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The Educational Journal

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Editorial Notes.

IF "A Subscriber to THE JOURNAL," who writes from New York City, will write direct to the editor of the Mathematical Department of this paper he will, no doubt, promptly receive the information asked for.

THE department set apart specially for the benefit of teachers of second and third classes is commenced in this number. We hope that those who have asked for it, and for whose special benefit it is intended, will appreciate it, and will show their appreciation by informing us from time to time if they think that in any respect these papers can be made more efficient and serviceable. Please tell us wherein the department meets your wants and wherein it fails to do so. Cannot *you* send us something for next number, which may be helpful to your fellow-teachers?

IN a recent article on "Education and Crime," on the general argument of which we may have something to say at another time, the *Globe* well says: "'State salary expected' is a potent cause of the moral as well as the intellectual shortcomings of the schools." We are sorry to see that this auctioneer legend is occasionally adopted even by High School authorities, in advertising for assistant masters. Surely no one having the qualifications requisite for such a position will humiliate himself, or herself, by responding to an advertisement of this kind. We wish that we could hope that the day is near when no certificated teacher in the Dominion will degrade the profession by replying to an advertisement with that condition. Those who do so put up their own dignity as well as that of their profession, so far as it is in their keeping, for sale at a Dutch auction.

OUR "Question Drawer" will be open for the use of subscribers this year, as usual, and we shall try to be still more prompt than hitherto in giving replies, not, indeed, to all kinds of questions which may be propounded, but to all such as may fairly come within the province of an educational paper. Meanwhile, to prevent misunderstandings or delays, let us repeat what we have frequently pointed out, viz., that it is much better that all requests for information with regard to questions arising out of the School Law and the Departmental Regulations should be sent direct to the Education Department, Normal School Building, Toronto. In this way the inquirer will obtain official information. So, too, it is much better to send all inquiries with reference to University examinations, matriculation subjects and conditions, etc., direct to the registrar of the University. Prompt and courteous answers will, no doubt, be sent. Official information is always better than second-hand, if possible to procure it.

MUCH has been said, and much is still being said, touching the alleged injury to childrens' eyesight caused by school conditions, especially in Germany and the United States. Dr. Scripture, in an article on "The Bad-eye Factory," vigorously attacks Froebelian occupations. He contends that the perforation of paper, sewing with worsteds, cork and pea-work, the making of chains of straws and paper circles, and the stringing of wooden beads are among the worst of all exercises in producing short-sightedness. This is a subject in regard to which it is easy to generalize hastily, but difficult to procure reliable statistics to warrant such deductions, or the contrary. Yet it is a question of grave importance to the family and the state. The prevalence of spectacle-wearing by the young, and even by children, in both the above-named countries certainly shows that something is wrong somewhere in the conditions under which these results are produced. We do not know that there is any good ground for believing that there is any serious deterioration in the sight of the young in Canadian schools. We have not noticed any material increase in the number of the spectacle-wearers. Yet, if there is any reason to fear a tendency in that direction, there should be no delay in instituting a full inquiry into the facts.

A WORD ON THE ARITHMETIC QUESTION.

THERE are indications that we may have a wordy contest in regard to what some think the excessive proportion of time and attention given to the study of arithmetic in the schools. We are not prepared, without fuller information, to express an opinion upon the main question, whether and to what extent there is ground for that criticism. But when we hear sneering references to the alleged folly of having pupils spend hours in the solution of fancy problems, such as may never be met with in the affairs of every-day life, as if the time so spent were wholly wasted, we cannot but doubt whether those who base their objections upon such grounds have a proper conception of the real educational value of arithmetical exercises. Arithmetic, by which we mean operations with quantities and numbers, is, when properly taught, in a very large degree an analytic process. The solving of an intricate problem makes demand upon the analytic powers such as is required for few other studies. The boy or girl who has patiently "thought out" a complex problem, resolved it into its elementary parts, discovering and setting down in clear propositions the relation of each part or element of which it is composed to every other, till he is able to disentangle all its intricate complications, and to make the analytic factors and the concrete result as clear as day, has developed a power of clear thinking which cannot fail to be helpful to him in almost every situation in life. The greater includes the less. He who has learned to reason closely, discern clearly, and state precisely, in one region of fact, cannot fail to profit by the strength and clearness of perception thus acquired in every other search for truth. Let us not be in too great haste to deprive our children in the schools of the mental training derived from a pretty rigid course in arithmetic and other branches of mathematics, until we are quite sure that a satisfactory substitute has been found.

English.

All articles and communications intended for this department should be addressed to the ENGLISH EDITOR EDUCATIONAL JOURNAL, Room 5, 11½ Richmond Street West, Toronto.

SUGGESTIONS ON TEACHING LITERATURE.

We are told that the way to become a good writer is to write; this sounds plausible, like many other pretty sayings equally remote from fact. No one thinks that the way to become a good medical practitioner is to practice; that is the method of quacks. The best way, indeed, to become a good writer is to be born of the right sort of parents; this fundamental step having been unaccountably neglected by many children, the instructor has to do what he can with second or third-class material. Now, a wide reader is usually a correct writer; and he has reached the goal in the most delightful manner, without feeling the penalty of Adam. What teacher ever found in his classes a boy who knew his Bible, who enjoyed Shakespeare, and who loved Scott, yet who, with this outfit, wrote illiterate compositions? This youth writes well principally because he has something to say, for reading maketh a full man; and he knows what correct writing is in the same way that he knows his friends—by intimate acquaintance. No amount of mere grammatical and rhetorical training, nor even of constant practice in the art of composition, can attain the result reached by the child who reads good books because he loves to read them. We would not take the extreme position taken by some, that all practice in theme-writing is time thrown away; but after a costly experience of the drudgery that composition work forces on teacher and pupil, we would say emphatically that there is no educational method at present that involves so enormous an outlay of time, energy, and money, with so correspondingly small a result. To neglect the teaching of literature for the teaching of composition, or to assert that the second is the more important, is like showing a hungry man how to work his jaws without giving him something to eat. In order to support this with evidence, let us take the experience of a specialist who investigated the question by reading many hundred sophomore compositions in two of our leading colleges, where the natural capacity and previous training of the students were fairly equal. In one college every freshman wrote themes steadily through the year, with an accompaniment of sound instruction in rhetorical principles; in the other college every freshman studied Shakespeare, with absolutely no training in rhetoric and with no practice in composition. A composition of the themes written in their sophomore year by these students showed that technically the two were fully on a par. That is weighty and most significant testimony. If the teachers of English in secondary schools were people of real culture themselves, who both knew and loved literature, who tried to make it attractive to their pupils, and who were given a sufficient time-allotment to read a number of standard books with their classes, the composition question would largely take care of itself. Mere training in theme-writing can never take the place of the acquisition of ideas, and the boy who thinks interesting thoughts will usually write, not only more attractively, but more correctly, than the one who has worked treadmill fashion in sentence and paragraph architecture. The difference in the teacher's happiness, vitality, and consequent effectiveness is too obvious to mention.—*The Century.*

FIRST LESSONS IN GRAMMAR.

DEFINITIONS.

The object of study in grammar is the sentence, precisely as the mineral is the object of study in mineralogy, or the plant in botany. Beginning with the sentence, therefore, or with several sentences, we first lead the pupils to know and define a sentence and its related parts. Two points are to be observed in teaching definitions: first, to see that they are constructed by the pupils upon facts which they themselves have observed; secondly, to secure accuracy of statement. When the definitions have been properly taught, and when the statements are made by the pupils in accordance with the facts observed, it may be well to compare those statements with others which are found in the text-book, and which may sometimes be substituted for their own. But even the text-books are not always correct, as when it is stated that "the subject of a proposition is that of which something is said," and that "a noun is a name."

To illustrate how definitions may be made, the following examples are given:

The pupil is first asked to express a thought about the book, the crayon, and the schoolhouse. These and other expressions are placed upon the blackboard, and the name "sentence" is given to each expression. The pupils soon see and state that "a combination of words expressing a thought is a sentence." By observing the sentences it becomes apparent that there are two distinct parts in every sentence, one part expressing that of which something is said, and the other part telling what is said of that expressed by the first part. The definitions of subject and predicate are accordingly made from these facts.

ETYMOLOGY.

The parts of speech and their properties are also learned by observation. Sentences, as before, are written upon the blackboard, and the attention of the pupils is directed to those words which name objects of thought, or things of which we may think. A noun, then, is seen to be a word which names an object of thought. By this definition which they have made the pupils should point out the nouns in many written and printed sentences, until the nouns of any sentence which they understand are quickly recognized.

From what has been said it will be seen what use should be made of the book. It may be used by the pupils after the topics have been taught, chiefly for guidance in accuracy of statement and in furnishing suitable sentences for illustration and study.

Much practice will be found necessary before the parts of speech can be readily distinguished and named. It is well for the pupil also to give definitions as he names the parts of speech.

When the parts of speech can be readily distinguished they may be talked up separately, beginning with the noun. As before, present to the pupils sentences containing nouns having various uses and properties. As these uses and properties are distinguished they should be classified, named, and defined. The following example will illustrate the method of teaching the kind and properties of all parts of speech. Place several sentences upon the blackboard, as—

The boy lost his knife in Boston.
John bought an apple for his sister.
The man's coat was torn.
William's sister Kate went to the city.
The girls went to the concert.
There are seven days in a week.
The dog is named Donald.

First ask the pupils to select those nouns which name an individual object. The nouns, *Boston*, *John*, *William's*, *Kate*, and *Donald*, would be selected, to which the name *proper* would be given by the teacher. Proper nouns should then be selected from the reading books and defined. The other nouns will be seen to be, not the names of individual objects, but the names of classes of objects. These are named and defined as before. Further classification of the kinds of common nouns, as collective, abstract, and verbal, may be made in the same way, and each kind be defined.

Numbers and genders are easily taught. The pupils' knowledge of language will enable them to distinguish and define these terms at once. Cases are also easily recognized and defined when it is known that there are only two case-forms of nouns—one used to depote possession, and the other all other relations. The subjective and objective *relation* of nouns should be indicated in parsing, and in the case of pronouns the names of the cases should be given. Persons of pronouns should be taught by placing before the pupils many sentences in which different forms are used to indicate whether they denote the speaker, the person spoken to, or the person or thing spoken of. The pupils will see that only some pronouns have person, and will call these *personal* pronouns. The cases of pronouns should be taught in a similar manner, and when the various forms indicating the different relations are easily distinguished and named the definition should be given. The inflection will follow, and should be made, as far as possible, by the pupil alone.

The other parts of speech and their properties should be taught in the same way. First present many examples of the fact which it is desired to teach, and, when the fact is well understood, lead the pupils to apply the knowledge gained in many different sentences.

SYNTAX.

The right construction of sentences is the object of the study of grammar, and its rules should be considered as soon as possible after the study of grammar is begun. Greater interest in the study will be awakened when its practical bearing is seen, and a greater variety and amount of practice in correcting false syntax will be had by learning the rules of syntax early in the course. As soon, therefore, as the properties of the parts of speech are known, their rules of construction should be learned. The rules are taught in the same way as are definitions. Put upon the blackboard many sentences like the following:

John struck his ball.
I saw him in the city.
He taught me to read.

By observing these sentences the pupils will be led to see the changed forms of the nouns and pronouns in different relations, and will also discover that in certain relations the same form is used. From the facts thus learned the rules will be made.—*Prince's Courses and Methods.*

"FINE-EAR OF THE FAIRY TALE."

The following, addressed to the editor of the English department, should have appeared in July, but were accidentally overlooked:

Miss Teresa McKenna, Spadina avenue, Toronto, writes: "In an article on 'The Age of Trees,' in THE JOURNAL of the 16th inst., the writer, M. A. Watt, asks for information in regard to the allusion to 'Fine-ear of the fairy tale.' The Century Dictionary and Cyclopædia gives the following: 'Fine-ear. One of Fortunio's attendants in the fairy tale of that name. He could hear the grass grow.' 'Fortunio. A fairy tale of ancient but unknown origin. Fortunio is the daughter of an aged nobleman, in whose stead she offers her services to the king, disguised as a cavalier. A fairy horse named comrade, and seven servants, Strongback, Lightfoot, Marksman, Fine-ear, Boisterer, Gormand, and Tippler, aid her to slay a dragon and regain the treasures of the king.'

Hoping some other correspondent may be able to give a fuller explanation of the reference."

Miss Eva Lee, of West Ward School, Barrie, quotes the following somewhat fuller account:

"In fairy tales of the Countess D'Aunoy (1683) we read: 'Fine-ear was a servant of Fortunio, one of the three daughters of an old lord, who, at the age of fourscore, was called out to join the army against the Emperor of Matapa. Fortunio put on military costume, and went in place of her father. On her way, a fairy gave her a horse named Comrade, not only of incredible swiftness, but all-knowing, and endowed with human speech. By the advice of Comrade, she hired seven gifted servants, one of whom, Fine-ear, could hear the grass grow, and even the wool on a sheep's back. After performing several marvellous feats—by the aid of her horse and servants—Fortunio married Alfurite, the king of her country.'"

SOLECISMS IN SPEECH.

There is force in the objections generally made to setting before pupils examples of bad English, to be made over into good. An exception may be made in the case of such wrong forms as may be habitually used by the children of the school. It will be found, we think, very useful to put such solecisms prominently before the school, on the blackboard or otherwise, as expressions to be avoided. There can be no danger of teaching them to the children who already use them. Care should be taken, however, to indicate that they are wrong and to be shunned, so plainly that the fact cannot be overlooked or forgotten. In this way a critical habit may be encouraged which, within proper limits, is useful and desirable. More of this anon.

Special Papers.

THE SCHOLASTIC ATTAINMENTS OF THE TEACHER

"The scholastic attainments of the teacher are indispensable. No one can teach what he does not know. This is only half the truth. The other half, no less obvious, is more important. No one can teach all he knows; much is lost in the friction of expression and transmission. You can convey to another mind only a small fraction of what is in your own mind. Try to repeat a train of reasoning you have just followed, or a story at which you have just laughed, and you will verify in your own experience the point I am now insisting upon; for you will find that the sequence of thought, links of association, and turns and tricks of expression—if not the very substance of the subject—will not repeat themselves in your rehearsal, though you thought in the beginning that nothing was wanting. It is clear, therefore, that a teacher must know a good deal more than his most advanced pupil. A safe working rule is that the teacher of a common school must have passed through a high school and the teacher of a high school must have graduated at a college. The practical observance of this rule would do more than any other single reform, not only to dignify the teaching profession, but to elevate and improve the schools.

"I hasten to add that this requirement has the endorsement of the Committee of Fifteen, whose report was adopted at the last meeting of the Association of American Superintendents; and I cannot think it unreasonable to demand of school authorities that, in the appointment of teachers, they should be governed by a rule which is based on the laws of mind, and which is accepted and endorsed by such practical educators as the school superintendents of the United States. This is a matter of capital importance. The insuperable obstacle in the way of a better education for the boys and girls of America is the baneful belief of their parents that anyone who has been at school is fitted to teach school. Folly and presumption! He who has passed through a primary school is not fitted to teach a primary school. He who has completed the course of a high school or academy is not qualified to teach a high school or academy. He who has been trained at a normal school is not competent to teach a normal school. In every case the teacher must be a graduate of an institution of a higher grade than that which he teaches; he must be, at least, four years ahead of his most advanced pupils. Teachers of elementary schools must have completed the course of the secondary schools; teachers of high schools, academies, and normal schools must be college graduates, and the day has now arrived when the same demands must be made of superintendents."—*President Schurman, in the April Forum.*

THE X-RAYS AND THEIR DISCOVERER.

BY MACLEOD.

In the long list of discoveries which have enlightened the world and aided in its progress, it has been the exception, and not the rule, for the discoverer to live to see his work appreciated and himself acknowledged as a public benefactor.

Professor Roentgen, the discoverer of the new photographic process, the so-called X-rays, is one of the exceptions, and, but for his natural modesty and retiring disposition, might now be a social lion. His discovery is of great importance to the scientific world, not only as a valuable new fact, but because, even in the short time since it was made public, it has led to numerous experiments, with gratifying results, and bids fair to be the nucleus of many others, even more useful.

Since the year 1888, Wilhelm Conrad Roentgen has held a professorship at Würzburg University, and it was while at his favorite occupation, performing experiments in the laboratory, that he made his recent discovery. Happening to hold his hand between the cathode rays of a Crookes tube and the sensitive plate exposed to the action of these rays, he noticed that the bones of his hand were photographed upon the plate. The image so formed was a shadow print, resembling somewhat a silhouette. It was evident that the rays had completely penetrated the flesh, and further tests proved that they would act through wood, leather, stone, metals, and other opaque materials. In all his experiments Professor Roentgen used a Crookes tube, one of the most perfect vacuum tubes in use in the chemical world. These tubes are of glass, hermetically sealed, and connected with an electric battery. The inlet for the current is the positive pole or anode of the combination. The opposite or negative pole, through which the current passes out, is the *cathode* (Greek, kathodos—going down). Both anode and cathode together are known as the electrodes. Professor Roentgen believes his new photographs were caused either by the action of cathode rays upon the sensitive plate, or by a new form of rays thrown off from the cathode rays as they left the tube. He inclines toward the latter opinion, as the new rays possess several qualities not possessed by cathode rays. His name for them—X-rays—denotes his perfect honesty in designating them an unknown quantity. It seems a pity, however, that some more suitable name, and one which will give proper credit to the discoverer, cannot be found for them. Several of the leading magazines refer to the new photographic rays as *Roentgen rays.*

Side by side with the important question, "What use can be made of this recent discovery?" stands the equally important query, "What *are* these rays, and what is their source?" At first, due credit was not given to them as being something entirely *new;* but they were believed to be of the same character as the "ultra-violet" electric waves discovered by Hertz two years ago. However, the new rays and those of Hertz present so many points of dissimilarity that the idea of their being one and the same was soon abandoned. In his address before the Physico-Medical Society of Würzburg, Professor Roentgen stated the following peculiar facts in regard to the X-rays:

They cannot be reflected or refracted;

They are not changed from their course by strong magnetic influence;

They are not visible to the naked eye;

They are not necessarily generated in glass, being obtained in apparatus closed by an aluminum plate;

That the absorption of these rays by various bodies depends upon the density of the bodies;

That there are no appreciable caloric effects from X-rays.

The professor closed his remarks by stating that each new test brought him nearer to the conclusion that there was a close relationship between the new rays and *light* rays, and that the X-rays might be due to longitudinal waves in the ether.

Meanwhile, innumerable experiments with the new rays have been made by the electrical experts of both continents, the results being surprising in many instances. Much attention has been given to the construction of a vacuum tube which will increase the effectiveness of the rays, and numerous designs of tubes and electrical apparati have been presented for trial by their inventors. Shadowgraphs of the bones of the human hand and foot, the skeleton of a frog, works of a watch, a razor in its case, were among the first photographs taken; but recent experiments have had a more definite aim, viz., to see just how far this new process will help the human race, particularly through medical operations. The results have been highly satisfactory. A needle was located in the foot of a patient by means of the X-rays, and the suffering of years ended. Bullets have also been removed, which have been imbedded in the bone for years. Even *glass*, being very strangely opaque to the new rays, is shown by them in shadow tints, and may be located when imbedded in the flesh. Thus, by the action of this new photography, a foreign substance in the human system may be at once correctly located, and the patient be spared all unnecessary probing and the accompanying agony.

Whether the treatment of tumors, cancers, or internal disorders will be affected by the recent discovery remains to be seen. So far attempts to photograph through the abdomen and thick portions of the body have not been successful. The doctors and scientific experts, however, are not at all daunted, and continue their remarkable experiments, even hinting at the location and consequent destruction of disease germs by the action of these wonderful electric rays.

To photograph the human brain seems to be considered a desirable achievement, and not only the noted Edison, but many lesser "scientific lights" are experimenting with this object in view. Dr. Kolle, of Brooklyn, has been attempting to photograph the brain of a twelve-year-old boy, and claims to have had very encouraging results.

With regard to rays themselves, the late issues of the daily papers furnish statements which may prove the new rays to be obtainable without using Crookes tubes or any form of vacuum tubes whatever.

Professor Kerr, of the New York Hebrew Technical Institute, claims that he can obtain the shadow-prints by means of an ordinary arc-light, using no tubes, coils, or other machines.

Dr. Stephen H. Emmens, the inventor of the new explosive, "emmensite," adopted by the United States Government, and noted both in California and in New York as a scientist, announces that he can obtain X-rays directly from the sunlight, entirely discarding the usual electrical apparati.

This would seem to concur with Professor Roentgen's idea, that the X-rays have the same source as light rays.

To all appearances, the scientist who is preserving the greatest calmness and placidity during this electrical stir is the discoverer himself. With the same retiring disposition that has in former years earned him the criticism of being "odd" and "eccentric," he is quietly performing his duties at Würzburg, as if unaware of the commotion his discovery has made. He is still in the prime of life. He was born in Holland in 1845, and was graduated from the University of Zurich at the age of twenty-five. He was a disciple of Professor Kundt, and when the latter left Zurich Roentgen accompanied him, and, later, they held respectively the positions of professor and assistant at Strasburg University. In 1875 he became professor of mathematics and physics in the Agricultural Academy of Hohenheim, returning the following year to his former position in Strasburg.

The year 1879 found him director of the University Institute of Physics at Gressen, and in 1888 he accepted his present position. He is the author of several scientific works, among others, "A Method to Fix the Isothermal Surface of Crystals" and "The Use of the Ice Calorimeter to Determine the Intensity of Sunlight."—*Journal of Education.*

For Friday Afternoon.

CONCERT EXERCISE.

[This is a pretty exercise when the children are taught to repeat the words properly, and to march in time.]

One, two, three, four,
Up and down the schoolroom floor;
Right, left, here we go,
Marching lightly, to and fro,
Keeping time like a tune,
What a jolly afternoon!

One, two, three, four,
Teacher opens wide the door;
Down the aisle and through the hall,
Softly, softly, do not fall,
Keeping time like a tune,
What a pleasant afternoon!

One, two, three, four,
Stepping lightly o'er the floor;
In this schoolroom we belong,
Where we like to march along,
Keeping time like a tune,
What a happy afternoon!

One, two, three, four,
Now we'll stop and march no more;
And some other pleasant day
We will march and think it play,
Keeping time like a tune,
And have a jolly afternoon.

—*Intelligence.*

A nation can never be civilized with its masses brutalized.—*Z. Swift Holbrook in Bibliotheca Sacra.*

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Editorials.

TO OUR FRIENDS.

AFTER its brief holiday, THE EDUCATIONAL JOURNAL again makes its best bow to the teachers of Canada, hoping that they, one and all, have made good use of their season of rest, and are entering upon the work of a new school year refreshed and invigorated in body and mind.

We need not now refer particularly to the improvements we have been making, and hope still to make, from time to time, in the paper, with a view to making it more and more useful, not to say indispensable, to every Canadian teacher. These each reader will judge for himself, and, we hope, will find to be of such a character as will commend our efforts more and more to their patronage and approval. There is, however, one request which we beg leave to make of our friends in the profession. Some of them have expressed a desire that THE JOURNAL should become, to a greater extent than hitherto, a medium for the interchange of thought among teachers. This suggestion is in entire accord with our own views and wishes, but the improvement is one which cannot be brought about without the aid of our friends and subscribers themselves. We, therefore, cordially invite teachers of every grade to make free use of our columns in any and every way whereby they can promote that desirable end. If one would describe in our columns a method of teaching this or that particular subject which he or she has tried and found successful; if another would point out some difficulty or danger to which new teachers, of whom there will, no doubt, be a large number among our readers this term, are specially exposed, and how to avoid it; if others would give us helpful notes on literature lessons, or point out modes of interesting classes more successfully in geography, or grammar, or spelling, and so forth, until many shall have exchanged ideas and experiences on a wide variety of practical educational questions, the desired end would be attained, and both our readers and ourselves would be much the better for it. Come on, friends. There is no better culture for yourselves than that which you will gain in striving to express your thoughts in the best manner, for the benefit of your fellow-teachers.

Just here we should like to add, if our doing so would not be thought presumptuous, a few words to inspectors. Many of these—so far as we know we might say all, without exception—are warm friends of THE JOURNAL, because they recognize in it a most necessary and useful auxiliary in the grand work in which they are engaged. To many of them we are indebted for repeated favors, for which we desire to express our grateful acknowledgments. These gentlemen are usually chosen from the ranks of the ablest and most successful teachers. They still make teaching their professional study. In their constant visits to the schools they are brought into almost daily contact with all kinds and grades of pedagogical practice. No other educators have so many and so good opportunities for becoming familiar with the best and the worst in teaching. From their observations as well as their professional studies, they have unequalled opportunities for determining what is good and what is not so good in educational work. The teachers in their local institutes, as well as in their schools, get the benefit of all the pedagogical wisdom thus attained. In view of all this, we have often been led to think what a boon to the schools and the profession it would be if the whole body of teachers, instead of only those in attendance at the particular institute for whose benefit they were originally prepared, could get the benefit of these lectures and criticisms. To a large extent the same mistakes are made in different schools; the same remedies would prove equally efficacious. If only in some way provision could be made for sending to THE JOURNAL one or two of the best of these addresses and model lessons, etc., on every occasion, the benefits they are intended to convey might be enjoyed by thousands through our columns, as well as by the fifties and hundreds who listen to them at the teachers' institutes. We hope the suggestion will at least be pardoned.

TO THE COUNTY MODEL STUDENTS.

IN this article, and in some others which we propose to publish under the above heading, we wish to address ourselves to the Model School students.

The Minister of Education has kindly ordered four copies of THE EDUCATIONAL JOURNAL for each Model School, during the months of September, October, and November, for the use of the students in attendance, and it is hoped that these copies will be placed before you and carefully read.

Your regular work will doubtless occupy most of your time, but you will also have some leisure to peruse the pages of THE JOURNAL, and we trust that this page may be of some service to you.

In a subsequent article we shall address you on the importance of professional reading after you begin teaching in your own schools, but we would advise you, even at the beginning of your training course, to avail yourselves of every opportunity to come in contact with the thoughts of others, through your professional library, through THE JOURNAL, and through every other means which may present itself. It is of the utmost importance that, as early as possible, you should have clear and broad ideas of what lies before you in the course upon which you have just entered, and that you should have a definite purpose before you to which you should apply yourselves most faithfully during the short time afforded you.

You may, in looking forward, think the time long enough, but if you are filled with ambition to make the most and the best of your training course, you will find that as the term approaches its completion it has been all too short to allow you to grasp and assimilate the principles which have been laid down by your teachers, or to acquire anything like facility in applying these to practical teaching. You will realize that your eyes are scarcely

opened to what is involved in true scientific teaching; and although you may be eager to try your 'prentice hand in your own school, you will feel compelled to admit that you had only really begun to learn your profession.

Principals of Model Schools often find that students at the beginning of the term think that this training to which they are subjected is but an unnecessary imposition. They think that as they have passed a satisfactory examination in the subjects to be taught they must of necessity be familiar with them, and will therefore from this knowledge be able to teach them. This thought probably obtains more or less in the minds of many students. A principal of a Model School once told the writer that "it often took him nearly half the term to get this conceit out of the students."

If you wish to accomplish the best results you must at once divest yourselves of any such fancy as this, and put your whole mind and soul in complete touch with the spirit and aim of the training and of the work placed before you. Knowing a subject sufficiently to be able to pass an examination in it, and knowing how to teach it, especially to young children, are very different things, as you will soon find out.

Our efforts are determined largely by the breadth of our ideas, and as a person extends his view by rising, so should we endeavor to broaden our ideas by carefully considering every circumstance which will tend to raise our minds to a proper appreciation of our opportunities and of our duties.

We can properly appreciate only what we fully understand, and it will not be out of place to call your attention to the opportunities and privileges that are afforded you in your Model School training. Before speaking of these in detail, you should be asked to consider one special privilege that is afforded you.

The State provides for the education of the young at the public expense, and compels everyone to assist in furnishing this free education. It realizes that ignorance is a fertile promoter of crime, and seeks to prevent the effect by removing the cause. In this way it seeks to guard and perpetuate the well-being of society, and as everyone is benefited thereby, whether he is conscious of it or not, he is very properly required to contribute his share to the support thereof. In this way the State has been providing for your Public and High School education up to the present time.

It is contended by many that the educational function of the State should cease at this point, as indeed it does here cease in the case of ninety-nine children out of every hundred who attend school.

It is claimed that the State has no right to compel payment by general taxation for the purpose of preparing anyone for his special calling in life, but that the expense of this preparation or apprenticeship should be borne exclusively by the individual or his friends.

Without discussing this proposition, which, as we have just said, is usually carried out in practice by the State, you should understand that an exception has been made in your case in not only furnishing you the elementary and secondary education which it furnishes for all, but also in providing almost entirely at the public expense the additional professional training by which you may be prepared to enter at once upon the means of earning your living. This fact should increase your appreciation of what Model Schools are intended to afford.

In this training course you are especially favored in being permitted to have the benefit of the extensive experience of your principal. The products of his own training when a student, and of his long practice as a teacher, are willingly placed at your disposal. What you would probably take years to acquire alone is at once put before you. Errors which you would probably commit, and troubles and dangers into which you would fall, are kindly pointed out in advance, and you are thereby saved from the annoyance of your own blunders, and, possibly, from the pain of failure. Not only are you thus instructed and warned by lectures, but, day by day, the best methods of teaching are put before you, both in theory and practice, and thus an insight into teaching is afforded you in a few months which, without this training, you could acquire only by years of practice. Your attention will also be called to the underlying principles of education, and to the harmony involved in the true unity of teaching when properly understood, with which, unaided, you would, possibly, have never become acquainted.

Again, the assistants of the school will be ever ready to second the work of the principal, and to give you all the aid in their power when you come to teach in their several divisions. This giving of assistance to you with their valuable criticisms and reports, and with the inevitable disturbance of their work caused by placing their classes at your disposal, is wholly a labor of love on their part, for which they receive no remuneration whatever. This fact should inspire you to endeavor to show to these teachers that their efforts, which are put forth entirely for your benefit, are fully appreciated by you.

In addition to these privileges, you are permitted to have the children of the school to practise upon in your teaching. For this purpose all the divisions, from the lowest to the highest, are placed at your disposal. When you consider the difference between your efforts as beginners, which must of necessity be crude, and the instruction given by the regular teachers, you must of necessity realize that there will be a loss to the pupils, and that their interests are, for the time, made subservient to your advantage.

This fact should cause you to prepare your teaching lessons with the greatest care, and to put forth your very best endeavors to cause the least possible loss to the pupils whom you are permitted to teach for your own special benefit.

A separate room, suitably furnished, and a professional library, are also provided for you at the public expense.

These advantages are not enumerated for the purpose of making you feel dependent, but your attention is called to them simply that you may the better appreciate them, and that you may thereby be incited and inspired to make the best possible use of them, and that by your success during the Model School term and after you take charge of schools you may attest satisfactorily to the wisdom of providing so liberally for your professional training.

CANADA, especially Ontario, was slow in waking up to the fact that the best and truest well-being of any country depends quite as much upon the higher education of its women as upon that of its men. This is now becoming pretty well understood, and the faults of the past are being rapidly corrected, but the country still suffers from past mistakes, in the absence of a fair proportion of highly educated women of middle age. We do not know that a contemporary puts the case any too strongly when it says, "We can do much better without highly-cultured men than we can without highly-cultured women." The fact that the mothers have, as a rule, far more to do with the moulding of the characters and the formation of the habits of the children than the fathers, goes far to sustain the statement. A consideration of almost equal weight is to be found in the fact that the influence of the educated and cultured wife over her husband is, as a rule, more powerful and more salutary than that of one who is uncultured. That even university training is no hindrance to matrimony is evident from the fact that, so far as statistics have been collected up to date, they show, contrary to the popular impression, that the proportion of women graduates who marry is about the same as the proportion of women in general.

High School Entrance and P. S. Leaving Department

EDITED BY

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With the assistance of several special contributors.

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PUBLIC SCHOOL DRAWING.

A. C. CASSELMAN.

It is not necessary to enumerate here the very many advantages to be derived from the study of drawing when thoroughly taught. It will be taken for granted that every teacher in Ontario is fully seized of the value of drawing for its own sake, to say nothing of its aid in other subjects.

The subject of drawing is intimately associated with the study of form. Drawing is just one method of expression, so a complete study of form involves also the drawing of the form in outline, light and shade, and color.

When a child comes to school at the age of about five years, he can fairly express himself by language and very imperfectly by means of drawing. Now it is plain that before a pupil can express himself he must have some thoughts to express.

There is a proper order to be observed in the study of form. This order is the same as the foundation of the kindergarten. Froebel realized that the whole education of man comes through the study of things in the universe. He recognized a unity in all material forms, and that if a proper knowledge of these forms is to be gained it must be through observing the unity of all forms and all activities. In order that a child might study and recognize this unity Froebel selected certain type-forms as a basis of study to which the pupil might refer all material forms in nature.

These type-forms, or solids, are the sphere, the cylinder, and the cube.

"The Sphere is the type of the universe. There are the multitude of the stars, the sun, the moon, and this earth, a universal host of varying size, position, material, and movement; yet when reduced to unity they are simply spheres moving with circular motion." Nearly all fruits are spheres or its modification. Why does nature select the sphere as the prevailing form for its fruit? The reason is not difficult to see. Nature never wastes material. The object of every plant is to perpetuate its species by producing seed, and the germ of this seed is provided with protective material. Now only the smallest possible amount of this non-essential protective material is produced. The sphere contains more matter for the amount of surface exposed than any other solid. Hence we see why all fruits are spheres, or pertain to the spheroidal type, unless other reasons tend to change their form. The unit of all plants and animals is the cell, and it is spherical when single, unless it becomes differentiated to perform some particular function.

If we search the mineral kingdom we find many varied forms of crystals contained by plane faces and straight edges. From these Froebel chose the Cube, as presenting in the simplest manner straight edges, plane faces, solid strength, and rest.

The Cylinder is the prevailing type of life and growth. The trunks of trees and stems of plants are examples.

The first thing to do in the study of form is to present to the observation of the class, by sight and touch, the three solids—sphere, cylinder, and cube. Point out to them the action of the sphere and the cube. The sphere, always ready to move, is the type of life. The cube is the type of rest. It is difficult to move. The sphere *rolls* because its face is *curved*. The cube *slides* because its faces are *plane*. The cylinder is intermediate in its form and action. It *rolls* on its *curved* face, but in one direction only. It will *slide* on either of its *plane* faces. Give the names of the type-solids, and get the children to repeat the names as often as possible during the recitation. For young children the word "ball" is preferable to sphere, as it will be found that some time after they will have forgotten the word sphere, and will say "spear" instead. By familiar talks *with* the children lead them to see the beauties of the pure type forms. Get the children to tell stories of the type-solids, and always have them express themselves in complete sentences. Make the most possible of this, their only method of expression. Nothing is better for language training than getting the pupils to express themselves in perfect sentences. Ask the pupils to name objects like the type-solids, and to bring similar ones. In this way a large number may be obtained.

THE SPHERE.

Take up now the particular study of the sphere. Note its action; it will *roll* because its surface is *curved*. Each pupil should have a sphere. A rubber ball will answer the purpose very well. To express the sphere in language is to give its definition. To give a definition of the sphere or any solid is to describe its face or faces, their *kind*, *number*, *shape*, and position. The sphere is a *solid. A solid is a space enclosed by a face or faces.*

To teach the kind of face note the action of the solid when on that face. If it *rolls* when pressure is exerted upon it the face is *curved*, and if it *slides* the face is *plane*. Count the number of faces. It is not necessary to define the *shape* of curved faces.

To teach position place the sphere and cube, or any two objects, on the desk in view of the pupils. Ask the position of the cube with regard to the sphere? *Ans.* The cube is to the right of the sphere. What is the position of the sphere with regard to the cube? *Ans.* The sphere is to the left of the cube. Now, the *position* of the face, or faces, of all solids is defined with regard to some

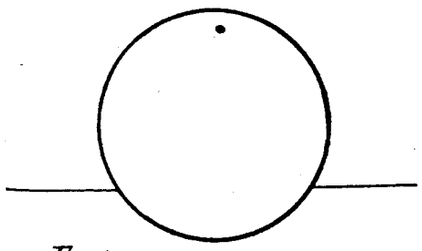


Fig. 1. A.C.C.

point, or line, in them. The location of the face in a sphere is defined with regard to the centre.

To teach centre carve a sphere out of a large potato, or turnip. Take a wire—a knitting needle is best—and run it through the sphere made from the turnip, from one part of the face to a point directly opposite. Mark down this length on a paper. Now repeat this several times and record the lengths. Ask the pupils how these several lengths would compare with each other. How would the lengths compare should you perform this operation many more times? Now divide the sphere with a knife into two equal parts. What do you notice about the position of the holes made by the needle on the surface laid bare by the knife? They all pass through one point. This point is called the centre of the sphere, and it is in the centre of the plane face. Measure the distance of the centre from any point in the curved face. Compare these lengths with each other and with the lengths found when the sphere was whole. What is the position of the centre with reference to the curved face? What is the position of the curved face with reference to the centre?

The blackboard sketch should be something like the following:

Sphere.
A solid

Face.
- *Kind.* The face of the sphere is curved.
- *Number.* The sphere has one face.
- *Shape.*
- *Position.* Every part of the curved face is the same distance from a point within it called the *centre.*

Now get the class to combine the three above statements and they will have the definition of a sphere. Even pupils in the first class, if they can read the blackboard sketch, can be taught to combine these facts fairly well. The amount of teaching, and the method to be pursued, will depend altogether on the age and experience of the class.

DEFINITION.—*A sphere is a solid, bounded by one curved face, every part of which is the same distance from a point within it called the centre.*

Now, since the pupils have expressed themselves by language, get them to express the sphere by modelling it in clay, and also by carving it out of some soft material. This must be done at first under the supervision of the teacher, but afterwards it will form a very interesting kind of *busy work* for the little folks. Don't hurry the young pupils. It is not the amount of the work that you get over, but interest and activity that you arouse that is going to be of value to them. We have now expressed the sphere by *language*, by *modelling*, by *carving*.

The sphere should be expressed by drawing it in outline. Use a Faber's H.B. pencil with the wood only cut away. The lead should not be sharpened to a fine point. A common blank drawing book, or small scribbling book, will do very well for recording the work in drawing. Before drawing the sphere place it on a book raised to such a height above the desk that a line from the pupil's eye to the top surface of the book will make an angle of about 25° with this surface. Ask each member of the class to observe carefully the sphere and the near and the far edges of the book. Draw a line to represent the sphere. All will no doubt draw a circle, or a line intended for a circle. Pupils, from the youngest to oldest, should be taught to sketch in faint lines the outline of an object first, and then by other faint lines correct this till a true outline is obtained. When the perfect outline is obtained it should be strengthened by a firm, even, gray, not black, line, drawn deliberately. The teacher should not permit pupils below the third class to use erasers, and should permit them to be used but very sparingly in the higher classes, and then only under the direction of the teacher. Ask each member of the class what the line drawn actually represents. If pupils are taught right here what a line represents in outline drawing, a great deal of trouble will be saved in the future. Many may not be able to tell what the line represents. To

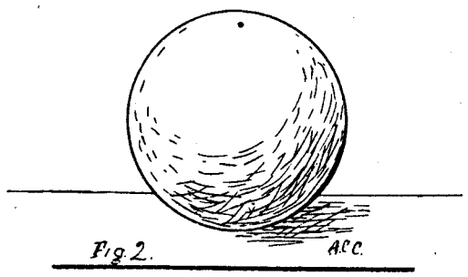
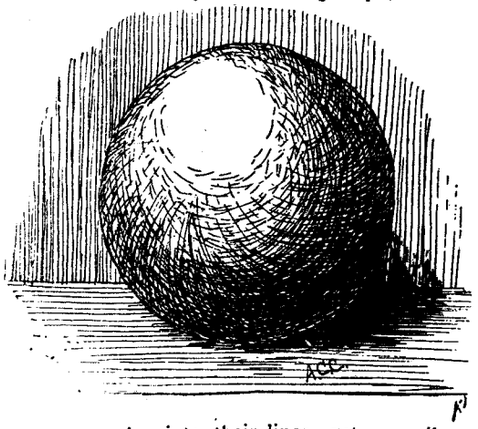


Fig. 2. A.C.C.

teach what a line represents hold the cube so that one face is visible to the class, and get them to draw this face. All will draw a square. What do these lines represent? They represent *edges*, or the limit of the face of the cube. There are no edges on the sphere, and the line that they have drawn cannot represent an edge. Here is an answer I got from a young pupil some time ago: "This line represents as far as you can see on the surface of the sphere." This is precisely what it does represent, or, to be more exact, it represents the limit or boundary of our vision on the curved surface of the sphere. We saw before, in the case of the face of the cube, that a line represents an edge. *Now, in outline drawing a line represents an edge, or our limit of vision on a curved face.* Strictly speaking, there is no outline in nature. What we represent by a line is the boundary of different shades. Look at the mass of the sphere and the book with eyes partly closed and you will see that the mass of the sphere hides part of the book and whatever is behind it. After the outline of the sphere is drawn, put a mark on the highest point of the sphere. Show by a dot this point in your drawing. This point, although the highest point of the sphere, is not *apparently* the highest point, as the limit of vision on the surface is apparently above the point; therefore the dot in the drawing will be a slight distance within the top of the circle. The next thing to do is to represent by a line the far edge of the book. Can all this edge be seen? What hides part of it? How far up on the sphere does this edge appear to be? Represent this edge by a line in the proper position. The near edge of the book will appear lower down than the bottom of the sphere. Represent this edge also by a line in the proper relative position.

In a drawing every line should be made expressive. No line should be drawn unless it has a meaning. The lines that represent the near and far edge of the book should be drawn so as to suggest distance. One should appear near you and the other farther away. To teach the pupils how



to put meaning into their lines, get a pupil to stand at the back of the room. Hold up a pencil and ask the pupil to look at it. Ask him to move to within three or four feet of the pencil and again observe it. Ask him in which position he can see the pencil more distinctly. Now draw two lines on the board, one a light line and the other a heavy one; which line will represent the pencil when the pupil is near it, and which when he is far from it? Which line represents the near edge of the book? How should its thickness compare with the thickness of the line that represents the far edge of the book? How should the line that represents your limit of vision on the surface of the sphere compare in thickness with the other two lines in the drawing? Edges that are nearer to our eye than others are drawn heavier because we can see them more distinctly. Shade and shadow may be suggested by a few lines as in Fig. 2. For the full explanations with regard to the suggestion of surface I would refer you to a previous article in THE JOURNAL.

In teaching the drawing of the sphere and the two edges of the book be sure that every pupil sees the lines in the relation that they are drawn in the picture. No one should draw the lines in this relation unless they see them in the object. It is of more importance to see correctly than to be able to draw the lines without seeing.

The general method of teaching the sphere and its expression by language, modelling, carving, and drawing is given in the above explanations. The teacher must adapt the style of question and manner of teaching to the knowledge and capacity of the pupils. Dwell upon the sphere as long as interest can be maintained. Do not hurry over the work. Go slow at first, that you may be able to go faster later on.

The next paper will deal with objects like the sphere and the spheroids, and will contain a number of illustrations.

TOM BROWN.

BY M. A. WATT.

Author, Hughes. Born, 1823; died, 1895.

Introduction.—Tom Brown and his friend Eas had been getting into ways that were harmful, and Dr. Arnold, who knew the boys to be good in the main, looked about for some plan to help them. Separating them was the first thing needed, and then he looked around for something else for Tom, whose great heart he realized to be gentle and

kindly. With deep insight into the lad's character, he selected a new boy, George Arthur by name, to be Tom's charge. It was not at all to Tom's fancy to be appointed "bear-leader" to any new boy, and especially to one who looked so frail and timid as Arthur did, for Tom's ideal boy was one who could fight and play cricket and football. Cowardice was the unpardonable sin in his code. However, there was nothing to say when the doctor had made the decree, so Tom submitted with the dogged patience of an Englishman under orders.

The extract we have here given falls naturally into six divisions, which the pupils may name to suit their own ideas, if so desired. A good result was shown at the last examinations, however, by classes whose members had been taught a set form, much better marks being obtained than by classes left to their own sweet will in choosing headings for the divisions of the literature lessons.

A sufficiently appropriate set of headings for this lesson would be :

1. Arthur under Tom's disregard (taking up a page and a half).
2. Arthur proving his bravery (told in one paragraph).
3. Tom protecting Arthur (told in three paragraphs).
4. Tom struggling (taken up in seven paragraphs).
5. Tom showing his bravery (told in one paragraph).
6. The effect (told in two paragraphs).

A story told in the pupils' own words, using these headings, will embrace the whole extract. While writing this, the author's art should be carefully pointed out. The first section is treated so quietly and deliberately, and with so many words, the painting of small details is so carefully done, that when the second section is reached and the grand act is told, in eight or ten clear cut words, it comes upon us with surprising force. We feel "the sudden silence." Again, Tom's act of manly courage (probably no child will deny that it was a greater act of courage than was Arthur's) is told in one short paragraph.

1. *Arthur under Tom's disregard.*—Prove the appropriateness of this heading, or suggest a better. What schoolhouse is meant? (Some pupil will have a copy of the "School Days" and will explain the names and positions of the various houses in which the boys lived). What is meant by "who came late"? Paraphrase the last sentence in the first paragraph, so as to make it clearer. "Directly" is an Englishman's word for "immediately." What is its usual meaning among Canadians? What was the resemblance between the new boys and "young bears"? What did Tom think of, as he looked at Arthur and led him up to bed ("he thought of it")?

To what does the first word of the second paragraph, "It," refer? "Close"; an enclosed yard, necessarily of large size in this case. "Fags"; boys who were obliged to do work imposed on them by the older boys. "Fatigo" appears to be its derivation, and there is a common adjective "fagged," meaning wearied. (Tom, by his dogged strength and resistance, would not be a "fag," in spite of great bullying.) "Verger"; a janitor. From what word would you judge the period of the world's history during which Tom attended school? (Candles.) "To read"; to study. Explain "responsible for the discipline." "Therefore"; what is referred to here? "Their entrance." Whose? Supply a word after "elder."

2. *Arthur proving his bravery.*—Arthur was the son of the widow of a clergyman, and had never been away from home before. Point out proofs of his timidity and ignorance of boys' ways. Give synonyms for "overwhelmed," "novelty," "clearly," "presently," "paused," "timidly," "ablutions." Show the value of the phrase, "as painful as it was strange to him." Why did Tom "stare" when Arthur spoke to him? Give two probable reasons.

We have now come to the high light of our picture, the climax. Note the artful touches of the writer: the small white figure of Arthur, the little boys sitting up in bed, the noise, the lights burning clearly, the strangeness of it all to the child. How many of us have been tried in the same way! It appeals to us all with the "touch of nature which makes the whole world kin." Arthur's noble mother's training was shown by her brave son. "This time he did not ask Tom what he might or might not do," but, as he had done from his earliest infancy, he knelt to commune with his Heavenly Father. Wise Dr. Arnold! His own brave Christian spirit had its influence upon the school, and to his insight into Tom Brown's character the world owes the noble Christian influence of Thomas Hughes.

3. *Tom protecting Arthur.*—Give your opinion of the boys who laughed and sneered. Were they worse than the "brutal bully"? Write a note on Tom's conduct. What led Tom to act as he did? What checked any further disturbance? Notice the discipline. Explain.

4. *Tom struggling.*—Here is quick, powerful writing. Read it over and write down Tom's thoughts in short sentences. Which was the hardest to bear? Which caused him to cry? What did he resolve? Why is Tom's age mentioned? Give synonyms for "punctual," "deserted the pillow," "excitement," "no light act of courage," "in earnest," "bitterest," "sense of his own cowardice," "vice," "loathed," "braggart," "bear his testimony."

5. *Tom showing his bravery.*—What added to the hardness of Tom's act? What prayer did he find to suit his need? Find it in the Bible, and tell the story of it. What emotions preceded the prayer? What followed it? What is the reference in "*It* was not needed"? How many boys had Arthur influenced already? "Glimmer of another lesson." *Another* refers to some lesson previous to this one. What was it? Also, what was this lesson? Where in the Bible, "that pure well of English undefiled," did Thomas Hughes find words similar to "He who has conquered his own coward spirit has conquered the whole outward world"? What was the effect of Tom's bravery?

Write notes on "exaggerated," "produced," "lead." Compare Arthur's act with Tom's. Write the grandest thought in this story.

PUBLIC SCHOOL LEAVING.

TO DAFFODILS.

BY W.

The first thing required of the members of the class, in taking up this lesson, should be to read it carefully as a whole as often as may be necessary to catch its general meaning and spirit and to appreciate its true and touching sentiment. They may then be asked to classify it, which they can readily do as a lyric, both from its form, as adapted to a musical setting, and from its subject-matter, which is at once seen to be of the sentimental—using that word in its original and proper sense—or emotional kind. A few questions adapted to test the pupils' understanding, not only of the general meaning of the stanzas, but of their subtler turns and shades of thought, will help both teacher and pupils in the closer and more critical examination. By revealing to the pupils their deficient mastery of the meaning this will create in their minds a deeper interest, while it guides the teacher in the course of his explanations and questionings.

What, then, is the exact course of the poet's thought? This is, it must be confessed, a question not easily answered with precision and confidence. Like much of the lyric poetry of the period, the lines are full of subtle conceits, conveyed in somewhat obscure and not always faultless metaphors. In the first stanza the chief difficulty is in determining whether the "early rising sun," "the hasting day," etc., are to be taken literally or metaphorically. If the former, what is the exact meaning? Is it implied that the daffodils fade, or haste away, before noon of the day in which they blossom?

This would not be true to the fact. If it were, what would be the poet's meaning in saying that if the daffodils would stay till evening (even-song) he ("we") would go with them. That could not be understood literally, but would have to be taken as a metaphor mixed in confusingly with a simple statement.

Perhaps the most probable explanation is that the language of the stanza is used metaphorically in reference to the fact that the daffodil, coming with the spring, dies before the summer. In that case, "early-rising sun," hasting day," "even-song," etc., must be understood to refer to the season of spring, and not to a literal day. This meaning seems like a straining of the language itself, but harmonizes with that of the second stanza. The writer confesses that he is unable to analyze and explain the two stanzas to his own satisfaction. He will be very glad, as will, no doubt, many another, if some one can and will throw a clearer light upon the subject. The comparison of the short life of men with that of the flower is, in a general way, clear enough and poetically truthful.

STANZA I.

Fair Daffodils.—(*Daffodil*, *asphodel*, from the Lat. *asphodelus*), called also daffodil, daffadilly, and daffadowndilly. Daffodil is the popular English name of a plant of the amaryllis family, *genus* Narcissus. It has large bell-shaped flowers of a bright yellow color. The common daffodil is a native of England and most parts of Europe, growing in woods and hedges.

Early Rising.—What season is indicated by this epithet? When does the sun rise early?

Noon.—Is this word to be taken literally, or metaphorically, in reference to the season, the whole year being conceived of as a day?

Hasting.—This term may denote simply the fact that the sun's course is quickly run, the day soon past, or, more probably, it is intended to suggest the idea, which the classic poets have made familiar, that the course of the sun after it has passed the zenith is apparently downwards, and so the sun-steeds may be supposed to move more swiftly. The thought is that the day is short and the evening will quickly come.

Evensong.—A form of worship for the evening—"Vespers" in the English Church. Frequent allusions to it are found in the earlier poets.

> Thee, 'chantress of the woods among,
> I woo to hear thy evensong.
> —*Milton:* Il Penseroso, 64.
>
> It opened at the matin hour
> And fell at evensong.
> —*Rossetti:* Symbols.

He tuned his notes both evensong and morn.
—*Dryden.*

And sat, and wished, and sighed for evensong.
—*Jean Ingelow.*

The word is poetically rich by reason of its homelike and sacred associations.

Will go with you along.—Does this refer to retiring for the night or to death? Give reasons for your opinion.

SECOND STANZA.

To meet decay.—Explain carefully your conception of the thought in this line. Does the poet mean that the object of growth is to prepare for decay, or only that decay is an inevitable sequence of growth? In either case, develop the fullness of meaning wrapped up in this short phrase.

Anything, etc.—At first thought this word will probably jar a little on the ear, as if used without special significance, merely to fill out the line. Perhaps closer study will remove this impression. If *anything* is meant to suggest *everything*, it adds greatly to the pathos of the sentiment.

As your hours do.—Is this a mere circumlocution, to fill out the line, or is it meant to convey something more than would have been done by the simple "as you do." Perhaps it adds to the thought by suggesting a contrast between the hours of the life of the flower and the years of that of the man.

Summer's rain.—Why "summer's"? Would spring's or autumn's rain do as well?

BIOGRAPHICAL NOTE.

Robert Herrick was born in Cheapside, London, A.D., 1591, and died at Dean Prior, in Devonshire, in 1674. His father was a London goldsmith. Robert was educated at Cambridge. He took orders in the Church of England, and was presented by Charles I. to the vicarage of Dean Prior. After about twenty years, the civil war deprived him of the living, and he went to reside in Westminster. After the Restoration he was replaced in the vicarage, which he retained until his death, which took place in his eighty-fourth year. Of Herrick's life as a clergyman we know but little, and that little is not such as to give us very high conceptions of his dignity and earnestness. Of the mass of his poems, thirteen hundred in all, not one is lengthy. One of his critics, who compares them to a mass of jewels of widely varying values heaped together in a casket, says of them:—"Some are of the purest water, radiant with light and color, some were originally set in false metal that has tarnished, some were rude and repulsive from the first." Herrick himself sums them up as follows:

I sing of brooks, of blossoms, birds, and bowers,
Of April, May, of June and July flowers,
I sing of May-poles, hock-carts, wassails, wakes,
Of bridegrooms, brides, and of their bridal cakes.

HALF-YEARLY PROMOTION EXAMINATIONS—PETERBOROUGH PUBLIC SCHOOLS.

June, 1896.

CANADIAN HISTORY — JUNIOR 4TH AND SENIOR 3RD.

75 marks + 5 for neatness. Time, Junior 4th, 2 hours; Senior 3rd, 1½ hours.)

[Third class pupils will answer the first five questions; Fourth class pupils, the whole nine.]

1. Draw a map of North America and the northern portion of South America, and mark on it districts settled by the English, the French, and the Spaniards, respectively. Tell, briefly, the stories of these settlements.

2. Write out a statement of the periods of Canadian history, with dates, and mention the most important event occurring during each.

3. On the map in question 1, mark the routes followed by Cartier, Champlain, and La Salle, respectively, in their discoveries. Mark Cartier's route with a single line, Champlain's with a double line, and La Salle's with a triple line. Place a cross at points in the routes where cities are now situated.

4. Write an account of the introduction of royal government in Canada, telling when and why it was introduced, and giving the branches of which it was composed.

5. Draw a map showing the English and French possessions in America, just before the war of the boundary lines, and marking the chief forts. Give a full account of the war.

6. Give the dates of the Quebec Act, the Act of Union, and the British North America Act, and state very briefly the provisions of each of these Acts.

7. Write short sketches of the careers of Brock, Ryerson, and Louis Riel, mentioning what each did to make his name famous or notorious.

8. Give an account of the settlement of the U.E. Loyalists in Canada.

9. Give the dates of the Ashburton Treaty and the Washington Treaty, and tell what questions were settled by each of them.

Values—Senior 3rd class, 15 marks to each question; Junior 4th class, 8⅓ marks to each question. Deduct half a mark for each word misspelled.

SPELLING—JUNIOR 4TH.

There is reason to believe that the waters of the Gulf Stream are nowhere permitted in the oceanic economy to touch the bottom of the sea.

The syrup, in sugaring off, is congealed into a delicious substance without crystallizing.

Columbus, in order to pacify the turbulent clamor of the crew, who lately had harassed him with their incessant murmurs, endeavored to sooth them with gentle words.

King Edward, being relieved from imminent danger, immediately besieged Calais.

The heavens, when viewed through the largest telescope, show an infinite number of worlds, travelling through space at a velocity so great that we are at a loss to conceive it.

Horror, independent, sovereign, attendants, cavalry, armor, despatched, pennons, zigzag, deferred, tenacity, unravel, bosom, expanse, rolling, inexpressible, penetrate, musician, glacier, aqueous, vapor, condensed, diligence, lazily, precisely, precious, defendant, angels.

Value—75. Deduct 3 marks for each word misspelled.

GEOGRAPHY—JUNIOR 4TH.

Time. 1¾ Hours.

(A maximum of five marks may be added for neatness.)

1. Draw a neat outline map of Europe, showing the following:
   (*a*) Great Britain and the chief British possessions.
   (*b*) The great continental watershed (divide).
   (*c*) The Volga, Danube, Rhone, and Rhine rivers.
   (*d*) The outlines of Germany, France, and Spain.

2. A train is loaded at Peterborough with samples of the natural products of Central Ontario, intended for exhibition at Glasgow, Scotland.
   (*a*) Mention the grains, fruits, animals (including fish), woods, and minerals that might properly be included.
   (*b*) Give the route over which the "exhibit" would travel in reaching its destination.

3. Draw a circle to represent one half of the earth, and mark on it the following:
   (*a*) The equator, the tropics, the polar circles and the poles.
   (*b*) The North Temperate Zone, with its width in degrees.
   (*c*) As many meridians as possible, making the meridians thirty degrees apart.

4. M. Louis LaMonte, of Paris, has written in quiring about Manitoba, with a view to settling there. Write an answer to his inquiry, giving information as to the following particulars: (*a*) Where it is. (*b*) Its area and population. (*c*) The surface. (*d*) The products. (*e*) The races of people, and their employments. (*f*) The climate. (*g*) The schools. (*h*) How he may reach it.
(Omit the "heading," and make your letter to the point.)

5. Beginning at the west name the states of the United States that border on the Great Lakes and the River St. Lawrence. Name the capital of each and tell where it is situated.

6. What and where are Jamaica, Esquimalt, Bermuda, Crimea, Birmingham, Clyde, Scandinavia, Cork, Venezuela, Peace, Ural, Lyons, and Saskatchewan.

7. Write a short description of the Mississippi Valley, noticing the following particulars: (*a*) Its boundaries. (*b*) Its slopes. (*c*) The chief rivers which drain it. (*d*) Its natural products.

Values—20, 12, 12, 10, 10, 13, 12. Deduct half a mark for each word misspelled.

LITERATURE—JUNIOR 4TH.

Time, 2¾ hours.

(A maximum of 5 marks may be added for neatness.)

Part I.

1. Quote *one* of the following:
   (*a*) The last three stanzas of "Ring out Wild Bells."
   (*b*) The stanzas of "Lady Clare" which give "Lord Ronald's" noble action.
   (*c*) The whole of "Lead, Kindly Light."

Part II.—(Reader, page 43-5.)

1. Write down, *in your own words*, fifteen things which the boy has learned by observation.

2. Write a clear word-picture of the evening scene, as the boy ate his supper, describing (*a*) the boy, (*b*) the house, (*c*) the regal tent, (*d*) the landscape, (*e*) the "orchestra."

3. "I was monarch."
Point out as many ways as you can in which the surroundings of the boy resembled those of a monarch.

Part III.—(Reader, pages 63-66, and 68-71.)

1. Give the subjects of the first four paragraphs.

2. Make a rough drawing of the first end of "the bridge," showing five arches, five trap doors, and the water beneath. Number the parts, and write a short note explaining what each part signifies.

3. Describe in your own words "the mansions of good men."
What did the rock of adamant signify? What lay beyond it?

4. Divide your page into three columns. In the first write the following words; in the second write their pronunciation; in the third their meaning (in this lesson): *Oriental, contemplation, wrought, melodious, familiarized, soliloquies, consummation, innumerable, hovering, speculations, dissipated, miserable.*
[Before distributing the readers, allow twenty minutes for answering question I.; then collect the answer-papers.]
Values—12½ each. Deduct half a mark for each word misspelled.

SHALL OR WILL.

The magazines have been discussing afresh the chronic injustice done by the majority of American and Scotch writers to Mother English by the misuse of "shall" and "will." They have, at last, it is said, fallen back upon the rule given in the old school grammar, and now prescribed anew by a prominent literary critic.

I shall, thou wilt, he will, we shall, you will, they will, expresses futurity. I will, thou shalt, he shall, we will, you shall, they shall, expresses volition.

Do not write your friends, "I will be pleased to see you," for you will thereby proclaim your literary inexperience.

Write, "I shall be glad to see you," and even if they do not detect the nicety of your taste, the expression will seem more euphonious, and be comforting to their unconscious linguistic nerves.

Second and Third Classes.

Complaint has sometimes been made that, while THE JOURNAL contains almost everything that could be desired for the Primary classes in the Public Schools, on the one hand, and for Entrance and Public School Leaving classes, on the other, sufficient attention has not always been given to the special work and wants of the intermediate grades, including the Second and Third Book classes. Teachers of these classes have, in a few cases, said or written to us, "THE JOURNAL is, on the whole, an admirable teacher's paper. It contains much that must be very helpful to almost all classes of teachers, except those who are conducting Second and Third classes in the Public School. But my work is with these classes, and I do not find much to help me in my own particular work." We cannot quite agree with our friends in this matter. We cannot but think that if they will only read a little more closely they will find that our columns from number to number contain very much that must be helpful and stimulating to them as well as to others. We strive to have every number replete with hints and methods, and practical suggestions, and broader discussions of educational principles, which can hardly fail to be helpful to teachers of all classes and grades, from the lowest to the highest, if they will but give the time and attention necessary to make the best use of them.

At the same time, however, we are quite willing to admit that there may have been some deficiency in the respect indicated in the past, and we thank those of our readers who have called our attention to the matter. In accordance with our usual practice and fixed purpose, to become conscious of a defect means to set about finding a remedy. We, accordingly, commence with this number a new department, for the special use and benefit of the classes referred to. This we shall strive to improve and perfect as we proceed, and find out more definitely just what will best serve the interests of those for whose benefit the department is intended. Will not teachers of Second and Third classes, in city and country, kindly aid us in this matter by making known freely their wants, by giving us their views on various points connected with the work in these classes, and especially by sending us brief articles in the shape of discussions, suggestions, methods, experiences, etc. This will help the writers no less than it will help other readers and ourselves. With the kind co-operation of our many friends, in this way, we hope to make the page, or pages, for Second and Third classes among the most interesting and profitable in the paper.

MULTIPLICATION.

BY A PRACTICAL TEACHER.

There are few points upon which more complaints are made than are made on the subject of multiplication. When children are promoted from the Second class it is expected of them that they shall be quick and accurate in the operations of multiplying and dividing, but too often it is found that there is a *flabbiness*, as one might say, about their mental attitude in regard to multiplying. The teachers of the senior grades are crowded with work, and have no time to do enough review work to correct this weakness, and so the complaints are woefully made, "I do not know what to do with that boy, he does not know his *tables*, even"; or, "There's a girl who cannot get one answer right in multiplication, and she's not the only one, alas!"

Now, this is a common trouble, not confined to one section or another. What can be the cause? or, better yet, What is the cure? The ordinary cause is that the class is hurried from multiplication into division before they have mastered the rationale of the first, or become accurate or secure in their multiplication tables. Much better would it be for the Junior Second class to be taught multiplication thoroughly and the Senior Second class to take up division, instead of, as is now the practice in many schools, the Junior grade have to cover multiplication and short division before passing to a higher class. The average child has enough to do, especially in the short term, to grasp the processes of multiplication, without being bewildered by a new process, even though the same tables are used in it.

The cure lies in practice, and that continual. The tables must be thoroughly memorized; nothing can be done without quick, accurate recalling of their facts. They should be taught first by addition, two times followed by three times, and the pupils constructing the rest for themselves. The usual form of the tables should then be given, and much practice allowed on them, in writing them and reciting them as well as using them. It is not the fashion nowadays to allow the class to chant forth the tables in a high key (though, doubtless, 90 per cent. of the objectors to it learnt them in that way), but a good substitute for this old custom is to draw on the blackboard or on a card a large circle, dividing the circle into twelve parts in which are placed the figures from one to twelve, and in the centre drawing a smaller circle, to contain the number which is the multiplier. With a pointer the teacher drills on the table named; then she picks out a pupil whose voice has been steady in the good work, to be the leader of the game. Another and another follows, until the exercise is satisfactory. Then mental work on suitable problems (business-like as possible and useful), and after that more difficult work on slates or scribblers. The teacher must occasionally bring up a child who is poor in memorization, and see that he or she is receiving special aid and encouragement. Let the work be made as clear as possible. There is often too much formalism and mystery, especially in the wording of definitions. There is one part of multiplication which is commonly troublesome, and that is where the pupil has to multiply by several figures, especially when there are noughts in the multiplier. Then say, in the simplest words you can get:

"When you multiply by the first figure you just put down your answer as usual; when you multiply by the second figure you put your first figure of *it* under the second figure of the first answer, and you keep on in the same way with the rest, the third under the third, the fourth under the fourth, and so on."

There is a good deal of fascination in the use of the second personal pronoun to a child, and he will understand that rule better than if put thus: "When multiplying by," etc.; and, if they understand it, it will do away with the useless rows of ciphers we find propping up the other figures, doubtless to keep the additions straight in the final product. Of course, the putting down of the noughts will be found useful, perhaps indispensable, in aiding the pupil to understand the *reason* for the rule. The good teacher will, we assume, take special care that the pupil shall follow no rule mechanically until he has first been led to understand the reason for it. In this case it is not difficult to make it clear to the average child that the process indicated in the foregoing rule is really an abbreviation of the much longer one. He should first be made to apprehend, and afterwards be occasionally reminded by appropriate questions, that while the right-hand figure of the multiplier denotes units, the next to the left denotes tens, the third, hundreds, etc., and that the multiplying of the units of the multiplicand by so many units gives the product in units; by so many tens gives the product in tens; by so many hundreds, the product in hundreds, etc.

For practice, time-tests are generally pleasing. Say such a one as: 76432 multiplied by 3, the multiplication of the multiplicand first, then that answer multiplied by 3, then the next answer by 3, and so on, all multiplied by 3; as many lines as can be done in two minutes, timed by the watch. A test where time is mentioned, as much work to be done as possible, draws out the varying abilities better than one where the number of lines is specified; the latter is good for seat practice. The teacher should have a number of such tests worked out in a book, and the answers should be scrupulously taken, as interest dies out otherwise. These tests are valuable for any class, and teachers taking up new classes will find them doubly profitable, affording the class some concentrated, earnest work, while giving the teacher a chance to judge her pupils and form some idea of their powers. Again, we must say that, to cure this weakness, there is nothing like practice, and that continual.

PHYSICAL EXERCISES.

At the mention of physical exercises a teacher usually thinks of a fixed code of signals, followed by motions, or movements, on the part of the pupils. Very delightful these are, especially if the pupils are required to do them exactly and well. But how entrancing must it have been in the school I was reading about lately, where the teacher told a story, and the pupils imitated and personified the various objects mentioned. I cannot do better than quote:

"A splendid arm movement was secured by imitating the movements of a frog. Each child, for the moment, really entered into the frog's life, thinking himself a mammoth frog swimming in the water. With arms reaching upward the children stretched and straightened their bodies to the utmost, inspired with the thought of the tall, straight trees in the grove, which their active imaginations pictured themselves to be. The personification of slender stalks of corn swaying in the breeze gave splendid side-bending movements, while the thought of the sunflower turning its face towards the sun inspired earnest head-twistings to see an imaginary sun in the rear. Filled with the idea of a young tree bowing its head before a mighty wind the youngsters made forward and backward bends worthy of trained gymnasts. Thus the teacher, with a delightful story, brought before the minds of the children, one by one, scenes from nature which set every group of muscles going with the same joyous impulse which stimulates the lamb to gambol in the pasture and the birds to leap with joy in the trees."

It may be thought that only young children care for these exercises, but such is not the case. We should have a regular daily march to music (even if only made with a comb and a piece of paper, you cannot do without the music), and an exercise performed in a gay, lively, but exact manner, at the end of each hour. No reward is more eagerly looked for and enjoyed. And injudicious, indeed, is the teacher who punishes her listless, inattentive class by withholding the march. She punishes herself much more than the deeply aggrieved children. It is intended, further on, to publish in

this department a set of exercises, which have been tried and proven, suited to a second or third class, but, in the meantime, do not forget the daily march, with open windows and cheerful music. Again we quote :

"Exercise, to be healthful, to be stimulating, invigorating, and renovating, must be joyous, spontaneous, mind and soul absorbing, as well as muscle-moving."

HALF-YEARLY PROMOTION EXAMINATIONS—PETERBOROUGH PUBLIC SCHOOLS.

June, 1896.

LITERATURE AND LANGUAGE—JUNIOR PART II.

Time, 2¾ hours.

Part I.

1. Write down from memory *one* of the following :

(*a*) The first two stanzas of "Mamma's Kisses."

(*b*) "Evening." (*c*) The last two stanzas of "Stop, Stop, Pretty Water."

2. Put the words below together so as to make a statement. Then change the statement (1) into a command ; (2) into a question ; (3) into an exclamative sentence. (Put in other words where they are needed).—Blue we pretty gather meadow white in wild flowers the and

3. Here are the words of a letter. Write it properly, using capitals and punctuation marks :

Peterborough ont june 23, 1896.
miss may Jones 85 king st toronto ont.
dear friend, i received your kind letter and we were all very glad to hear from you, we are having our promotion examinations just now, and i am very busy ; so i barely have time to write you a hearty invitation to spend the holidays with us at our summer-house on stony lake. father and mother join with me in the invitation we will leave peterborough on july 2 and will return about sept 1st. i count very much on your coming may. please write and say yes.
your friend. (Sign your name.)

4. Fill in the blanks in these sentences with *is, are ; went, gone ; saw, seen ; ran, run.*

"……you ready?" "Yes, and Willie has ……to school ; he……some other boys ahead and……to catch up with them."

5. Write these words in a column ; after each write its meaning ; in another column write other words pronounced like these, but spelled differently : *sail, great, there, meat, sea, night, would, dough, heard, lesson.*

6. Write the story the teacher reads to you, using your own words.

No Readers required. Twenty minutes before the time expires the teacher will please read the last four stanzas of "They Didn't Think" *twice*, aloud ; then allow fifteen minutes for its reproduction.

Values—17 marks each. Deduct half a mark for each word misspelled.

LITERATURE AND LANGUAGE—SENIOR PART II.

Time, 2½ hours.

A maximum of 5 marks may be added for neatness.

Part I.

1. Write down from memory *one* of the following :

(*a*) "Drive the Nail Aright."

(*b*) "The New Year."

(*c*) The first two stanzas of "Evening Hymn."

2. Write a short letter to a friend, whose address is 34 King Street, Kingston, Ont., inviting him (or her) to spend the holidays with you.

3. Fill the blanks in the following sentence with words chosen from this list : *Rise, raise ; sit, set ; these, those ; lie, lay ; this, that.*

(*a*) ……a napkin by each plate……the lamp on the table, and then……and rest till tea time.

(*b*) In……happy days we spent the time in ……old wood.

(*c*) ……not in idle sleep ! ……with the lark and watch the sun……in the east ; then, to work until he ……in the west.

4. Red Ridinghood said, "oh grandmamma what big sharp white teeth you have what are they for"

The wolf answered, "my dear grand daughter those are to eat you with"

Write out the above, using capital letters and punctuation marks in the proper places.

Part II.—(Reader, pages 82-85.)

1. Write eight or ten lines telling what the girls and boys did to make the school look brighter.

2. Divide your paper into two columns. Write the words below in the first column ; in the second, write other words pronounced the same, but spelled differently.—*One, some, their, to, four, seen, flowers, rain, holes, not.*

The teacher will kindly allow one-and-three-quarter hours for answering Part I. ; then collect answer-papers. After ten minutes recess, distribute Readers and allow three-quarters of an hour for answering Part II. Please give necessary explanations and directions.

Values—17 marks each. Deduct half a mark for each word misspelled.

COMPOSITION AND LANGUAGE—JUNIOR II.

Time, 2 hours.

A maximum of 5 marks may be allowed for neatness.

1. Write a short description of the school which you attend, making a little paragraph about each of these : (1) Its name, in what part of the town it is situated, and on what streets. (2) Its appearance, the material of which it is built, and the size and convenience of the playgrounds. (3) The number of rooms it contains, the classes attending each room, and the name of the teacher having charge of each class.

2. Readers, page 53.

Write the first and third stanzas, changing the words that *state* or express *action*, so as to make the stanzas mean past time.

3. Join the sentences in each of the following groups into a single sentence, expressing the same meaning :

(*a*) Maud is a good girl.
She is honest.
One may always depend upon her.

(*b*) Paul put the saddle on his horse.
This was on a cold winter's morning.
It was in the month of January.
He intended to ride to town.
His errand was to pay the year's rent to the landlord.

4. Your father has been absent for some months in Belleville, and has written you enquiring as to the health of the family and your progress in school.

Write a reply to his letter. Rule an envelope on your paper and address it.

Values—35, 15, 15, 35.

COMPOSITION AND LANGUAGE—SENIOR II.

Time, 2 hours.

A maximum of 5 marks may be allowed for neatness.

1. (Readers, page 182, first paragraph.)

Write this paragraph, and change all the name-words so as to make them mean more than one. Change the other words, where necessary, to make them correspond with the name-words.

2.
peterborough ont june 25 1896.
mr chas lamb
45 church st
montreal Que.

(*a*) Write the above letter-heading correctly, making use of capital letters, periods, and commas.

(*b*) Tell why you have but commas in the places where they are.

3. Heart, hart ; seem, seam ; stair, stare ; currants, currents ; flowers, flours ; to, too, two ; plane, plain ; plough, plow ; pistils, pistols.

Use the above words correctly in sentences.

4. A friend has invited you to a croquet party at her (or his) home on the afternoon of July 1st. Write an answer declining the invitation, on the ground of a previous engagement.

5. Write a little essay of three paragraphs about any one of the following :

(*a*) A journey across North America. (*b*) Description of any bird or animal. (*c*) A game of baseball. (*d*) A vacation among the "Back Lakes." (*e*) A Sunday-school picnic. (Make your essay at least 15 lines.)

Values—20, 21, 19, 40.

LITERATURE—JUNIOR II.

Time, 2¾ hours.

A maximum of 5 marks may be added for neatness.

Part I.

1. Write from memory any *one* of the following :

(*a*) The first two stanzas of the "Song of the Sleigh."

(*b*) The two stanzas from "Lost—Three Little Robins," that tell what the mother-bird said to the butterfly and the bees.

(*c*) The stanza from "The Squirrel" that tells how the squirrel spends the winter.

Part II.—(Reader, pages 15-17.)

1. What is a *fable?* Is this lesson a fable? What useful lesson does this piece teach us? Mention any other fables you have read, and tell what lessons they teach.

2. What is "flattery"? Write all the words of flattery the fox said to the crow.

3. Rule your paper in three columns. In the first, write down the list of words below ; in the second, write their pronunciation ; in the third, other words pronounced like them, but having different meanings : *Piece, flew, tail, see, to, told, more, heard, raise, grown.*

Part III.—(Reader, pages 68-70.)

1. What the coffee-fruit is like.
Description of the coffee-plant.

(*a*) Write the first three words of the two paragraphs of which the two sentences above are subjects.

(*b*) Write, *in your own words*, what is said of each of these subjects.

Part IV.—(Page 53.)

1. Write a little composition, describing the sleighing party as you *imagine* it, telling about the following :

(*a*) The sleigh and the horses.

(*b*) The people in it.

(*c*) The appearance of the fields along the road.

(*d*) What the party did and said during the ride.

2. Find the following passages in the lesson, and then write their meanings : "Hearts are light," "Health is on the wind," "Sweep the plain," "Moonbeams sparkle round," "Hoofs keep time to music's chime," "The fleeting chime."

Before distributing Readers, allow 20 minutes for answering question 1. Then collect the answer-papers.

Values—17 marks each. Deduct half a mark for each misspelled word.

LITERATURE—SENIOR II.

Time, 2½ hours.

A maximum of 5 marks may be allowed for neatness.

Part I.

1. Write out from memory any *one* of the following :

(*a*) The little stanza about the traveller scooping the well, and the good which it did.

(*b*) The first ten lines of "Somebody's Mother."

(*c*) "The Morning Hymn."

Part II.—(Pages 182-3.)

Open Readers and number the paragraphs 1, 2, 3, 4, 5, 6.

1. How the seed grows to be a plant.
The shapes of seeds.

(*a*) Of what paragraphs are these the subjects.

(*b*) Tell in your own words how the seed grow into a plant.

(*c*) Make drawings to show the shapes of the different kinds of seeds mentioned in the paragraph.

2. Rule your paper in three columns. In the first write the list of words given below; in the second write their pronunciation; in the third write their meaning: *Earth, beautiful, handsome, stamens, thistles, dandelions, covering, melon, plumes.*

Part III.—(Pages 164-165.)

Number the stanzas, 1, 2, 3, 4, 5, 6, 7.

1. Fill the blanks in the following:

Stanza 1 tells us how the grass beautifies the .....them look.....

Stanza 2 tells us.....

Stanza 3 tells us.....

Stanza 6 tells us.....

2. Stanzas 4 and 5.

Explain the meaning of "Low, sweet humming," "I come creeping."

Why is the grass "more welcome than the flowers"?

Why are the birds glad of its coming?

3. Explain the meaning of stanza 7.

Before distributing the Readers allow twenty minutes for answering question 1. Then collect the answer-papers.

Values—17 each. Deduct half a mark for each misspelled word.

LITERATURE—JUNIOR III.

Time, 2¾ hours.

A maximum of 5 marks may be added for neatness.

Part I.

1. Quote any one of the following:

(*a*) "The Mountain and the Squirrel."

(*b*) The portion of the poem, "Bruce and the Spider," which states the lesson which the poet intended to teach us.

(*c*) The last stanza of "The Rapid."

Part II.—(Readers, 106-108.)

1. (*a*) Write out the subjects of the last four paragraphs.

(*b*) Give, in your own words, what is said of each of these subjects.

2. "There are few animals that can teach us more useful lessons than the beaver." Read the lesson carefully; then write out the "useful lessons" they teach us.

Part III.—(Reader, pages 63-67.)

1. Find the following passages (pages 63 and 64), and explain their meanings, clearly: "Future campaigns," "spent his time in dissipations," "lifting its turrets above the Teviots," "an old yule-log story," "indulging in drunken wassail."

2. *Conquered, dissipation, campaign, determined, concealed, celebrated, discern, joyousness, revellers, haunting, infidels, sepulchre, holly, mistletoe.*

Divide your paper into three columns. In the first write the list of words above; in the second write their pronunciation; in the third write the meaning they have in the lesson.

Part IV.—(Readers, page 110.)

1. In this poem, "The Rapid," the poet tells what happened (*a*) in the smooth water, (*b*) in the current above the rapid, (*c*) in the rapid itself.

Tell in a few words what happened in each of these places.

Before distributing Readers, allow the pupils twenty minutes in which to answer question I; then collect the answer-papers.

Values—17 marks each. Deduct half a mark for each misspelled word.

LITERATURE—SENIOR III.

Time, 2¾ hours.

(A maximum of five marks may be allowed for neatness.)

Part I.

1. Quote any one of the following:

(*a*) The two stanzas from "The Village Blacksmith" which describe him at church.

(*b*) The stanza from "Bingen on the Rhine" which contains the soldier's message to his sweetheart.

(*c*) The stanza from "To an Early Primrose," in which virtue is compared to a primrose.

Part II.—(Reader, pages 257-260.)

1. (*a*) Give the subjects of the first three paragraphs.

(*b*) Write out, in your own words, what is said of each of these subjects in the paragraph to which it belongs.

2. On the left of your sheet of paper make a list of the different kinds of fruits mentioned in the lesson, and after each write a few words describing it.

3. Fertile, edible, poisonous, perpetuates, ornaments, substantial, conveyance, composite, elevated, generous, inseparable, industry, reveals, enveloping.

Divide your page into four columns; in the first, write down the words above; in the second, write their pronunciation; in the third, the meaning they have in the lesson; in the fourth, words opposite in meaning.

Part III.—(Pages 207-209.)

1. (*a*) Give a title for the poem, which is descriptive of what it contains.

(*b*) Set down in a few words the subject of each of the stanzas.

2. What feeling does the poet wish to arouse in his readers by this poem. Point out three passages in the poem in which he succeeds in doing this.

3. Describe, in your own words, the picture which the soldier saw in his dream.

4. Give clearly the meanings of the following passages:

(*a*) Stanza II, "mournful story," "the day was done," "beheld life's morn decline."

(*b*) Stanza III, "I was aye a truant bird," "his home a cage," "my heart leaped up," "scanty hoard."

(*c*) Stanza V, "There's another—not a sister," "too innocent for coquetry," "my soul be out of prison."

[Before distributing Readers, please allow 20 minutes for answering question I.; then collect the answer-papers.

Values: Twelve-and-a-half marks each. Deduct half a mark for each misspelled word.]

COMPOSITION AND LANGUAGE—SENIOR III.

Time, 2 hours.

A maximum of 5 marks may be allowed for neatness.

1. Fill the blanks in the following sentences, choosing the proper words from the following list: Fetch, bring, carry, may, big, large, will, can, shall.

John———this letter to the post and———me any letters in my box.

————I write the answer on the board, or ————you do it?

Boys, you———now take your slates and solve such of the problems as you———

John is a———boy for his age, but Tom eats so heartily that he has grown too———for his waistcoat, and must have a new one.

2. Write a paragraph of eight or ten lines on each of the following topics:

(*a*) Describing your school building.

(*b*) Telling how the sailor of the *Gray Swan* returned to his mother.

3. Write to Frank Porter, book-seller, 187 Yonge street, Toronto, asking him to mail you 1 doz. Public School Drawing Books, No. 3, at 5c. each; 2 boxes colored drawing crayons, 25c. a box; and one set Parkman's History, $5. State that you enclose the price of the goods.

4. A voyage to the Arctic Sea on a Whaling Ship.

The story of John Gilpin.

The burning of the Auburn Mills.

(*a*) Choose any one of the above as subject for a composition; write out at least five topics for paragraphs; indicate after each topic what you intend to write concerning it.

(*b*) On a separate sheet, write the composition (at least 20 lines).

Values—16; 20; 24; 40.

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.

ALGEBRA—FORM III.

JULY, 1896.

1. (*a*) Prove that $(p+q)m=mp+mq$, m being an integer. This is the Distributive Law for multiplication, and is true only for arithmetical algebra. Moreover, it does not admit of *proof* in the common acceptation of that term. The most that can be done is to show that it is a consistent generalization of such arithmetical facts as $2(3+4)=6+8$, $3(5+7)=15+21$.

Thus $(p+q)m=m+m+m+\text{etc.}\ldots.(p+q)$ terms
$=m+m+m+\text{etc.}\ldots.p$ terms
$+m+m+m+\text{etc.}\ldots.q$ "
i.e., $=mp+mq$.

(*b*) Find the coefficient of x^4 in the product of

$$1+\frac{x}{2}+\frac{x^2}{3}+\frac{x^3}{4}+\frac{x^5}{5}+\frac{x^5}{6}+\ldots\ldots\text{by}$$

$$1-\frac{x}{3}+\frac{x^2}{5}+\frac{x^3}{7}+\frac{x^4}{9}+\frac{x^5}{11}+\ldots\ldots$$

Using detached coefficients, we have

$$\begin{array}{l} 1+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}+\ldots\ldots \\ 1-\frac{1}{3}+\frac{1}{5}-\frac{1}{7}+\frac{1}{9}+\ldots\ldots \\ \hline 1+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}+\ldots\ldots \\ \quad -\frac{1}{3}-\frac{1}{6}-\frac{1}{9}-\frac{1}{12}+\ldots\ldots \\ \qquad +\frac{1}{5}+\frac{1}{10}+\frac{1}{15}+\ldots\ldots \\ \qquad\quad -\frac{1}{7}-\frac{1}{14}+ \\ \qquad\quad +\frac{1}{9} \\ \hline \end{array}$$

$\therefore$ coefficient of $x^4=\frac{1}{5}+\frac{1}{15}+\frac{1}{9}-\frac{1}{12}-\frac{1}{14}=\frac{17}{45}-\frac{13}{84}=\frac{281}{1260}$.

2. (*a*) Prove without expanding that

$$(x+y-2z)^3+(y+z-2x)^3+(z+x-2y)^3=3(x+y-2z)(y+z-2x)(x+z-2y).$$

Put $x+y-2z=a$; $y+z-2x=b$; $z+x-2y=c$.

$\therefore a+b+c=0$, and, therefore, $a^3+b^3+c^3-3abc=0$

i.e., $a^3+b^3+c^3=3abc$, as required.

(*b*) If $a^2+ab+b^2=\frac{a^3-b^3}{a-b}$, show without expanding that

$$(1+x+x^2)(1+x^3+x^6)(1+x^9+x^{18})(1+x^{27}+x^{54})=1+x+x^2+x^3+\ldots\ldots x^{80}.$$

$$\frac{1-x^3}{1-x}\cdot\frac{1-x^9}{1-x^3}\cdot\frac{1-x^{27}}{1-x^9}\cdot\frac{1-x^{81}}{1-x^{27}}=\frac{1-x^{81}}{1-x}$$
$$=1+x+x^2+\ldots\ldots x^{80}.$$

3. (*a*) State the principles on which depends the method of finding the H.C.F. of two algebraical expressions, explaining what factors may be introduced or rejected in the process.

Book-work. Every measure of A and B will also measure $mA\pm nB$. If A be multiplied or divided by x, prime to B, the H.C.F. will not be altered, *i.e.*, Ax and B will have the same H.C.F. as A and B.

(*b*) Prove that if a and b be any two integers greater than unity, a^3b-ab^3 is always divisible by 3.

If either a or b is a multiple of 3, the proposition is self-evident. But if neither is a multiple of 3 it must be of the form $3m+1$ or $3m+2$.

(i) a and b may be $3m+1$, $3n+1$ respectively.
(ii) " " " $3m+2$, $3n+2$ "
(iii) One may be $3m+1$ and the other $3n+2$.

Now, $a^3b-ab^3=ab(a+b)(a-b)$, and this becomes
for case (i), $(3m+1)(3n+1)(3m+3n+2)(m-n)3$
" (ii), $(3m+2)(3n+2)(3m+3n+4)(m-n)3$
" (iii), $(3m+1)(3n+2)(3m+3n+3)(3m-3n-1)$.

So that one factor is always a multiple of 3.

4. (*a*) Solve

$$\frac{x+4a+b}{x+a+b}+\frac{4x+a+2b}{x+a-b}=5$$

$$\frac{x+4a+b}{x+a+b}-1+\frac{4x+a+2b}{x+a-b}-4=0$$

$$\therefore\ \frac{3a}{x+a+b}=\frac{3a-6b}{x+a=b}$$

$\therefore \frac{a}{x+a+b}=\frac{2b}{2b}=1$; $x=-b$.

(*b*) Solve $\frac{x-y}{a}=\frac{y-z}{b}=\frac{x+z}{c}=\frac{x-a-b}{a+b+c}$;

assuming that, if

$\frac{a}{b}=\frac{c}{d}=\frac{e}{f}$, *then* $\frac{a+c+e}{b+d+f}=\frac{a}{b}$.

Taking the first three fractions together, we have

$$\frac{2x}{a+b+c}=\frac{x-a-b}{a+b+c}$$

$\therefore x=-a-b$.

5. Reduce to its simplest form

$[-\frac{1}{2}\sqrt[3]{a}+\sqrt{-\frac{3}{4}\sqrt[3]{a^2}}]^3$.

Using fractions, we have

$$\left\{-\tfrac{1}{2}a^{\frac{1}{3}}+\sqrt{-\tfrac{3}{4}a^{\frac{2}{3}}}\right\}^3$$

$$=a\left\{\frac{-1+\sqrt{-3}}{2}\right\}^3$$

$=a.w^3=a$, where w is the cube root of 1.

6. (*a*) Find x and y in $x^2+5xy=14$, $y^2+6xy=13$

Put $y=vx$ and substitute, and we get

$\frac{1+5v}{v^2+6v}=\frac{14}{13}$; $\therefore 14v^2+19v-13=0$;

or $(2v-1)(7v+13)=0$; $v=\frac{1}{2}$ or $-1\frac{8}{7}$.

$\therefore$ from first value $x=\pm 2$, $y=\pm 1$, and the second value of v will give four more roots of the equations.

(*b*) $\left(\frac{3x}{x+y}\right)^{\frac{1}{2}}+\left(\frac{x+y}{3x}\right)^{\frac{1}{2}}=2$;

$xy-(x+y)=54$.

Square the first equation, and

$\frac{3x}{x+y}+\frac{x+y}{3x}+2=4$; *i.e.*, $4x^2-4xy+y^2=0$;

$\therefore 2x=y$, $2x^2=xy$, and $3x=x+y$. Hence, from the second equation

$2x^2-3x-54=0=(2x+9)(x-6)$

$\therefore x=\frac{9}{2}$, or 6; and $y=-9$ or 12. The verification is easy.

7. Given that the roots of the equation $ax^2+bx^2+c=0$ are p and q; and those of $a_1x^2+b_1x+c_1=0$ are p_1 and q_1; also that $p/q=p_1/q_1$; prove that $a_1c_1/ac=b_1^2/b^2$.

N. B.—bx^2 is a misprint for bx.

(i) $p+q=-\frac{b}{a}$; (ii) $pq=\frac{c}{a}$; (iii) $p_1+q_1=-\frac{b_1}{a_1}$; (iv) $p_1q_1=\frac{c_1}{a_1}$. (v) $\frac{p}{q}=\frac{p_1}{p_1}$, whence (vi) $\frac{p}{p_1}=\frac{q}{q_1}$, and (vii) $\frac{p+q}{q}=\frac{p_1+q_1}{q_1}$, and, therefore, (viii) $\frac{p_1+q_1}{p+q}=\frac{q_1}{q_1}=\frac{b_1}{a_1}\times\frac{a}{b}$ from (i) and (iii).....(viii).

Also, from (ii) and (iv), $\frac{p_1q_1}{pq}=\frac{c_1}{a_1}\times\frac{a}{c}=\frac{q_1^2}{q_1^2}$ from (vi).....(ix).

Hence, from (viii) and (ix), $\frac{c_1}{a_1}\times\frac{a}{c}=\frac{b_1^2a^2}{a_1^2b^2}$;

i.e., $\frac{c_1}{c}=\frac{b_1^2a}{a_1b^2}$;

or, $\frac{a_1c_1}{ac}=\frac{b_1^2}{b^2}$, as required.

8. Two vehicles start at the same moment from two towns, A. and B. respectively, and travel towards each other. They meet after $10\frac{1}{2}$ hours, one taking $\frac{1}{12}$ hour more to a mile than the other. If the distance from A. to B. is 105 miles, what are the rates at which the vehicles travel?

They approach 105 miles in $10\frac{1}{2}$ hours, *i.e.*, 10 miles per hour.

$\therefore$ let x and $10-x$ be the rates in miles per hour.

The first goes 1 mile in $\frac{1}{x}$ hour; the second in $\frac{1}{10-x}$ hours; $\therefore \frac{1}{x}-\frac{1}{10-x}=\frac{1}{12}$, whence $x=17\pm 13=30$, or 4 miles. The latter value alone applies to the problem, and the rates are 6 miles and 4 miles per hour. The former value applies to the problem formed by changing "travel towards each other" into *travel in the same direction*, and "They meet" into *The one overtakes the other*, and the rates are 30 and 20 miles per hour.

9. If a carriage wheel $16\frac{1}{2}$ ft. in circumference took one second more to revolve, the rate of the carriage per hour would be $1\frac{7}{8}$ miles less. At what rate is the carriage travelling?

$16\frac{1}{2}$ ft. $=\frac{1}{320}$ mls.; $\therefore 1\frac{7}{8}$ ml. $=600$ revolutions.

Suppose it takes x seconds and $x+1$ seconds respectively for one turn;

$\therefore \frac{3600}{x}$ and $\frac{3600}{x+1}$ are the number of turns in an hour;

$\therefore \frac{3600}{x}-\frac{3600}{x+1}=600$; or $(x-2)(x+3)=0$; $x=2''$.

i.e., $\frac{1}{320}$ ml. in 2″; or $\frac{1}{640}$ ml. in 1″; *i.e.*, $5\frac{5}{8}$ mls. per hour.

Verification.—$x+1=3''$ for $\frac{1}{320}$ ml.; $\frac{1}{960}$ ml. in 1″; $3\frac{3}{4}$ mls. per hr.

$5\frac{5}{8}-3\frac{3}{4}=1\frac{7}{8}$ mls. less per hour.

SOLUTIONS BY CORRESPONDENTS.

(See May number, page 30.)

No. 52. $2\frac{4}{5}$ cost of 1 cwt. $+\$\frac{1}{5}$ freight on 1 cwt. $+2\frac{1}{4}$ % of $2\frac{4}{5}$ commission on 1 cwt. $=\$3,063$, total cost of buying and shipping 1 cwt. This is 97 % of amount of apples sold.

$\therefore$ value of apples sold to purchase 1 cwt. is $\frac{3063}{970}$, and $\frac{3063}{970}-3=\frac{153}{970}$, amount of commission when 1 cwt. of flour is bought.

$\therefore$ \$63 is amount of commission when $397\frac{7}{17}$ cwt. of flour is bought.

No. 53. \$100 stock gives a gross income of \$3.
Income tax = 6 cents.
Net income = \$2.94.
$5\frac{1}{4}$ % of money invested for \$100 stock = \$2.94
" " " \$100 " = \$56
$\therefore$ for \$100 stock he paid \$56.
Of this amount $\$\frac{1}{2}$ goes to the broker
$\therefore$ price of stock must have been $\$55\frac{1}{2}$.

No. 54. Solution I. If \$648.96 is amount for 2 years, compound interest, and $\$576\frac{12}{13}$ P.W. of same sum for 1 year @ same per cent., $\therefore$ \$648.96 is the amount of $\$576\frac{12}{13}$ for 3 years @ compound interest.

$\therefore$ (amount of \$1 for 1 year)$^3=\frac{648.96}{576\frac{12}{13}}=\$1.124864$

$\therefore$ amt. of \$1 for 1 year $=\sqrt[3]{(1.124864)}=1.04$

$\therefore$ the rate is 4 %.

Solution II.

Let P = principal, then $P\left(1+\frac{\text{rate}}{100}\right)^2=\$648.96$

and present worth $=P\div\left(1+\frac{\text{rate}}{100}\right)=\$576\frac{12}{13}$

and $P\left(1+\frac{\text{rate}}{100}\right)^2\div\left(\frac{P}{1+\frac{\text{rate}}{100}}\right)=\$648.96\div\$576\frac{12}{13}$

then $\left(1+\frac{\text{rate}}{100}\right)^3=\left(\frac{26}{25}\right)^3$; and $\frac{\text{rate}}{100}=\frac{1}{25}=4\%$. Ans.

No. 55. \$25,000 of 8 % stock gives \$2,000 dividend.....A.

Money is worth 7 %; $\therefore$ 7 % of price of \$100 stock is \$8;

$\therefore$ price paid for \$100 stock is $\$\frac{800}{7}$.

Since brokerage is $\frac{1}{2}$ % actual price $=\frac{800}{7}-\frac{1}{2}=\frac{1593}{14}$

$\therefore$ net proceeds of \$25,000 stock $=250\times\frac{1593}{14}$.

Again, for $205\frac{1}{2}$ he can buy \$100 of 12 % stock *i.e.*, on $205\frac{1}{2}$ invested his income is \$12;

$\therefore$ on $250\times\frac{1593}{14}$ invested his income is $\frac{24}{411}\times 250\times\frac{1593}{14}$

$=\$1,661.11$.....B.

Difference between A. and B. $=2000-1661.11=\$338.89$.

Solution II. \$25,000 stock @ 8 % gives dividend of \$2,000.

7 % value of stock = \$2,000
100 % " " $=\frac{100}{7}\times 2000=\$28,571\frac{3}{7}$
$\frac{1}{2}$ % brokerage on \$25,000 stock = 125
Net proceeds of stock = $28,446\frac{3}{7}$
Cost of \$100 of 12 % stock = $\$205+\$1\frac{1}{2}$, brokerage $=\$205\frac{1}{2}$
$\$205\frac{1}{2}$ paid for 12 % stock gives \$12 dividend.
$\$28,446\frac{3}{7}$ paid for 12 % stock gives $\frac{28446\frac{3}{7}\times 12}{205\frac{1}{2}}$

$\$1,661\frac{303}{2877}$, dividend.
$\$2,000-\$1,661\frac{303}{2877}=\$338\frac{2574}{2877}$ less dividend.
$=\$338.89+$ less.

No. 56. Area of road = 516 sq. rds. Width of road = 4 rds. Length of road $=\frac{516}{4}=129$ rds.

Perimeter of field = 129 rds. − 16 rds. for 4 corners = 113 rds.

Let x = one side and y = other side of field, in rods.
Then $2(x+y)$ = perimeter = 113 rds.
and xy = area = 480 sq. rds.
$x+y=11\frac{3}{2}$ and $(x+y)^2=(11\frac{3}{2})^2$ sq. rds.
and $4xy=480\times 4$ sq. rds $=1920$
and $(x-y)^2=(11\frac{3}{2})^2-1920$ sq. rds.
$=\frac{5089}{4}$
$\therefore x-y=35.66$
$x+y=56.5$, and, therefore,
$x=46.08+$ rds.
$y=10.41+$ rds.

No. 57.

$$56\left\{\begin{matrix}7|\text{number}\\ 8|\quad\quad+1\\ \hline 7115+5\end{matrix}\right\}\ldots\ldots\ldots 1\Big\}5\times 7\ldots 35\Big\}36 \text{ remainder.}$$

Divisor = 56.
Quotient = 7,115.
Remainder = 36.
Then dividend $=56\times 7115+36=398,476$. Ans.

CORRESPONDENCE.

S.D., Toledo. Your problem has been solved several times in this column. See back numbers or send for private answer.

S.S., Iona, asks for solutions of the Primary Arithmetic paper of 1894, and also of ten problems in H.S.A.

K. HOGG, Dugald, Man., sent two problems in arithmetic.

S. C. COOPER, Lion's Head, sent a solution of No. 57.

W.G.M., Wroxeter, sent a problem in mensuration, and asks for proof of a rule.

W.C.W., New Perth, P.E.I., sends five problems for solution, and kindly remarks, "I am well pleased with your JOURNAL."

Correspondent "Y." sent solutions of Nos. 52, 53, 54, 55, 56, and 57, but he gave no name or address, which was hardly fair to the Editor.

A. H. P. MATTHEWS, Langley, B.C., sent solutions of Nos. 52, 53, 54, 55, 56, and 57, in his usual clear style.

WALTER FOSS, Brandy Creek, sent solutions of Nos. 52, 53, 54, and 55, and also a problem for solution. The problem is rather indefinite, since it does not state whether the "eight-sided building" is an octagon or an irregular polygon. Please define.

H. HEWITT, Kingston, solved No. 52.

——DEIR, Kingston, solved No. 52, but gave wrong reference.

W. M. GOVENLOCK, B.A., Ingersoll C.I., sent solutions of Nos. 52, 53, 54, 55, 56, and 57.

J. S. THOMAS, Waterloo, sent solutions of Nos. 52, 53, 54, 55, 56, 57. He pointed out the solution of No. 55 in the October number, 1893, page 149.

Many thanks to all our friends who have so nobly proved their sincerity.

LITTLE THINGS.

A little spring had lost its way
Amid the grass and fern;
A passing stranger scooped a well
Where weary men might turn.

He walled it in and hung with care
A ladle at its brink;
He thought not of the deed he did,
But judged that toil might drink.

He passed again, and lo! the well,
By summers never dried,
Had cooled ten thousand parching tongues,
And saved a life beside.

—*Selected.*

Primary Department.

WORD DRILL.

RHODA LEE.

Good oral reading is not possible without instantaneous recognition of words. Before a lesson is read a thorough drill should be given on the unfamiliar words. This work should not be confined to Primary classes, but should extend to Third Book forms at lowest. There would be less stumbling reading if this were carried out.

The drill is apt to become uninteresting and "flat" if there be not some variety in conducting it. The following are some of the ways suggested for making what is sometimes a bad quarter of an hour to the children as interesting as any lesson in the day:

1. Arrange words in two duplicate columns, making the order different. Allow two children at a time to come to the board, each with a pointer, and see which can first find the word mentioned by the teacher. The others watch the contest.

2. Place five or six words in a ring. After allowing time to look well at the words, draw the curtain and erase one. Remove the covering again, and ask the children to tell which word is missing.

3. A group of words is placed on the board. The teacher points from word to word until a sentence is formed. Pupils then whisper to her or write on their slates the sentence that has been made.

4. Arrange the words on the branches of a tree sketched on the board. Drill until everyone can climb up and down safely—that is, read the words correctly up one side and down the other.

5. Arrange words on a ladder leading to a high wall. Let the children see how soon they can climb to the top without a slip.

A FRIENDLIER SPIRIT.

RHODA LEE.

It scarcely seems possible that, holidays over, we are again at the commencement of a new term. Yet here we are on the threshold, once more ready for another year's work.

I have always an inclination to say a word or two at this time to those who are setting out with their first class. Yet I feel that it is of little use, as these are not usually the teachers who look for help from educational magazines or journals. In boy parlance, "they know it all." After teaching a term or two they begin to feel the need of such hints. There are exceptions to the rule, but they are not numerous. I have not forgotten my own experience, nor my change of views at the end of six months. I began with great confidence, but soon found how much there was that I had not learned. Since then I have been trying to gain, from every available source, more knowledge of teaching and of children. In order of importance I should have mentioned the children first, for although we have methods and principles without number at our finger-ends, if we have not an understanding of child-nature in general, and of our own pupils in particular, we cannot expect to be successful in our teaching.

We must know our pupils individually. We must make them our friends. It is difficult to describe just what I mean by friendliness with pupils. A teacher must preserve her dignity, and her pupils must respect her in the highest sense of the word, yet this need not interfere in the least with the existence of the most friendly feeling.

I once knew a young girl who had great difficulty in keeping order, and in consequence found the work of teaching very hard indeed. Her manner was cold, distant, almost repellent. There was always a kind of mimic warfare in the room. The teacher was master, but only by sheer strength of determination; the children obeyed because they were compelled to do so. Into the same school there came one who followed different methods. Bright, kindly, and sympathetic by nature, and at the same time possessed of a great deal of womanly dignity, she was not long in making fast friends of her pupils. She was not as good a teacher of reading, writing, and arithmetic as the one I have described, but her influence upon character was immeasurably superior, her order as near perfection as it could well be. The spirit was infectious. The distant manner of Miss A— began to change more and more. She realized her mistake, and her good common sense told her what to do. She began to take a kindlier interest in the children, to encourage any signs of friendliness in them, and gradually the frozen heart-channels were thawed out, and a great change took place in both scholars and teacher. It was not easily done. It cost something, but it was worth it all and more. Some time after Miss A— gave me this chapter in her experience, and told me what she owed to Miss B—.

There is no one thing more necessary than this, that a true spirit of friendliness exist between teacher and pupils. For its establishment there must be respect, confidence, justice, patience, sympathy, and a host of other virtues, too numerous to mention, that your own observation and experience will suggest.

It may seem to take a great deal of time and strength to come to know thirty or forty new pupils, but there are so many ways and opportunities of doing so that a determination to let no one of them pass unused soon brings about the desired end; the play-hour, the walk to and from school, noon-time, assistance in preparing material for work, etc., etc.

How easy teaching is when a right spirit prevails in the class, and how difficult it is when this is lacking, only one who has taught can possibly know.

Kindness is the surest key to a child's heart. The word has a broad meaning, however:

> "Kindness is wisdom. There is no life
> But needs it and can learn."

It does not exclude firmness, nor justice, nor punishment for wrongdoing, for all these combine to make up true kindness—the wisdom that must characterize one who has given to her the sacred trust of teaching and training little children.

HOW THE WOODPECKER KNOWS.

"How does he know where to dig his hole,
The woodpecker there, on the elm-tree bole?
How does he know what kind of a limb
To use for a drum, or to burrow in?
How does he find where the young grubs grow—
I'd like to know?"

The woodpecker flew to a maple limb,
And drummed a tattoo that was fun for him,
"No breakfast here! It's too hard for that,"
He said, as down on his tail he sat.
"Just listen to this: *rrrrr rat-tat-tat.*"

Away to the pear-tree, out of sight,
With a cheery call, and a jumping flight!
He hopped around till he found a stub.
"Ah, here's the place to look for a grub!
'Tis moist and dead—*rrrrr rub-dub-dub.*"

To a branch of the apple-tree Downy hied,
And hung by his toes on the underside.
"'Twill be sunny here, in this hollow trunk;
It's dry and soft, with a heart of punk.
Just the place for a nest!—*rrrrr runk-tunk-tunk.*"

"I see," said the boy. "Just a rap or two,
Then listen, as any bright *boy* might do.
You can tell ripe melons and garden stuff
In the very same way—*It's easy enough.*"

—*William J. Long.*

FAMOUS BOYS.

A Swedish boy fell out of a window and was severely hurt, but with clenched lips he kept back the cry of pain. The King Gustavus Adolphus, who saw the fall, prophesied that that boy would make a man for an emergency, and so he did, for he became the famous General Bauer.

A woman fell off the dock in Italy. She was fat and frightened. No one of the crowd of men dared to jump in after her; but a boy struck the water almost as soon as she, and managed to keep her up until stronger arms got hold of her. Everybody said the boy was very daring, very kind, very quick, but also very reckless, for he might have been drowned. The boy was Garibaldi, and if you will read his life you will find these were just his traits all through—that he was so alert that nobody could tell when he would make an attack with his red-shirted soldiers; so indiscreet sometimes as to make his fellow-patriots wish he was in Guinea; but also so brave and magnanimous that all the world, except tyrants, loved to hear and talk about him.

A boy used to crush the flowers to get their color, and painted the white side of his father's cottage in Tyrol with all sorts of pictures, which the mountaineers gazed at as wonderful. He was the great artist Titian.

An old painter watched a little fellow who amused himself making drawings of his pot and brushes, easel and stool, and said: "That boy will beat me some day." So he did, for he was Michael Angelo.

A German boy was reading a blood-and-thunder novel. Right in the midst of it he said to himself: "Now, this will never do. I get too much excited over it; I can't study so well after it. So here goes!" and he flung the book out into the river. He was Fichte, the great German philosopher.

THE UNIVERSITIES OF CANADA. Their history and organization. With an outline of the British and American University system. Appendix to the Report of the Minister of Education, 1896.

The above reproduction of the contents of the title-page of this well-printed and neatly bound volume of 440 pages sufficiently indicates the aim and scope of the work. Part I., dealing with the Universities of Canada, occupies more than 200 pages of the volume, and is interesting as well as instructive reading for all Canadians who wish to acquaint themselves with the history of the leading educational institutions of their own country. The sketch of the foundation and the development of our own Ontario educational institutions gives evidence of careful preparation and accurate knowledge. No doubt, equal care has been taken with regard to all other Canadian universities. The Outline of the British and American University Systems will also be very useful to those who desire, in small space, a comprehensive sketch of those systems. This work, which should have been noticed more promptly in our columns, will be found very useful to teachers, who wish, as every intelligent teacher must wish, to know something of the history of all the leading universities, not only of Canada, but of the English-speaking world.

The *Atlantic Monthly* for September contains two articles that suggest and (in a sense) contain the most eventful chapter in modern history. One is "The Story of Uncle Tom's Cabin," by Charles Dudley Warner, who tells the unprecedented history of this book; and the other is "The Awakening of the Negro," by Booker T. Washington, the colored founder and president of Tuskegee Institute in Alabama.

The People's Lecture Bureau, Elkhart, Indiana. Correspondence solicited.—DR. H. A. MUMAW, *Manager.*
