. The unaccented syllables are but indistinctly heard, or, as it has been facetiously put, they are swallowed. Having regard also to a common tendency to close the mouth partially, with consequent improper labialization or the muffling of certain vowel sounds, the Germans, indeed, say of the English that they speak, not with their mouth like other people, but with their nose and throat. The accompanying lip-contraction is also one of the main causes of the dull, low-pitched intonation so characteristic of the speech and reading of our schools.†

Many of the vowel sounds in ordinary use amongst us are also incorrect; for instance, we often hear *nooz*, for *news; constitootion*, for *constitution;* and no difference is made between *fool* and *full*. The Italian sound of *a*, which is frequent in good English speech, is seldom heard in our schools. The common substitute for it is one of the most disgusting sounds I know of—a sort of cross between *eh* and *ah*, with a nasal accompaniment. We have also acquired the habit of letting many of our vowel sounds end in "vanishes." (Observe the common pronunciation of *pay* and *no*.) This habit, of course, makes many of our vowel sounds impure.

As you are aware, most of the tendencies I have mentioned have existed for hundreds of years, and have had an important influence upon the present forms of our vocabulary. All languages suffer from them, to some extent, in the natural state, if I may use the term. It is, indeed, simply an application of the Principle of Ease, and the only limitation is intelligibility. Unless we follow the model of the best speakers, we pronounce our words in the way we find the easiest. The effects of these tendencies are, however, worse in English than in French and German, for instance, owing to the very composite character of our language, the marked absence of regularity in pronunciation, and the unusual discrepancy between our spelling and our sounds.

Most pupils enter the Public Schools with these bad habits already formed, or in process of formation. It is the duty of the school—of the Public School, in particular—to correct them when the organs of speech are plastic and the pupils are at what is distinctively the habit-forming age. Now and then, we find a pupil who can articulate well, and who uses proper English sounds. He, however, is invariably the product of a cultured home and cultured surroundings. He has learned to use his vocal organs well, just as he has learned to speak good English, by imitating good models. The teacher's task will be an easier one when the general culture of the community improves; but the schoolmaster will always need to be abroad. Even in matters of articulation, we shall never reach our ideal, so far, at least, as most mankind are concerned. If oral reading had no other claim to an important place in our school programme, it has this one, that, if properly taught, it will, in time, go far to cure many of the defects of our provincial speech.

Some excellent teachers with whom I have discussed this subject are inclined to attribute bad articulation to the very common habit of fast reading. It so happens, however, that the defect exists even when the pupil reads slowly. Fast reading, of course, intensifies it, and the first step in the remedial process is to secure the proper rate of reading. In senior classes, indeed, in which the habit of fast reading has become indurated, the slowness of the rate of reading might well be exaggerated at first.

I have not the direct knowledge that would enable me to say at what stage in the education of the Public School pupil the subject of articulation is most neglected—if, indeed, there is any stage in particular. From appearances, I should say that, considering its importance and the difficulties which beset it, the subject receives proper attention in few localities of the province; for few Entrance classes give evidence that they have had their attention specially directed to their articulation.

While the first stages in learning to read are the most important, the pupil's vocal organs should be carefully trained at every stage. Owing to his surroundings and our linguistic tendencies, the danger of a relapse in the case of a convalescent is so great that the best teachers I have seen give unremitting attention to articulation. Distinct utterance of the proper sounds is regarded as the first essential in every reading lesson; and each lesson is often—generally, indeed—introduced with special exercises in vocal gymnastics, having, in some of the details, at least, a direct bearing on the reading lesson to follow.

I desire to emphasize the importance of this subject; for I regard bad articulation, associated, as it always is, with ignorance of the true sounds of our language, as the prime defect of the reading in all our schools.

The basis of speech is physiological. Each sound is the result of certain definite positions and activities of the organs of speech concerned in the utterance. The science which deals with this subject is a modern one, and is known as Phonetics. It is known, I believe, in a simple form, to teachers of elementary work, as Phonics. Eighteen years ago, Sweet, the greatest English authority on the subject, claimed that the science would lay a thorough practical foundation for the pronunciation and elocution of our own language, and every year I act as inspector convinces me more and more that Sweet is right. I do not ask that the pupil shall be taught phonetics, although in one of our Collegiate Institutes the principal has taken up the elements in his lowest forms with what seem to be excellent results. I do ask, however, that the teacher, especially of the first book classes, shall obtain a working knowledge of the subject; that he shall know what the sounds of our language really are, and what the physiological basis of speech really is. His pupils will get the result of his studies.

"Whilst we aim at teaching all other subjects on some well-planned method, the sounds of language are left to be picked up anyhow, by mere imitation and sheer force of memory; so that, setting aside students of shorthand, it is probable that not one person in a thousand could enumerate the sounds of our language or of any other, or has any clear conception of the principles in which they should be classified."* The benefit of this study to the teacher will be great; he will be able to detect unerringly mispronunciations; he will acquire a conscience for distinctions of sounds which he did not and could not possess before; and, at the same time, he will be able to assign and make plain the physiological reasons of the aberration from standard orthoëpy. In the High Schools I have known teachers waste valuable time trying to secure correct pronunciation by mere force of imitation, when an elementary knowledge of phonetics would have enabled them to accomplish their purpose in a very short time and without any special technical training on the part of the pupil. If it is important that, in the High School, the teacher should have a good scientific basis of knowledge, how much more important is it that the teacher of the Public School should possess it!

Let not, however, the name Phonetics frighten

* I use the term articulation in the broader sense, which includes both vowel and consonant utterance.

† On this subject, see "Sweet's Handbook of Phonetics," under "Voice Quality."

* From "Introduction to the Study of Phonetics," p. 2. By Laura Soames. (Swan and Sonnenschein & Co., London, and Macmillan & Co., New York and London.) This is probably the best elementary book on the subject.

anyone. The elements of the subject are not difficult, and, if reading is to become more than the empirically taught subject it now is, Phonetics would deserve attention even if it were difficult.

(2) I include the other defects of the pupils' reading under the head, Defects in Expression; that is, inability to convey, with proper expression, the thoughts and feelings expressed in their reading books.

This inability is, I believe, due very largely to the pupils' want of familiarity, not only with the meaning of the words, but with the thoughts in the passage read. Something is due also to the absence, in many cases, of a proper ideal or model; for it is, of course, a mistake to maintain that a pupil should read as he speaks. He should read as the best speakers speak.

The language of our literature has become, even for the best of us, in many respects, a different language from the language we speak, both as regards the vocabulary and the structure of the sentences. No one, not even the best of us, speaks as he would write. For the average pupil, the language of his reader is, accordingly, in many respects, a foreign language. He does not speak this language or hear it spoken, either at home or with his playmates. If he reads silently and with intelligence, he translates the language into his own as he reads. This and bad articulation constitute, I believe, the two fundamental difficulties in the teaching of reading.

I have heard it alleged that some parts of our readers are graded too high; that, in fact, as a whole, they are graded higher than the best American readers. I do not possess the experimental knowledge that would enable me to express a reliable opinion on the subject. I have, however, lately looked into our series, and, while it may be true that here and there the requirements of a reader have been subordinated to considerations of literary suitability, it is, I believe, true that the large majority of the selections are, when properly used, within the comprehension of every boy and girl.

In an address like this I could not, of course, go into a systematic exposition of methods in reading even if I possessed the necessary Public School experience. On some points, however, every intelligent educator is able to form a judgment, and on these points I propose to offer an opinion. Let me say, in passing, that the system adopted in some pedagogical schools of taking up methods in minute detail is, I believe, objectionable. It injures good teaching by repressing the teachers' individuality, and subordinates the one thing needful, a thorough grasp of general principles, to slavish and mechanical imitation. The poorest teachers are often those who are morbidly conscious of their "methods."

The main effort of the teacher should be directed towards putting the pupil in the same position as he himself is, or should be, with regard to the matter of the lesson; that is, before the pupil reads aloud he should be made familiar with unfamiliar vocabulary, and with thought or emotion, the expression of which would present difficulties. Accordingly, the meaning of a selection should be studied first in class—as literature, if you like the word—with conversations in good literary form upon the subject-matter, the vocabulary and thought being fully utilized. The teacher himself should also read the selection in the best style; so that the pupil may become familiar with the proper sounds of the words, and the selection, as a whole, may become part of his mental outfit.*

The subsequent process for the pupil would be the comparatively simple one of reproducing that which was already in his mind and in his ears, and to which his vocal organs had become accustomed. The class exercises would then consist largely of correcting faulty pronunciation and slovenly articulation, and of securing proper attention to the finer shades of pause, emphasis, inflection, etc., which the scientific study of expression has enabled us to appreciate.

From all appearances, the habit of intelligent reading is not generally secured in our schools. Very seldom, indeed, when I have asked a pupil in the last Entrance class to tell me in his own words what he has been reading, has he been able to do so, and his air of surprise that I should ask him is not the least significant part of the interview.

Various causes, no doubt, produce unintelligent reading; one of the chief being the fact that, from force of circumstances, the pupil is kept too long at a time over a selection. He frequently learns it off by heart; and, when he reads, the process is purely mechanical; he just lets his vocal organs go without thinking of the meaning. The linguistic and literary material in our readers is probably enough for text-books; but the supply needs to be supplemented if we are to secure the best results. The poverty of the pupil's vocabulary and thoughts is the main stumbling-block in the way of expressive reading. He should read much himself, and should have much read to him. I need hardly point out how this course will intensity that important element, his interest in the subject.

I have already referred, under articulation, to the very general defect of fast reading—the sin that doth so easily beset almost every boy and girl, not to speak of some men and women, in Ontario. This is, of course, a defect in expression. It is largely due, I believe, to the pupil's reading without understanding the thought, and to the fact that the rate of his ordinary speech is faster than the proper rate of ordinary reading, just as the thoughts the pupil expresses in his ordinary conversation are different from and less deliberate than those he usually finds in the printed book. Something also is probably due to his eagerness to finish as soon as possible a task that habit has made him regard as an irksome one.

If I am to judge from what I have seen in some High Schools—and I presume the Public School teacher resembles, even in his defects, his brother of the High Schools—the criticism of the pupils' reading is not always intelligently carried on. There is no pedagogical value in such directions as: "Lower the voice," "Read more slowly," "Pause after this word," "Emphasize this word," and so on. Every direction should be based on an intelligent conception of the reason for the change. The nomenclature of the so-called "Principles of Reading" is seldom necessary. The subject is best treated in a common-sense way, and the pupil should learn the principles of reading without knowing he is doing so. The more, indeed, of a mystery we make of the subject by the use of a technical phraseology, the further are good results beyond the pupil's reach. The ability to criticize assumes a good knowledge of the subject, and most of the criticism is, I believe, best done when done by the teacher. Now and then, of course, the pupils may offer their criticisms; but the systematic (and, I fear, too frequent) resort to this source of criticism, often in matters which the pupil has neither the knowledge nor the intelligence to deal with, does infinitely more harm than good. When errors are made, the best plan is for the teacher to expose them by means of judicious questioning. Nor is this by any means an easy task. One of the ablest teachers of reading in our High Schools, himself, too, one of the ablest mathematical masters in Ontario, writes to me that, in his opinion, it requires more skill to question a class in such a way as to get the proper idea of how a sentence should be spoken or read than to get the meaning of an algebraic problem with a view to solving it, especially if the pupils are in the elementary stages of Public School work.

Some of the existing defects in expression are due, I believe, to the system of simultaneous reading, which I am told is in pretty general use.* I know that some teachers approve of this system, and, in good hands, it might, I suppose, be used occasionally with effect; but I confess that it seems to me to be surrounded with so many dangers that I should regard its general adoption as a pedagogical misfortune.

One other, and by no means the least important, point, and I pass on to the next topic. In reading with expression, it is the phrase and not the word that should be mainly regarded. If I am to judge from what I see in Entrance classes, it is the word and not the phrase that receives most attention. A good deal of the monotonous reading is due to this defect. In the elementary classes the pupil reads each word in such a sentence as, "It—is—an—ox," with equal emphasis and consequent want of expression. He acquires the habit in the lower classes and it persists in the higher ones. In reading, as in everything else, it is the first step that costs. This defect affects the pronunciation also. The boy who reads, "This—is—the—man," does not acquire that flexibility of utterance and correctness of intonation that are necessary for good expression. It cannot be too soon impressed on both teacher and pupil that the elements of which thoughts are built up are phrases, not words. Without the observance of this principle it is almost impossible to secure proper pausing, emphasis, and inflection.

In dealing with this defect of the pupils I have, it seems necessary to add, dealt simply with the question of oral reading. I attach little importance to the so-called "silent reading" as a school study. As a preparation for the ordinary reading lesson, or for the literature lesson, it should, of course, have a place; but if oral reading and literature are properly taught, and pupils are provided with a supply of suitable reading matter, "silent reading" will attend to itself.

II. DEFECTS IN THE PUBLIC SCHOOL TEACHER.

(1) The majority of the teachers are, I fear, themselves poor readers. I have no doubt that there are many excellent readers amongst the Public School teachers, but I believe my statement is true, notwithstanding. By far the greater number of those now teaching have received their non-professional education in the High Schools. To become a good reader, a pupil needs from the first a good model, and this, to judge from what I have seen of the Public School teacher in the course of his preparation, the Public School pupil very seldom gets. Nor is he likely to secure one until the general standard of the third-class teacher's non-professional attainments is raised very considerably. To teach English literature well, the teacher should possess culture and sympathetic taste. To read well, he needs these qualities, and, in addition, the power to utter, with a well-trained voice, the thoughts and emotions of others. Taste, feeling, culture, intelligence—all these are fundamental in good reading.

(2) Owing to the low estimate of reading in our schools, teachers have either wrong views, or no views, regarding the meaning and educational value of the subject. One of the Normal School masters, who has had large experience, and who is, of course, in a position to speak with authority, assures me—I quote his words—"Teachers do not *know* that reading aloud means getting thought from the printed page and then expressing it. Hence they teach largely through imitation. The result is that pupils seem to think that reading is merely saying the words of a book in a certain way. To be able to say the sentence like the teacher is the end in view. Forgetting that reading is expressing thought gathered from a page accounts for the way ninety per cent. of the teachers deal with expression in reading." And, again: "Teachers forget that reading is an instrument for the accomplishment of a work—not an end in itself Hence, reading is taught like arithmetic, geography, etc., at stated times, and the pupils are allowed to say the words they are attempting to read, in any way during the lessons in other subjects."

(3) Many teachers are in a condition of ignorance on this subject which may be described as compound. They are not only not good readers, but they actually do not know it. I have seen several instances of this sort of ignorance in the High Schools. What intensifies the trouble, too, is the belief that anyone can teach reading. English grammar and arithmetic must be taught by teachers who have made a study of these subjects; but anyone is good enough to teach reading. This illustrates the prevailing fallacy in regard to reading, and accounts for what I am assured is the fact that the teacher seldom prepares a plan of the reading lesson or gives the subject any preliminary attention. My own experience is that no other subject in the programme requires better general culture, higher intelligence, and more professional skill than this same subject of reading. It can be made an intellectual exercise of the first rank, and its proper cultivation is an exceedingly important element in a liberal education. It does not come within the scope of my subject to discuss the value of oral reading in its relation to the teaching of English literature; but I must remind you that the intimate and inseparable connection between literature and oral reading would establish the

* I do not mean, I need hardly say, that the teacher should read sentence by sentence, or paragraph by paragraph, the pupil reading after him. This would be teaching reading by imitation, not by a model; nor am I dealing with the elementary stages of word-recognition, or advanced work in a High School, in which latter case the greater maturity and knowledge of the pupil generally render some of these steps unnecessary.

* The expressions of dissent which this statement evoked at the meeting showed that I had been misinformed. In some localities, however, I am confident the system is used in the lowest classes, where, indeed, it does most harm.

importance of the latter, even if there were no other justification in existence

III. DEFECTS IN PUBLIC SCHOOL APPLIANCES.

(1) One standard English dictionary should be placed in every room in a school. Frequently I find American dictionaries in the High Schools, and I am informed that many of these are in the Public Schools. For meanings and definitions and general information several of the American dictionaries are very valuable—few, indeed, so valuable; but they should not be taken as the standard in the matter of pronunciation. Canadians should aim at speaking like cultured Englishmen. This is one—and a non-jingoistic—way of showing our loyalty. Our authority in pronunciation should be an English standard, and I know of none more reliable than the Concise Imperial. As matters stand at present in Ontario, the Third-Class teacher would be none the worse for assuming that he knows little about the correct pronunciation of his own tongue. A copy of the Concise Imperial should be his constant and trusted companion.

(2) So far as I have been able to ascertain, a system of Supplementary reading has been adopted in few of the Public Schools. There are, of course, prudential and economic reasons for not forcing such a system upon the elementary schools; but I think it would be well if some inducement were held out to Public School Boards to provide sets of supplementary readers for the schools under their charge. Our present readers are, probably, as large as readers should be, but the absence of reading matter outside of the text-books is a serious defect. In English and American schools—especially in the city schools—the practice now prevails of supplying two or more sets of supplementary readers for each grade, so that the discouraging practice of going over and over again the same reading book can be systematically avoided. If the study of the authorized reader is, in this way, intermitted for a time, the pupil will return to it with added zest and greater interest. As I have already said, I am convinced that one fundamental cause of the expressionless reading which is so common in our schools is the benumbing effect of continually repeating the same selections. When the reading lesson is fresh, it arouses the pupil's interest, and his intelligence and his vocal organs act together. After a time, however, the vocal organs may be forced to act, but the child's mind is elsewhere than on the subject-matter. How, under these circumstances, can we expect any other result than mechanical and monotonous reading?

As I have already said, I recognize the economical difficulties at present in the way of a system of supplementary reading becoming general. There is nothing, however, to prevent the teacher himself from reading to his pupils such matter as will interest them. While evidently not the best, this plan will do something to remedy the present unfortunate condition of affairs. Let me urgently press this subject upon your attention.

(3) The boy who reads a good deal himself usually reads with expression. If untrained, he will, no doubt, articulate badly, but his reading will certainly be intelligent. I hope the day is not far distant when every school in Ontario will possess a library—not simply of books of reference, but of books which boys and girls would like to read, story books, travels, interesting biographies, and the best children's magazines. In many homes there is nothing which comes under the head of literature. Often there are no books, and, if there are, they are poor in quality. Language-training is what our boys and girls need; and, until we have libraries and supplementary reading, even the best teachers will fall far short of their ideals. Surely something can be done at once to improve the present situation.

IV. DEFECTS IN THE EDUCATIONAL SYSTEM.

(1) The subject of reading has so far received insufficient attention in the High Schools, and is too often poorly taught. Five or six years ago, as you are no doubt aware, reading was taken up in almost none of the High Schools. Our regulations have, for some time, prescribed as a minimum two half-hour lessons a week for each subdivision of twenty-five in Forms I. and II.; that is, until the pupil is beyond the primary stage. I have had a good deal of trouble in securing a proper observance of necessary regulations, but none has given me more trouble than this one. With the terrors of the July examination before him, the High School master is too often neglectful of a subject that does not pay at the examination. Hitherto the only penalty provided for a violation of the regulation has been the withdrawal of the government grant. The punishment has not fitted the crime; and, accordingly, moral suasion has been the only available means of enforcement. Matters will, however, be different under the new High School Act, which provides that one element in the distribution of the grant shall be the provision for teaching the different subjects. Many of the High School masters have of late years been giving attention to their reading classes, and can teach the subject well—the High Schools have, let me remind you, good libraries and a compulsory system of supplementary reading—but in many localities there is still much room for improvement. To stimulate this subject I have been in the habit of making a special report to each board on the condition of the senior reading classes, which, as in the case of the Entrants, I have systematically examined and graded. It may interest you to know what the results are in the case of the schools the conditions of whose Entrance classes I have already submitted to you. The statistics are for the same period—since January, 1895—and are for the same schools, with one or two omissions, which circumstances compelled me to make. Of 3,348 examined, 17 per cent. were good; 33 per cent. fair; 39 per cent. poor; and 11 per cent. atrociously bad. Let me explain, too, that these figures are my estimate of the results of the teacher's work. I examined the pupils in the selections they had studied in the class. I had, of course, for these pupils a far higher standard than for the entrants, and it is only fair to say that, while the scanty time allotted to the subject and, in some cases, the unsatisfactory character of the teacher's work, were causes of the lowness of the average, the greatest and commonest cause was the bad habits contracted before the pupil reached the High School. I wish to emphasize this head of my subject. It is, I believe, to the High School in particular that we must now, in the first instance, look for a regeneration of the subject of reading. The Public School teachers are prepared there, and no amount of professional gloss will atone for the teacher's own inability to read well. The subject must, at all hazards, be well and sufficiently taught in the High Schools.

(2) The attention given reading in the professional schools of the province, I am led to believe from the results I have seen and the opinions I have heard expressed, has so far been insufficient. The new teachers who enter the High Schools are often poor readers, and seldom have proper methods of teaching. If our Public School teachers are well taught in the High Schools, they will, no doubt, imitate the methods by which they were taught themselves, but it is manifest that special attention should also be given the subject in the pedagogical schools of the province—in the county Model Schools, the Normal Schools, and the School of Pedagogy. In the county Model Schools in particular; because most of our elementary teachers are trained there, and because there the elementary stages should receive the amplest attention. An inspector who has good means of arriving at a just conclusion has assured me that a very large number of the primary teachers do not thoroughly understand, and, consequently, do not satisfactorily apply, the phonic method, which, I believe, is, with or without modifications, the method most in use in our schools. Here the training in phonetics should begin. Without a good scientific basis from the first, we can expect but empirical results.

(3) It is, as you are aware, intended to hold an examination in reading as part of the First Form examination. I do not expect much from this. It is difficult, impossible, I fear, in most cases, to secure really efficient examiners, if one is to judge from what has happened heretofore. Some of the examiners may be poor readers themselves, and the standard will vary according to the locality, the examiner's ability, and the condition of his emotions. The main gain from the examination will be that the candidate cannot always count on leniency, and will be forced to give the subject some attention at least.

(4) The standard at the High School Entrance Examinations has, in most cases, been far too low. Generally speaking, the candidates receive at least fifty per cent. of the maximum for reading. Indeed, one often hears the subject spoken of as a "bonus" one, and I have been assured that, when a candidate's total was below the passing mark, sympathetic Boards of Examiners have added to the reading marks. Besides, who ever heard of candidates being rejected in reading? Now and then, I believe an enterprising board does reject one, but its conduct is regarded as highly improper by more than the candidate. As matters stand, indeed, wholesale rejection in this subject would be unjust; for to reject the candidate would be to punish him for the faults of his teacher, who, in his turn, might justly lay the blame elsewhere. There have, however, been many occasions, I am sure, on which boards might well have strained the quality of mercy. There is no use in blinking the fact that, until a respectable standard is set in reading at the Entrance Examination, the Public School master will have little incentive to make good readers. You will say, of course, the High School principal is often to blame for this low standard. No doubt, he is, but is he the only sinner? When the High School principal discovers, as I hope he will in the near future, that he and his board are going to suffer if badly prepared pupils are admitted, he will reconstruct his theory on this subject, and will do his part in keeping up the standard.

(5) For the last five or six years, I have frequently asked the pupils who have just passed the Entrance Examination how often a week during the year preceding the examination reading was taken up up in their classes. In some cases the answer has been that it has not been taught at all, and in others, and by far the most, the answers showed that it had received little attention. The situation in the Public School is the same as that in the High School. Both classes of teachers have the fear of the written examinations before their eyes. You, the Public School inspectors of this province, should join with the High School inspectors in adding to this the fear of the inspection! The fact is, we Inspectors can do more to improve the reading in the schools under our charge than all the regulations and examinations it can enter into the mind of a Minister of Education to devise.

(6) But the Minister of Education can do something even more tangible than the formulation of regulations. Many of our teachers, both High and Public School, would, I believe, gladly embrace an opportunity of securing a good course in reading during the summer holidays. When practical methods in science were introduced, we had summer classes in science; and there is no reason why we should not have summer classes—professional and non-professional—in reading for those who will have no other opportunity of improving themselves. There is just one great difficulty in the way, and that is the difficulty of securing a really competent teacher. To be a good reader—I do not mean the usual type of the so-called elocutionists—a man should possess as the first essential a high order of culture. Few of the teachers of elocution possess this.

Allow me now, in conclusion, to sum up in a few words:

The reading in our Public Schools does admit of improvement. The main defects are bad articulation, and unnatural, mechanical, monotonous expression. To secure the correction of these faults, we need well-trained Public School teachers from the first book upwards. To this end, we need better work in the High Schools and professional schools of the province, better educational appliances in the Public Schools, and a remedial bill—nothing less, I fear, will do—to remove obvious, but long-enduring, defects in the school system.

Give us, O give us the man who sings at his work! Be his occupation what it may, he is equal to any of those who follow the same pursuit in silent sullenness. He will do more in the same time—he will do it better—he will persevere longer. One is scarcely sensible of the fatigue whilst he marches to music. The very stars are said to make harmony as they revolve in their spheres. Wondrous is the strength of cheerfulness, altogether past calculation its powers of endurance. Efforts, to be permanently useful, must be uniformly joyous—a spirit all sunshine—graceful from very gladness—beautiful because bright.—*Carlyle.*

There is nothing more frightful than for a teacher to know only what his scholars are intended to know.—*Goethe.*

Mathematics.

Communications intended for this department should be written on one side only, and with great distinctness; they should give all questions in full, and refer definitely to the books or other sources of the problems, and they should be addressed to the Editor, C. CLARKSON, B.A., Seaforth, Ont.

CORRESPONDENCE.

A. N. MYER, M.A., very kindly supplied solutions to the Junior Leaving Algebra paper for 1895. We should have been glad to make use of them if they had arrived a little sooner. Our obliging friend deserves thanks all the same. It is by just such willing hands that THE JOURNAL has been made the immense help to teachers that it has become, and part of the regular outfit of every Public School teacher.

A. N. M. "Are distributions necessary for Senior Leaving work?"

REPLY.—They are not specifically named in circular No. 4, nor in the curriculum of Toronto University. Nevertheless, you will find questions of that kind on the papers of former years, and this shows that our examiners take "permutations and combinations" in the widest and newest sense.

B. McM. sent a problem; the same was also sent by another friend. We could not reach either of these correspondents because they did not give their proper addresses.

A.B., Westmeath, sent a problem.

SUBSCRIBER, Alliston, sent two problems. He unfortunately gave inaccurate references, and did not enclose his proper address.

D. C. MCDOUGALL, Bolsover, is kind enough to say: "I have been greatly helped by the mathematical column of THE JOURNAL. To one whose mathematical abilities are not of the highest order, and his early training perhaps not the best, it has been a great boon. There may be others like myself who, from the force of circumstances, are compelled to play the 'sponge' — take all they can get from the column and give nothing — and the least such can do is to drop a word of commendation." N.B.—It is good to find the spirit of fraternity and self-help growing. THE JOURNAL never had better reason to feel sure of its mission than during the present year, and it has never striven harder to deserve the good opinions of its supporters. Spread the good news far and near that THE JOURNAL is a great help to teachers of all grades, until no one shall be so far off or in such a quiet corner of the country as not to know that every two weeks THE EDUCATIONAL JOURNAL comes out with fresh help for wearied and half-discouraged teachers. Spread the news at the convention! We want everybody to come into our circle, so that they may help and receive help in their daily work. "Hands all round!"

D.C.M. "Moffatt's Mensuration" (London; 3s. 8d.) will suit your work.

INSPECTOR PRENDERGAST, B.A., Toronto, sent solutions of problems 81, 87, 89, 92, 93, and 94 of the June issue, 1895. He is an old friend of this column, and we are obliged to him for the pains he has taken to serve our readers.

T. J. HUGHES, Parkdale, very kindly sent solutions to five problems contributed by "Young Teacher," April 1st. It seems there has been a blunder in numbering the pages of the appendix to the P. S. Arith. The book proper ends with page 182, and the recent addition begins with page 157. We have no doubt it is page 171 of the Public School Exercises to which "Young Teacher" referred, and we regret that these solutions will not avail as they were intended.

R. GARRICK, Burk's Falls, sent five problems.

We hope to receive solutions of all the problems in this issue in time for the July number. The June column of this department may be expected to supply solutions of the Matriculation, Junior Leaving, and Senior Leaving Algebra papers of 1895, perhaps the most opportune time for their appearance, when many of our readers are likely to be doing their final review before the examinations of 1896. To all we wish eminent success!

SOLUTIONS OF PROBLEMS.

SENT TO "THE JOURNAL" BY VARIOUS CORRESPONDENTS.

No. 39. Four men start together from the same point and run around a ring at different uniform speeds; the first at 10 miles an hour, the second at $10\frac{3}{4}$, the third at $11\frac{1}{8}$, and the fourth at $12\frac{1}{4}$. At what part of the ring will they be first all together after starting?

Solution.—$10, 10\frac{3}{4}, 11\frac{1}{8}, 12\frac{1}{4}$; *i.e.*, $\frac{80}{8}, \frac{86}{8}, \frac{89}{8}, \frac{98}{8}$.

Differences from highest speed, $\frac{18}{8}, \frac{12}{8}, \frac{9}{8}$

Highest common factor, $\frac{3}{8}$ mile.

Let C be circumference of the ring in miles.

$\therefore C \div \frac{3}{8}$, or $\frac{8}{3}$ C, is *the number of hours* before the first meeting.

$\therefore$ A. has travelled $\frac{80}{8} \times \frac{8}{3} C = \frac{80}{3} C = 26C + \frac{2}{3} C$

B. " " $\frac{86}{8} \times \frac{8}{3} C = \frac{86}{3} C = 28C + \frac{2}{3} C$

C. " " $\frac{89}{8} \times \frac{8}{3} C = \frac{89}{3} C = 29C + \frac{2}{3} C$

D. " " $\frac{98}{8} \times \frac{8}{3} C = \frac{98}{3} C = 32C + \frac{2}{3} C$

So that the *place of meeting* is $\frac{2}{3}$ of the ring from the starting point, or, measuring backwards, $\frac{1}{3}$ of the circumference.

Clarkson's "Problems in Arithmetic," page 72, give a full demonstration of the theory.

No. 40. Goods are marked at $40, but after four successive discounts at the same rate they were sold for $26.244. Find the rate of discount.

Solution by F. A. CLARKSON, Princeton, Ont.

Let x = the rate of discount per 100

Then $40\left(\frac{100-x}{100}\right)^4 = \$26.244$

or $(100-x)^4 = 65610000$; $\therefore 100-x=90$; $x = 10\%$.

General solution: Let S = selling price; m = marked price, r = rate of discount, and n = number of equal discounts.

$$m\left(\frac{100-}{100}\right)^n = S$$

$$\therefore 100-r = 100\sqrt[n]{\frac{s}{m}}$$

$$r = 100\left(1-\sqrt[n]{\frac{s}{m}}\right)$$

No. 41. Find the coefficient of x^{3m} in $(1+x)^1(1+x+x^2)^2$

Solution by C. H. CLARKSON, Drumbo, Ont.

$$S=(1+x)(1-x)^2(1-x^{3-2})$$
$$=(1-x+x^2+x^3)[1+2x^3+3x^6+4x^9+\text{etc.}$$
$$(m-1).x \qquad +m.x \qquad +(m+1)x^{3m}+\text{etc.}$$

Multiply out by 1 and by x^3, the only factors that give x^{3m}

We get $(m+1)x^{3m}+m.x^{3m}$. Hence the coefficient is $2m+1$.

Solution 2.

1	1+1
−1	−1+0+1−1+0+1−1
−1	−1+0+1−1+0+1, etc.
1	1+0−1+1+0−1+1+0, etc.
−1	−1+1+1−3+2+2
−1	−1+1+1−3+2+2
	1−x−x²+3x³−2x⁴−2x⁵+5x⁶, etc.

The coefficients of x^3, x^6, x^9, etc., are evidently 3, 5, 7, 9, etc., *i.e.*, the 4th, 7th, 10th, etc., terms *i.e.*, $3x^{(1)3}$, $5x^{2.3}$, $7x^{3.3}$, $9x^{4.3}$, or $(2m+1)x^{m.3}$

No. 42. Sum $1+\frac{11}{14}+\frac{11.13}{14.16}+\frac{11.13.15}{14.16.18}+\ldots\infty$.

Solution by C. H. CLARKSON.

$$S=1+\frac{\frac{11}{2}}{7}+\frac{\frac{11}{2}\cdot\frac{13}{2}}{7.8}+\frac{\frac{11}{2}\cdot\frac{13}{2}\cdot\frac{15}{2}}{7.8.9}+\text{etc.}\ldots\infty$$

Observe that

$$(1-1)^{\frac{1}{2}}=1-\frac{1}{2}-\frac{\frac{1}{2}\cdot\frac{1}{2}}{\angle 2}-\frac{\frac{1}{2}\cdot\frac{1}{2}\cdot\frac{3}{2}}{\angle 3}-\frac{\frac{1}{2}\cdot\frac{1}{2}\cdot\frac{3}{2}\cdot\frac{5}{2}}{\angle 4}-\text{etc.}$$

$$\text{But} -S.\frac{\frac{9}{2}\cdot\frac{7}{2}\cdot\frac{5}{2}\cdot\frac{3}{2}\cdot\frac{1}{2}\cdot\frac{1}{2}}{\angle 6}=-\frac{\frac{9}{2}\cdot\frac{7}{2}\cdot\frac{5}{2}\cdot\frac{3}{2}\cdot\frac{1}{2}\cdot\frac{1}{2}}{\angle 6}-\frac{\frac{11}{2}\cdot\frac{9}{2}\cdot\ldots\cdot\frac{1}{2}\cdot\frac{1}{2}}{\angle 7}$$

−etc.

Add to both sides

$$1-\frac{1}{2}-\frac{\frac{1}{2}\cdot\frac{1}{2}}{\angle 2}-\frac{\text{anal.}}{\angle 3}-\frac{\text{anal.}}{\angle 4}-\frac{\text{anal.}}{\angle 5}=R, \text{ say}$$

$$\therefore -S.\frac{\frac{9}{2}\cdot\frac{7}{2}\cdot\ldots\cdot\frac{1}{2}\cdot\frac{1}{2}}{\angle 6}+R=(1-1)^{\frac{1}{2}}=0$$

$$\therefore S.\frac{21}{2^{10}}=\frac{7+10+16+32+128-256}{2^8}$$

$$\therefore S\,\frac{21}{2^2}=\frac{193-256}{1}=63$$

$$S=63\times\tfrac{4}{21}=12.$$

No. 43. Sent by W.X.V., Manitoba. Mixed two sorts of tea, and sold 144 lbs. for $62.10, at a gain of 20%. At the same price the gain on the first lot would be 15%, and on the second kind 25%. How many lbs. of each kind in 144 lbs. of the mixture, and what was the cost price of each sort per lb.?

Solution by the Editor.

$\$62.10 = \frac{6}{5}$ cost of 144 lbs.; $\therefore$ selling price $= \$\frac{69}{100}$ per lb.

$\therefore \$10.35 = \frac{1}{5}$ cost of 144 lbs.

$\$51.75$ = first cost of 144 lbs.....A.

$\therefore$ cost of 1st sort $= \frac{69}{160}\times\frac{100}{115}=\frac{3}{8}=37\frac{1}{2}$c. per lb.

$\therefore$ " 2nd " $= \frac{69}{100}\times\frac{100}{125}=\frac{11}{25}$c. " "

Now, $37\frac{1}{2} : 34\frac{1}{2} = 75 : 69$; thus, $69\times37\frac{1}{2}=75\times34\frac{1}{2}$.

$\therefore$ we may take 69 of 1st @ $37\frac{1}{2}$c. $= \$25.87\frac{1}{2}$

and " " " 75 " 2nd @ $34\frac{1}{2}$c. $= \underline{25.87\frac{1}{2}}$

Verification: 144 lbs. cost $51.75, as should be from A.

No. 44. An article which cost $96 was marked at a certain advance on the cost price. It was sold at the same rate of discount on this marked price for $90. Find the marked price.

Solution by the Editor. Let x be the rate.

$$\therefore 96\left(1+\frac{x}{100}\right)\left(1-\frac{x}{100}\right)=90;\ 1-\left(\frac{x}{100}\right)^2=\frac{90}{96}=\frac{15}{16}$$

$$\therefore \left(\frac{x}{100}\right)^2=\frac{1}{16};\ \frac{x}{100}=\frac{1}{4}=25\%$$

$\therefore$ marked price $= 96\times\frac{5}{4}=\$120$

No. 44½. What rate of discount taken off twice in succession is equivalent to successive discounts of 20% and 25%?

Solution by the Editor. Let P be the price of the article.

$$P\left(1-\frac{x}{100}\right)^2=P\left(\tfrac{80}{100}\right)\left(\tfrac{75}{100}\right)$$

$$\therefore (100-x)^2=80\times75=400\times15$$

$$100-x=20\times\sqrt{15}=20\times3.8729833$$
$$100=x \quad = \quad 77.459666$$
$$\therefore x \quad = \quad 22.540334\%.$$

No. 45. A cylindrical tank 20 feet long and 4 feet 6 inches in diameter is filled with oil. On arrival at its destination the surface of the oil is 10 inches from the top as it lies horizontally on the car. Find the leakage in gallons.

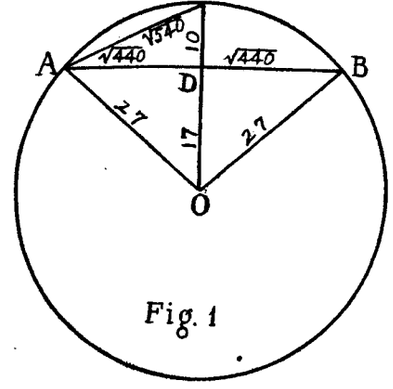

Fig. 1

N.B.—This was solved about a year ago, but the solution was slightly inaccurate, and, as the question involves five or six useful rules in mensuration, we give it space again.

In the Fig. 1, CO = 27, CD = 10, DO = 17, OB = 27

$\therefore DB = \sqrt{(27^2-17^2)} = \sqrt{440} = AD$

$AC^2 = 440+10^2 = 540$, $\therefore AC = \sqrt{540}$.

$\therefore$ Arc $ACB = \frac{1}{3}\{8\sqrt{540}-2\sqrt{440}\} = \frac{7}{3}\sqrt{540} - \frac{2}{3}\sqrt{440}$

$\therefore$ sector $ACBO = 27\{\frac{4}{3}\sqrt{540}-\frac{1}{3}\sqrt{440}\} = 36\sqrt{540}-9\sqrt{440}$

Triangle $AOB = 17\times\sqrt{440}$

$\therefore$ segment $ACDB = 36\sqrt{540}-9\sqrt{440}-17\sqrt{440}$
$= 36\sqrt{540}-26\sqrt{440}$

$= (36\times23.238)-(26\times20.9761) = 291.1894$ sq. in.

$\therefore$ volume of empty part of tank $= 291.1894\times20\times12$.

One gallon, Dominion Standard = 277.118 cubic inches.

Number of gallons leakage
$=(291.1894\times240)\div277.118=252.118$ nearly
$=252$ gallons and almost $1\frac{1}{2}$ pints.

A square enclosure has a side 40 feet in length. In front of it, and at a distance of 40 feet from each of the two nearest corners, a cow is tethered by a rope 100 feet long. Find the area of the ground over which the animal can graze.

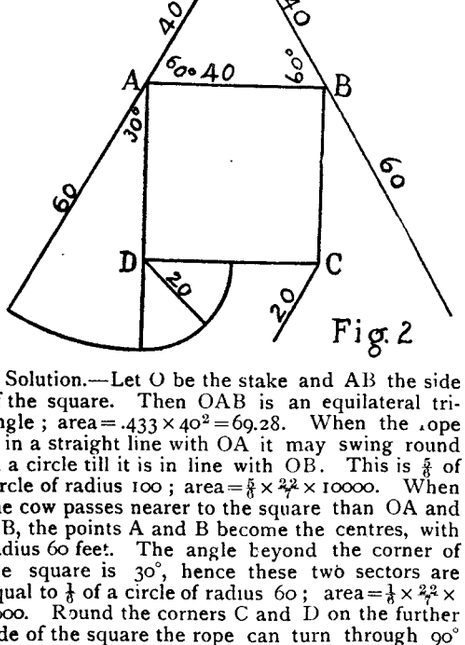

Fig. 2

Solution.—Let O be the stake and AB the side of the square. Then OAB is an equilateral triangle; area $=.433\times40^2=69.28$. When the rope is in a straight line with OA it may swing round in a circle till it is in line with OB. This is $\frac{5}{6}$ of circle of radius 100; area $=\frac{5}{6}\times\frac{22}{7}\times10000$. When the cow passes nearer to the square than OA and OB, the points A and B become the centres, with radius 60 feet. The angle beyond the corner of the square is 30°, hence these two sectors are equal to $\frac{1}{6}$ of a circle of radius 60; area $=\frac{1}{6}\times\frac{22}{7}\times3600$. Round the corners C and D on the further side of the square the rope can turn through 90° on each side. These parts are equal to half a circle with radius 20; area $=\frac{1}{2}\times\frac{22}{7}\times400$. The circular parts added give 28704.7616, to which add the equilateral triangle OAB, and we get the whole area $=28774.0416$ square feet.

No. 47. (No. 81, June, 1895.) The *Globe* newspaper of Monday, June 8th, 1877, bears number 8,505. Supposing the paper to have been published every week-day without intermission, and numbered consecutively, find the day of the week, the day of the month, and the year when number 1 was issued.

MR. PRENDERGAST'S solution.

As a matter of fact, June 8th, 1877, did not fall on *Monday*, but on *Friday*.

Then, if No. 8,505 appeared on Friday, June 8th, 1877, the problem is to ascertain day and date of appearance of No. 1.

In 1,417 weeks there are 3 less than 8,505 working days, ∴ Friday is *3rd* working day of 1,418th week, *i.e.*, No. 1 was published on Wednesday.

No single year contains an *exact* number of *weeks*, consequently the number of working days in a year is not a constant quantity, although varying to the extent of one day.

28 is smallest number of consecutive years that contains an *exact* number of *weeks*, ∴ the number of weeks in any 28 consecutive years is an integer (provided that the *first* year of a century is not one of the 28); and the number of working days in any 28 consecutive years (provided the first year of a century is not one of the 28) is a constant quantity, and is 8,766.

∴ June 8th, 1849, was on Friday.

No. 1 was issued $(8766-8505)$ days after this date.

In 43 weeks there are 3 less than 261 working days.

No. 1 was issued 43 weeks and 3 days after June 8th, 1849, or on Wednesday, April 10th, 1850.

No. 48. (No. 87, June, 1895.) A planer is driven by a driving-wheel 20 inches in diameter, and a feed pulley 9 inches in diameter, and has a speed of 900 lineal feet per hour. If the diameter of the driving-wheel be increased 4 inches, and that of the pulley be decreased 4 inches, what will be the speed per hour?

Solution by INCOGNITO.

One revolution of driving wheel causes the feed pulley to revolve $\frac{20}{9}$ times.

When the diameters of these wheels have been changed, a revolution of driving-wheel causes feed pulley to revolve $\frac{24}{5}$ times; the point of contact of pulley is the same as that of planer—900 feet in the first case—, ∴ in second case speed of planer will be $900\times(\frac{24}{5}\div\frac{20}{9})$, or 1,944 feet.

No. 49. (No. 89, June, 1895.) Suppose a latitude where the acceleration of gravitation is $32\frac{1}{2}$ feet. A stone weighing 10 lbs. is thrown with a velocity of 9 feet per second vertically downwards from a ballon half a mile high, and rising upwards at 50 miles per hour. At what time, with what momentum, and with what velocity will the stone strike the earth?

Solution by MR. PRENDERGAST.

Velocity of balloon $=73\frac{1}{3}$ ft. per second.
Initial velocity of stone $=-64\frac{1}{3}$ ft. per second.
Terminal " " " $=-64\frac{1}{3}+32\frac{1}{2}$ t

$$\text{Mean} \quad " \quad " \quad " = \frac{65t}{4}-64\tfrac{1}{3}$$

$2640=t\left\{\frac{65}{4}t-64\frac{1}{3}\right\}$, $t=14.87+$ sec.
Velocity when it reached ground
$=32\frac{1}{2}\times14.87-64\frac{1}{3}$
$=418.94+$ ft. per sec.
Momentum $=3770.46+$.

No. 50. (No. 92, June, 1895.) Transform 7304.513 from the octenary to the ernary scale.

Solution by W. PRENDERGAST, B.A.

7304 in scale of 8
$=7(8)^3+3(8)^2+4=3780$ in scale of 10
$3780=3^7+2.3^6+1.3^4+2.3^3$
$=12012000$ in scale of 3
.513 in octenary scale $=\frac{5}{8}+\frac{1}{64}+\frac{3}{512}=\frac{331}{512}$

$$\frac{331}{512}=\frac{\frac{331\times3}{512}}{3}=\frac{1\frac{481}{512}}{3}=\frac{1}{3}+\text{etc.}$$

$=.122110100111\,2+$ in scale of 3
∴ 7304.513 in octenary scale
$=12012000.122110100111\,2$ in ternary scale.

No. 51. (No. 93, June, 1895.) A person starts with a capital that produces 4 % compound interest; he spends yearly a sum equal to twice the original interest on his capital. Find in how many years he will be ruined.

Solution by W.P.

Let C = original capital, n = number of years.
Then $\frac{8}{100}$C = amount spent each year.
If his capital were invested for n years at 4 % compound interest, it would amount to $C(1.04)^n$.
A person would neither gain nor lose if, instead of paying his debts as they became due, he allowed them to accumulate, and paid interest on them at *same rate* as he was receiving for his capital; the debts of the person in question would, under these conditions, amount, in n years, to

$$\tfrac{8}{100}C\left\{1.04^{n-1}+1.04^{n-2}+\ldots..\ 1.04+1\right\}$$
$$=\tfrac{8}{100}C.\ \frac{104^n-1}{.04}.$$

He will then be ruined if his debts amount to as much as his capital, *i.e.*, if

$$\tfrac{8}{100}C\,\frac{104^n-1}{.04}=C\,(1.04)^n$$

or if $2\left\{1.04^n-1\right\}=1.04^n$
" $1.04^n=2$
" $1.04^n=2$
n log. $1.04=$ log. 2

$$\therefore\ n=\frac{.301030}{.017033}=17+\ ;\ \textit{i.e.},\ \text{he will be ruined}$$

after the 17th year.

PROBLEMS FOR SOLUTION.

SENT BY CORRESPONDENTS.

No. 52. An agent sold a consignment of apples on a commission of 3 %. After deducting his commission and reserving a sum sufficient to pay the freight at 20c. per cwt., he bought flour at $2.80 per cwt. on a commission of $2\frac{1}{4}$ %. The total commission was $63. Find the amount of flour bought.

No. 53. A person invested in 3 % stock so as to receive $5\frac{1}{4}$ % clear on his investment, after paying an income tax of 20 mills on the dollar. What was the market price of the stock, brokerage being $\frac{1}{2}$ %?

No. 54. A sum of money in two years at compound interest, added yearly, amounts to $648.96; the present worth of the sum for one year is $\$576\frac{8}{13}$. Find the rate per cent. per annum.

No. 55. $25,000 of bank stock pays 8 % dividend. When money is worth 7 %, this is sold out and proceeds invested in another stock @ 205, which pays a dividend of 12 %. Find the alteration in the income, brokerage $\frac{1}{2}$ % for each transaction.

No. 56. A rectangular field containing 3 acres is surrounded by a road of uniform width of 66 feet, the total area of the road being 3 ac. 36 sq. rods. Find the length and width of the field.

No. 57. A boy dividing a number by factors used 7 for the first divisor and 8 for the second; his first remainder was 1, the second remainder was 5 groups of the size of the first divisor; his quotient was 7,115. Find the divisor.

If the people of a community have no respect for a profession, they will not take very kindly to a votary of that profession, and the social life of said votary will not be enviable in that community. But if teachers had more of an earnest, progressive, *professional* spirit, teaching would not be called, as it is by many, a degraded profession, and the isolation of which so many teachers complain would not be often heard of.

Usually there is not an active sympathy between the teachers in village schools and those in the country schools. Village teachers are apt to look down upon country teachers, and thus there is a barrier between them. But if country teachers were compelled to attend to their professional duties as so many of the village and city teachers are, this barrier would almost totally disappear. To be sure, teachers living in the country cannot have the opportunities for conferring with one another that are enjoyed by their village fellows, but they, many of them, slight opportunities for bettering themselves. And this leads me back to my first statement: they isolate themselves, and are thus to blame.—*George M. Fly, in the School Journal.*

The books we love are friends whose sympathy
Exhaustless flows from fount undrained of Time;
From cosmic history to bard sublime,
The crystal draught of knowledge floweth free.
And we, asearch for wisdom, science, art,
For truth, philosophy—the soul's far quest
Of aught, in worth or choice, divinest, best—
May question of these friends as heart to heart;
With them traverse the earth, the sky, and sea,
In mystic depths profound and isolate,
Or, 'midst the busy scenes of life and fate,
Find in their message truest harmony,
Attuned to all the human soul holds dear
In memory's dim and hallowed atmosphere.
—*Isadore Baker.*

Rev. Edward Thring had a theory upon which he worked. His main principle was simple enough—that every boy is good for something, and that education means to help him to find out what he is good for, and to make the very best of him without making the capacity of one boy the standard of another. The principle sounds almost too obvious for statement. And yet to put it into consistent practice would be to sweep away the very last relic of cram, to change test by examination out of all recognition, and to transform a Public School from a place for polishing exceptionally clever boys into one for making the best of every boy individually, whatever might be the quantity or the quality of his brains.—*New York School Journal.*

"Not only is one man unlike another, but every man is essentially different from every other, so that no training, no forming, nor informing, will ever make two persons alike in thought or in power. Among all men, whether of the upper or lower orders, the differences are eternal and irreconcilable between one individual and another, born under absolutely the same circumstances. One man is made of agate, another of oak; one of slate, another of clay. The education of the first is polishing; of the second, seasoning; of the third, rending; of the fourth, moulding. It is of no use to season the agate; it is vain to try to polish the slate, but both are fitted by the qualities they possess for services in which they may be honored."—*Ruskin.*

Primary Department.

AN ORDERLY ROOM.

RHODA LEE.

"A place for everything, and everything in its place," is a maxim nowhere more necessary than in the schoolroom. Unless the rule be constantly impressed and observed, disorder and much waste of time will inevitably follow. Picture a room in which the rule appears to be wanting: books litter the window-sills, the boards are half-cleaned, maps and other specimens of work are pinned to the wall without the slightest semblance of order, the teacher's desk is covered with odds and ends of various kinds, and the children's desks are likewise untidy. Another picture shows a room of a different character. An open cupboard door reveals neat rows of books, boxes, papers, and other materials; window-sills are bare but for a half-dozen house plants standing in shining saucers. On the teacher's desk are arranged the books and material necessary to the day's work, while the children have nothing on theirs but the slate and pencil.

Comment on the order and general working of these two classes is unncessary. Disorder in these external matters does not bespeak orderliness of spirit, but rather the reverse, and there is no doubt as to the effect upon character of a strict observance or orderliness and neatness in all things.

Try to have the children take a pride in their room, and encourage them in every effort to make it pleasant and attractive. Though nothing be done towards decorating, it can be kept clean and neat. If this spirit prevail there will be no hats on the floor, no papers about the desks, no dirty slate-cloths (sponges and a clean rag should be the rule), and no untidy desks. There will be pictures on the walls and on the unused blackboard, plants in the windows, and perhaps a flower-glass on the teacher's table.

In the early summer, when wild flowers and shrub blossoms are plentiful, the children take great delight in bringing their little bouquets to "the teacher," and it is sometimes difficult to know what to do with them all. I have always provided myself with two or three earthenware jars to hold this deluge of flowers, for of course none can be discarded. They hold a great deal, and make a pretty ornament on the window-sill, where there is no danger of the water being spilled.

It is a great deal easier to keep everything in its place than we sometimes think. All that is necessary is to return every article to its accustomed place as soon as we are done using it.

"Order is everything" must be our motto if we would have a successful school; the order to which love, sympathy, and regard for others are the incentives, The influence of orderliness in these so-called small matters reaches far beyond the school walk and school life, and cannot be too highly estimated.

A PLAN FOR MENTAL ARITHMETIC.

RHODA LEE.

Imaginary shopping, which is always interesting to children, affords excellent practice in mental addition, subtraction, and multiplication.

The simplest exercise consists in getting correct *change*. Take a constant sum as the amount to go the errand with. Start with ten cents.

PROBLEMS.

(1) Bought two articles; one cost 5 cents, the other 3. How much change?
(2) One cost 2 cents, the other 7. Change?

Give the problems in as few words as possible, and have the answers given quickly.

Following ten cents, take a quarter of a dollar.

PROBLEMS.

(1) One article cost 9 cents, the other 7 Change?
(2) One cost 6, the other 8 cents. Change?

Take up problems with fifty cents and one dollar also. When the dollar is reached find how many ten-cent pieces we could get in exchange for a dollar bill, how many five-cent pieces, how many quarters, how many half-dollars, etc.

PROBLEMS WITH $1.

(1) Bought 2 doz. oranges at 25c. a doz.
2 " lemons " 10c. "
1 pound of dates at 5c.
How much change?

(2) Bought 2 yds. ribbon at 12½c. per yd.
3 " lace " 10 c. "
How much change received?

(3) Bought 6 geraniums at 5c. each,
2 pansies " 10c. "
A fuchsia " 25c.
Change?

THE FIRST SNOWFALL.

The snow had begun in the gloaming,
And busily all the night
Had been heaping field and highway
With a silence deep and white.

Every pine and fir and hemlock
Wore ermine too dear for an earl,
And the poorest twig on the elm-tree
Was ridged inch-deep with pearl.

From sheds new-roofed with Carrarn
Came Chanticleer's muffled crow;
The stiff rails were softened to swan's-down,
And still fluttered down the snow.

I stood and watched by the window
The noiseless work of the sky,
And the sudden flurries of snow-birds,
Like brown leaves whirling by.

I thought of a mound in sweet Auburn,
Where a little headstone stood;
How the flakes were folding it gently,
As did robins the babes in the wood.

Up spoke our own little Mabel,
Saying, "Father, who makes it snow?"
And I told of the good All-Father
Who cares for us here below.

Again I looked at the snowfall,
And thought of the leaden sky
That arched o'er our first great sorrow,
When that mound was heaped so high.

I remember the gradual patience
That fell from that cloud-like snow,
Flake by flake healing and hiding
The scar of our deep-plunged woe.

And again to the child I whispered,
"The snow that husheth all,
Darling, the merciful Father
Alone can make it fall!"

Then with eyes that saw not, I kissed her,
And she kissing back could not know
That my kiss was given to her sister,
Folded close under deepening snow.

—*James Russell Lowell*

WE THANK THEE.

(Concert piece for lowest grade.)

For flowers that bloom about our feet;
For tender grass, so fresh, so sweet;
For song of bird, and hum of bee;
For all things fair we hear or see,
Father in heaven, we thank thee!

For blue of stream, and blue of sky;
For pleasant shade of branches high;
For fragrant air, and cooling breeze;
For beauty of the blooming trees,
Father in heaven, we thank theee!

—*Selected.*

KINDNESS TO ANIMALS—A READING.

How many of us that are here to-day can truly say, "We have always been as kind to the dumb animals as we should be"?

Have some of us, perhaps, in a fit of ill-humor, kicked the cat? Have we made the dog perform feats that tire him? Have we compelled the parrot to amuse company by talking until he was thoroughly exhausted?

Have we forgotten that these animals have feeling; that to kick them, to tire them, or to tease them, is entirely wrong?

How often have we tried to interfere with cruel boys who were stealing eggs from nests or who were taking the nests from trees?

Those nests that it took the birds quite a time to build; nests that had become dear to the birds, as their homes; their resting places; nests that they felt drawn to as the dwelling-place of their young.

How often have we tried to give our aid to the poor bird that has been captured by the unruly boys?

You children that are here to-day may think it strange to hear me talk in this way; but I think something ought to be done to save the dumb animals from cruel treatment. We do not mean to be unkind, cruel, and heartless; we are thoughtless; that's where the trouble lies. To-day we will form a little society, and promise that

We will do all the good we can,
In all the ways we can,
To every dumb creature that we may see.

—*Selected.*

Book Notices.

TOPICAL HISTORY NOTES on English, Greek, and Roman History. Gage & Co., 1896; pp. 103.

The great facts in the histories of England, Canada, Greece, and Rome are stated in consecutive order. As a supplementary book for review of the subject before reading larger works, and for aid in gathering up the most memorable facts in good order, after reading the text-books, this little volume has a mission. The sentences are short and clear, and their logical and chronological connection is generally pretty well exhibited by the topical arrangement.

GRAMMATICAL ANALYSIS. By H. I. Strang, B.A., Principal of Goderich Collegiate Institute. Toronto: The Copp, Clark Co., 1895.

The first 45 pages of this useful little book contain as clear and conprehensive a map of the structure of the English sentence as could perhaps be written. The remaining 52 pages furnish a copious supply of well-graded examples suitable for Entrance, P. S. Leaving and Primary examinations. It is a thoroughly practical book, preferable in some respects to Wrightson's more elaborate treatise, and will be found extremely handy and useful by those who aim *to teach grammar* rather than to memorize some text-book.

GRAPHIC ARITHMETIC. Chart I. — Whole Numbers; Chart II.—Fractions. By H. D. Ellis, M.A. London and Liverpool: George Philip & Son.

These charts are 40 inches long by 10 inches wide. The first consists of horizontal lines divided by dots into ones, twos....twelves. It gives an easy geometrical representation of the terms Magnitude, Unit, Number, Multiple, Measure, Prime, Common Measure, etc., and will help most teachers to get a clear idea of what the fundamental conceptions of arithmetic really are. The second is similar, and gives the metrical units of length. Price, 6d.; mounted, 1s. If every Public School pupil in Canada were to spend a week in reproducing each of these charts by actual, accurate measurement and drawing, he would have learned more about pure arithmetic than he is likely to learn from any text-book.

Many of our readers are interested in the subject of how to spend the summer holidays in a pleasant and profitable light employment which will afford relaxation from the labors of the usual occupation. Those who incline to popular plans of life insurance should correspond with the Home Life Association, of Toronto.

"Through Niagara's Wonderland," *via* the "Gorge Road," American side. Return fare only 60 cents.

Cambridge University, England: Prof. J. E. Sandys, Lit.D.: "The Standard Dictionary is an admirable work, and deserves to become famous on both sides of the Atlantic."

The Detroit and Cleveland Steam Navigation Company's steamers are now running daily (except Sunday) between Detroit and Cleveland. When travelling east or west, north or south, try to arrange to take advantage of these luxurious steamers between Michigan and Ohio. If you are contemplating a summer outing, write A. A. Shantz, G.P.A., Detroit, Mich., for illustrated pamphlet, which gives full information of a trip to Mackinac *via* the Coast Line.