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Editorial Notes.

OUR best thanks are due, and are heartily given, to those teachers who have kindly complied with our request for correspondence in regard to practical work. The result is, as will, we are sure, be gratefully recognized, several excellent papers, especially in the department for second and third grades, in this number. We shall be glad to hear from all these writers again, and hope that many others will follow their good examples.

"J.C.H." sends the following request: "Will you kindly tell me, through your journal, the direction which you think the bird in 'The Waterfowl' (Third Reader) is going? '*Far through* their rosy depths dost thou pursue thy solitary way' makes me think it is going west, while other parts of the poem give me the idea it is going south. Any information you could give me on the habits of the waterfowl I should be pleased to get." As our English department is crowded out this week we give the question here, and should be glad to receive postal-card or other answers for our correspondent.

WE can hardly impress too strongly upon the minds of teachers of both sexes the importance of identifying themselves, so far as school duties will permit, with the world outside their schools. We fancy that some progress is being made in the direction indicated by Canadian teachers of every grade. There is no reason, save the fact that his time must be regularly devoted during teaching hours to professional duties, why the teacher should not be an active and useful member of the community, and ready for every good work. He should be, no less than the member of any other class or profession, a man of public spirit, saying and feeling with the Roman philosopher, "I am a man, and nothing which affects humanity do I deem foreign to my sympathies." *Mutatis mutandis*, the same may be said of lady teachers.

"I HAVE taught my note-book through, and do not know what to do next," said a teacher to a superintendent who was visiting the school. An exchange, mentioning the incident, drew a picture, which, it said, was taken from real life, of a teacher standing before the class day after day, going through her note-book, and giving lesson after lesson just as they had been given in the Normal School in which she was trained, imitating, as well as she could, the very looks and gestures of her favorite teacher. We should be sorry to believe there are any amongst our readers who can make no better use of methods given them as illustrations. Sample methods and lessons are excellent as illustrations, but when used as models for exact imitation they become snares and clogs. Every teacher worthy the vocation will have his or her own methods, and will never let them become stereotyped.

WAUKEGAN, Ill., is trying an educational experiment in connection with her Public Schools which is, to say the least, worth thinking about. It is the maintenance of an "ungraded department" in connection with the graded schools. It is not, as are the ungraded departments in some other American cities, intended for pupils who are, for various reasons, unable to maintain their places in the grades—though this itself is a much-needed supplement to the regular departments—but is adapted to the wants of the pupils who need special training in mathematics, bookkeeping, etc., for the workshop or the farm, and whose circumstances preclude them from remaining in school long enough to get this training in regular course. It is, undoubtedly, a serious defect in our own system that, in consequence of the rigid grading and fixed programme, a great many short-time pupils fail to get the courses which would do the most for them.

IN the opinion of some the Kindergarten is still on trial on this continent. If that be so, the doubts of sceptics may well be weakened, and the faith of enthusiasts confirmed, by certain statistics with reference to the moral results of the system as operated in San Francisco. The Public School system of that city does not include the kindergartens, but this defect is supplied, to a considerable extent, by the Golden Gate Kindergarten Association, which raises $30,000 a year for the support of the kindergartens it has established. The teachers of the city schools affirm, it is reported, that the character of the children who now enter the schools is far above that of those of former years. It is further stated that the careers of the first 9,000 children who received kindergarten training in these schools have been carefully followed, and that not one of them has been arrested. We are sorry that the source from which we quote does not give the dates necessary to enable us to estimate the present ages of these children. It is significantly and most suggestively added that the Golden Gate Association has given special attention to work among the mothers.

A FEW days ago Mr. Bryan, the candidate of the "free-silver" Democrats for the Presidency of the United States, attempted to deliver an open-air speech in New Haven, on a green near the Yale University buildings. As soon as Mr. Bryan took the stand, the students, to the number of about five hundred, commenced shouting for McKinley, and kept up their deafening shouts and college cries so persistently that Mr. Bryan utterly failed to get a hearing, and was obliged to give up the attempt. It would be unfair, we presume, to hold either the institution, or its students as a whole, responsible for this disgraceful rowdyism, which was probably the act of a minority composed of the worst elements in the university. Otherwise we should be disposed to wonder what kind of training the students in that famous and venerable seat of learning can receive, if it permits them not only to refuse to listen to the leading exponent of the other side of a great question, but to deny to an orator of acknowledged ability and unblemished reputation the right of free speech, which should be the pride of every intelligent citizen, and to trample upon the rights of the many who, no doubt, wished to hear him. "Always Hear the Other Side" would be a good motto to put in large letters upon the wall of every schoolroom.

TO THE COUNTY MODEL SCHOOL STUDENTS.

FOURTH ARTICLE.

In this article we wish to address you on the subject of your personal influence and of the opportunities which will be afforded you of determining what your pupils shall be, rather than what they shall know.

Up to the present time you have been pupils yourselves, but you are soon to change from being schoolboys and schoolgirls to become teachers, to fill positions for which men and women are required. And you should endeavor to realize what this change of position will require at your hands; for upon your understanding and appreciation of what is involved in this will mainly depend your success or failure. You have been accustomed to be led, it will now be your duty to lead others; you have been imitating another, you must now serve as a model to be imitated; you have been assisted at every step, in future you will have to render assistance to others. When you reflect upon these things you may well become thoughtful and serious, and begin early to determine upon your course of conduct, in order that you may not come short of what will be required at your hands. It has been well said that "if you are not too large for your position, you are too small for it."

The ordinary teaching duties and the maintaining of discipline in your school will, doubtless, mainly engage your attention; and the passing of pupils at the usual county promotion examinations and at the Entrance examinations will be the ends at which you will very properly aim. You must work for these results. To neglect them will be to neglect the interests of your pupils as well as your own personal interests.

But there is another and a higher aim which you should ever keep before you, and to which you should give your very best efforts. It is, as we said at the beginning of this article, to determine, as far as in you lies, what your pupils *shall be* in after life. And this will depend, not so much upon what they learn as children as upon how they conduct themselves, upon the habits they form, which will determine their future characters. What you wish to find in the man must first be planted in the child. To achieve these higher results the teacher must not be satisfied to impart information from textbooks; he must seek to mould aright the character of those with whom he daily comes in contact; not merely to instruct, but also to reform and benefit; not merely to make good scholars, but to develop worthy men and women; not merely to increase the nation's knowledge, but to influence for good the nation's life.

In order that the teacher may exert this elevating influence upon his pupils—that he may, so to speak, sway them in the right direction—he must have it clearly and finally settled in his own mind what are the conditions upon which this result depends. This moulding influence can be obtained only by taking account of what children naturally look for in a superior in order that they may respect him and trust him. They must see quietly and consistently the evidence not only of superior knowledge, but also of practical wisdom and of warm, genuine sympathy. No one among them can, perhaps, tell in so many words what he wishes to find in his teacher; but these are the things which all desire and which all are alike feeling after.

There must be that in the teacher which his pupils can first admire; they will next come to love it, and soon, unconsciously, begin to imitate it.

There is an inseparable connection between what a person admires and what he is. If the student can see daily in his teacher certain qualities which appeal to his better nature, and which he admires, he is certain to be influenced by them, and to seek to imitate them. The influence exerted for good in this way upon him will be much greater than that exerted by any effort to indoctrinate him with the truth of these qualities as virtues. Good example is a rebuke and a check to any conscience neglecting its ideal. Thus a writer could truthfully say of Lady Rachel Russell, "To meet her was an immediate restraint to all improper conduct, and to be acquainted with her was a liberal education."

To wield this influence the teacher must be a *person*; he must possess a strong personality; for to this end the personal-power element is everything. The physical force element at the command of the teacher must give way to the intellectual and moral forces at work within the school. As one writer says, "If a loud voice, a stamping foot, a strong cane, a heavy strap, books, maps, pens, and paper, exhaust his materials for educating, he can never reach a high place in his profession. Its leading men and women work on a higher plane, with finer tools."

As was said in a former article, the emotions are the mainsprings of human action. The impulse must be from within. We are constantly running against this truth, that the heart is the great motive power of the world, and if we wish to affect the hearts of our pupils we must send out the inspiring influence from our own hearts. Just as we first heat wax in order that we may make an impression upon it, so must we first warm the heart in order that we may stamp our personality upon it, and direct its influence upon the conduct of the child.

If a pupil *feels* that his teacher has more than a financial interest in his welfare, and that he is less of a master and more of a guide and friend, he will be controlled and influenced, even when no other influence will affect him. It is through the social rather than through the physical, or even the intellectual, instincts that the moral nature is developed. Morality is a social product, and personal example and personal affection are the soils out of which it springs and grows.

In working towards this end, however, time must be allowed and much patience and perseverance must be exercised. Development of any kind is slow of growth, and character development is no exception. You must bear in mind this fundamental principle, that development is produced only by action, by the exercise of that which is to be developed. The teacher cannot develop the character for the child; he can only aid the child in its efforts to form its own character.

The growth must be from within, not from without. And the teacher must seek to inspire the child to put forth its efforts in the right direction. This point cannot be too strongly impressed upon you. You may, in your daily life, present a worthy model for imitation; you may seek to enlighten the understanding and place proper motives before your pupils; but, that there may be growth in the child nature, the child must act for itself. This universal law conditions all physical, mental, and moral growth, and what you do for the child is an injury rather than a benefit, when considered from the standpoint of child-development.

Every act performed by us produces a tendency to act in the same way. Thus the single acts of the little child in any direction, by being repeated, grow into habits of action, and these gradually become the foundation and the superstructure of character. Do not be discouraged, then, if you do not succeed at once in producing what you desire in the child. You may have to lead the child to break up bad habits before new ones can be formed, and it is more difficult to unlearn than to learn, Make large allowance for the unequal development of thought-power and of will-power, at different ages of children. It would be absurd to expect the same physical or the same intellectual power at five as at ten years of age, in the child; equally absurd is it to expect the same moral power, to expect the same appreciation of right, the same sense of duty, the same power to resist evil—in short, the same strength of character.

Let your aim ever be to keep this higher object before you, and be sure that all the efforts of your daily life are such as will lead your pupils in the right direction. In such a case their lives will reflect honor upon your labors, and your own better life, in after years, will be produced again, incorporated in theirs through the impulses imparted by you towards their moral elevation.

Hints and Helps.

SET OR SIT?

MISS JENNIE THORNLEY CLARKE.

The president of a female college in South Carolina once asked me, in all seriousness, "Do hens set or sit in Georgia?" When I replied, "We set the hens and they sit," he expressed a good deal of scepticism as to the results of such a proceeding. Let us consider a few forms of both verbs, and then, if I am wrong, I hope somebody will set me right, after which I will sit corrected.

We may feel reasonably sure that pupils will make correct use of irregular verbs when they are perfectly familiar with the principal parts, and able to distinguish, at a thought, the transitive from the intransitive. Familiarity with the principal parts will save us from hearing the past participle do duty as the past tense, and *vice versa*. Distinguishing the transitive from the intransitive will prevent confusion of such similar verbs as lie and lay, rise and raise, and set and sit.

Write upon the blackboard and upon the tablet of memory:

Present.	*Past.*	*Past par.*
Set.	Set.	Set.
Sit.	Sat.	Sat.

Emphasize the fact that the three forms of the first are identical; that it means to place; and that, with this meaning, it is always transitive. The second never takes the form of the first, and is always intransitive. Now let us use them:

He sets the vase on the table. I set it on the mantel, and have set it there before. I sit at a desk, sat there yesterday, and have sat there for months. The box sits wherever I set it. It sat where I set it yesterday, and has always sat just where I have set it. I have set a chair at the window; will you sit there? The inkstand was set upon the table. Who set it there? Sit down. Set the lamp on the table. How long have you sat there? Have you set the chair in place? Where does it sit? Who sits in it?

The intransitive verb *set* is seldom used except in the senses to decline, to congeal, and to move in a certain direction. These must be pointed out and illustrated: The heavenly bodies set when they pass below the horizon; liquids set when they harden into solids; the current sets towards the west.

After all, eternal vigilance is the price that must be paid for pure English, and pupils cannot be drilled too much or too often in the use of all the irregular verbs in common use.—*Southwestern Journal of Education.*

MENTAL ARITHMETIC.

1. A school slate measures 10 inches long by 7½ inches wide, inside the frame. How much writing surface does it contain?

2. Paper that measures 8 inches by 5 inches is called commercial note paper. How much surface does a sheet of commercial note paper contain?

3. If it cost $1 to saw a cord of wood into three pieces, what, at the same rate, will it cost to saw it into four pieces?

4. Iron rails cost $1 a foot; what will one mile of railroad track cost?

5. If half of what I receive for my watch is gain, what is my gain per cent.?

6. What per cent. of ⅙ is ⅓?

7. If my coffee cup holds ⅔ of a gill, how many cups in one gallon?

8. What will one mile of wire cost at three cents a yard?

9. What will it cost to plaster a room 30 feet long by 20 feet wide by 10 feet high, at 10 cents per square foot, no allowance being made for doors and windows?

10. What will it cost to paint a front yard fence 60 feet long and 3 feet high at 25 cents per square yard?—*Forster Grammar School, Somerville, Mass.*

THOSE ASTOUNDING ADVERBS.

One evening a gentleman came home with a budget of news. An acquaintance had failed in business. He spoke of the incident as "deliciously sad." He had ridden up town with a noted wit, whom he described as "horribly entertaining," and, to cap the climax, he spoke of the butter that had been set before him at a country hotel as "divinely rancid."

The young people stared, and the oldest daughter said: "Why, papa, I should think that you were out of your head."

"Not in the least, my dear," he said pleasantly. "I'm merely trying to follow the fashion. I worked out 'divinely rancid' with a good deal of labor. It seems to me rather more effective than 'awfully sweet.' I mean to keep up with the rest of you hereafter. And now," he continued, "let me help you to a piece of this exquisitely tough beef."

Adverbs, he says, are not so fashionable as they were in his family.—*Boston Post.*

Special Papers.

WAYS AND MEANS OF IMPROVING TEACHERS NOW IN OFFICE.

Following is the first part of a paper read at a recent meeting of the Teachers' Association of the State of Pennsylvania, by Superintendent Buchele:

In the presentation of this paper it is taken for granted that the teacher is born right, that he has been properly educated, and that he has secured his position in the usual manner. It is also assumed that in a large majority of cases the teacher is a woman, and, where this is not so, the compensation, emoluments, honors, or whatever else *men* look for as a reward in this life are on such a small scale as practically to drive from the teacher's chair and into other vocations almost all young men of more than ordinary ability and ambition. It may be fairly postulated that teachers are very much like other men and women; they hunger and thirst at times, need clothing and amusements; some of them even love money, and occasionally, though very rarely, know how to acquire it and hold on to it like other people, and, wonderful to say, some of the men even dare to get married, and presume to raise a family. The perfectly natural result is, therefore, that for these and other reasons which need not be mentioned here, the ladies, heaven bless them! all expect to get married soon, and the men will soon leave for business, as it is called, or one of the other professions. It is also understood that the improvement here contemplated does not apply to personal appearance, as teachers, especially the ladies, do not stand in need of that kind of improvement—who would presume to paint the lily?

All that needs, therefore, be considered is ways and means of improving the teacher professionally.

Three causes additional to those already mentioned are at work to render special efforts to bring this about more necessary in this than in other professions: first, the payment of a fixed salary, not always proportioned to professional ability or success; secondly, employment by the public; and, thirdly, the very inadequate preparation for a life work made when the profession is entered upon. Four years at college, and three years of strictly professional instruction, is pretty generally required of those who enter the profession of law, medicine, or divinity, while the teacher is supposed to be fit for full admission to his profession with scholarship insufficient to admit him to the freshman class of a respectable college, and a course of professional instruction which, if pursued exclusively, could be completed in six months.

The payment of a fixed salary, not always dependent on the teacher's immediate exertion, also tends to check his efforts at self-improvement, as compared with the stimulus afforded the lawyer in the trial of causes where he knows that he must surpass his opponent if he is to win his suit and add to his reputation. The uncertainty of the results of the teacher's efforts, and the complex nature of the material on which he operates, together with the widespread public opinion that special training is unnecessary, and the general indifference to pedagogical blundering (who ever heard of a suit for educational malpractice?), prove how much there is to induce the teacher to let well enough alone. If the public is satisfied, why should he endeavor to do better?

Now the teacher, strictly speaking, is the parent acting in the sphere of character-building chiefly through instruction. He or she must, therefore, be regarded in a twofold aspect—as heart and mind—loving and teaching, loving because teaching and teaching because loving. It follows naturally that the smaller the child, the more neglected the pupil, the greater the need of heart in the teacher. Alas, for pupil and teacher, when the latter is almost pure intellect! The foundlings in homes and asylums in our large cities die for want of love and caressing, as the flowers and plants for want of sunshine and moisture. Who can tell how many pupils in our public schools are blighted in heart and mind for want of affection? How this affection influences teaching on the part of both the teacher and the taught!* Do we grow weary of toiling for those we love? Is it not rather a delight to do so? How the hours pass swiftly along while the mind is intent to please, by some new acquisition on the one hand, or the presentation of some discovered truth on the other! The teacher that has a great mother-heart will not waste time in writing notes to the parents of her pupils; she will go to their homes, she will look on their poverty and neglect, on their untoward circumstances, with sympathetic eyes, and then more than ever highly resolve that so far as she is concerned these poor, forsaken little ones shall be lifted out of their slough of despond, I had almost said despair, to the clearer light of purity and truth. There are such teachers. I have had the good fortune to know such. It may be that they could not spell well enough to get a one in orthography. What difference did it make? Life and character do not consist in spelling, but rather in loving, in blessing, in living for others. "Dulce et decorum est pro patria mori," sweet and glorious is it to die for one's country—is it not even sweeter and more glorious to *live* for those whose "angels do always behold the face of my Father which is in heaven"? In this spirit Froebel says, "Lass't uns unsern Kindern leben" (Let us live for our children). Ways and means of improving the teacher in this respect are not many—to a very large extent they must be born right—and yet something is possible even here. In the first place, those in charge of educational affairs, educators in authority, and especially the public behind them, must insist on and show appreciation of these qualities in the teacher's character. They must judge and estimate the teacher rather by what he *is* than by what he *teaches*. Unfortunately the beauty of holiness, the grace of charity, and the jewel of truth and purity are not esteemed as highly as the power of knowledge, the ability to outdo others, and the skill of the hypocrite. "People want to be humbugged," said Barnum, and his success as a showman proved that he was right.* Men forget that the cherub, the angel of knowledge, is inferior in the hierarchy of heaven to the seraph, the angel of love. A lofty ideal and a high estimate of the teacher's calling will exert a powerful influence in promoting improvement in the teacher in this direction. "What is more noble," says Chrysostom, "than to form the minds of youth? He who fashions the morals of children performs a task, in my judgment, more sublime than that of any painter or sculptor." Let the teacher realize that in moulding the character of his pupils he is creating living portraits destined to adorn not only our earthly temples, but those tabernacles not made with hands, eternal in the heavens; that as an artist it is his high privilege to attune the voices whose music shall unceasingly roll around the throne of God in heaven. In other words, when the teacher looks upon his pupils as the redeemed of the Lord, his Lord, whom he loves with love unspeakable, then and only then will he follow after the model teacher, Jesus Christ, even in his daily occupation. Here is Dr. Arnold's idea of this characteristic of a teacher: "What I want is a man who is a Christian and a gentleman, an active man, and one who has common sense and understands boys." But whatever may have been said as regards the overshadowing importance of the heart, it is, nevertheless, admitted that the teacher teaches only that which he knows, that knowledge is power, and that it is a good thing for a teacher to grow in knowledge. Says Dr. Arnold, "I do not so much care about scholarship, as he will have immediately under him the lowest forms in the school; but yet, on second thoughts, I do care about it very much, because his pupils may be in the highest forms; and, besides, I think that even the elements are best taught by a man who has a thorough knowledge of the matter." A greater than Arnold has said: "And beside this, giving all diligence, add . . . to virtue, knowledge."

*He who gains our heart, says Cardinal Gibbons, easily commands the attention of our mind.

HAPPY the teachers who have to do with intelligences naturally curious, but especially happy are those who know how to excite curiosity and to keep it alive. For this purpose we must skilfully appeal to the tastes of the child and favor them, yet without overtaxing them. Eagerness to utilize a taste may kill it.—*Compayre.*

* One of the schools of the ancient Greeks marvelled that men should love lies, and Bacon says, "A mixture of a lie doth ever add pleasure."

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Editorials.

GRAMMAR AS A SCHOOL STUDY.

WE reprinted in last number, from an American contemporary, an article with the caption, "Grammar Is Not for Babes." As intimated in a brief note, we reproduced the article not because we agree with its position, but because the sentiments somewhat racily expressed in it are just now more or less popular in some pedagogical circles, and because the vexed question upon which opinions so dogmatic are affirmed is by no means settled.

The main contention of the writer of the article is that school children should not commence the study of grammar before they are fourteen years of age. To the objection that this would mean that the majority of our young people would go out into the world without the ability to distinguish a noun from a verb, Mr. Magnusson, the writer, replies that he would a thousand times rather have them do so than have the citizen ignorant of the very foundations of the Government he is supposed to support. "I would rather," he adds, "have the stonemason ignorant of the passive periphrastic conjugation than to have him handle granite and sandstone daily and never suspect that they have a history. Our pupils were much better off if they could trade off a few tons of sentence analysis and parsing for an appreciative knowledge of 'In Memoriam,' 'Faust,' and the 'Nibelungen Song.'"

Whatever logical force there may be in this reply depends, obviously, upon the correctness of the underlying assumption that the study of sentence analysis and parsing is incompatible with the most elementary knowledge—for nothing more can be hoped for in the Public School—of the foundations of constitutional government, of geology, or of some of the masterpieces of English and German literature. In his allusion to the German the writer seems to imply that, but for the obnoxious grammar, the pupil might find time, in the ordinary Public School course, to acquire a sufficient mastery of the German language to enable him to appreciate the German classics in the original. If so, one is curious to know whether he would have the pupil acquire this mastery of the German literature without wasting any time in the study of German grammar, *i.e.*, of the structure and idioms of the German language. Even that would be a scarcely less startling innovation than to have him acquire the ability to appreciate "In Memoriam" without any scientific knowledge of the language in which Tennyson's masterpiece was written.

This leads back, however, to the prior question: What is English grammar? All are agreed, we may presume, upon the time-honored definition. It is the science of language. In this, as in every other case, the science is derived from the actual things or facts—or, more strictly speaking, from the phenomena which are the subject of investigation. So, too, the science of language stands in the same relation to the practical use of language in which any other science stands to the practical application of the principles and rules which have been deduced from observation and experience. Is it not true that in this, as in every other case, the facts exist before the laws governing them are discovered? But none the less are the laws, which may be the discovery of a single mind—or, rather, which may first be defined and formulated by a single mind—of the greatest assistance, even to those who may have all their lives been accustomed to use many of them unwittingly. Many a mechanic makes skilful use of the pulley, the lever, and the inclined plane, who has no book knowledge of the science of dynamics. Does he know nothing of that science? Many other illustrations will readily suggest themselves. But what should we think of the workman who refuses to abandon his own slower and more laborious methods in favor of the simpler ones discovered and applied by science?

But let us look at Mr. Magnusson's arguments very briefly, in their order. He sets out with the assertion, which he offers as first proof, that grammar is not a study for children, viz., that "no normal child ever fell in love with grammar." This is a question of fact. Probably no other subject on the school programme has been, in the past, so badly taught as grammar. But we venture the assertion that there are many among our readers who will promptly refuse to accept this sweeping assertion, and testify that they have many children in their classes who enjoy the study of grammar as much as that of any other subject. No reason can be given why this should not be so, if only the subject be properly taught, *i.e.*, taught inductively and interestingly from the study of the language itself.

The second proof that grammar is not a study for children is that it is greatly over-valued. "Grammar," we are told, "is not the science by which we learn to speak and write correctly." The writer goes on to tell us that correct speech is learned by rote, that it is a matter of habit. Is that so? It is, of course, an inestimable boon to have around us in our youthful days, and to associate with, only those who are correct in speech. It is an advantage the loss of which nothing else can fully make good. But how small the percentage of our school children who have, or ever can have, this advantage. And what shall be done for all the rest, the great majority? How are they to correct their speech, even if they desire to do so, save by the knowledge and constant application of those principles and laws of language which it is the business of grammar to discover and store up in the shape of laws and rules? Is this not what every intelligent student who is ambitious to speak and write the language correctly is doing every day?

The best Greek, we are told, was written by men who would not have recognized a rule in grammar if they had seen one. Is that so? How did it happen that the best Greek writers uniformly used certain forms and terminations of verbs and adjectives, etc., with plural subjects, and certain other forms with singular subjects, if they followed no rules? They certainly observed a code of gram-

matical laws, whether they consciously formulated them or not. If they did, and in so far as they did, they made use of the principles and laws of grammar. How could the science of Greek grammar have been elaborated from the classical Greek if these principles and laws had not been first embedded in those writings? The question is not whether they had the name, but whether they had the thing, the reality.

The study of language is grammar. The best possible way in which to study language is to study it as used by the best authors and speakers. The only question is, as it seems to us, Shall we have our children study the principles of language slowly and painfully, without taking any account of the work done and discoveries made by preceding students, and go on to find out everything for themselves, unsystematically and laboriously, *de novo;* or shall they take advantage of the knowledge already stored up by preceding investigators, and, in accordance with the apperception theory, make it the foundation and stepping-stone for further progress?

THE SILVER QUESTION.

ALL our readers are, no doubt, following with a good deal of interest the progress of the great contest which is being waged in the United States, in connection with the coming Presidential election. Though there are several candidates in the field, the real issue is between two, Mr. McKinley, the Republican, and Mr. Bryan, the Democratic nominee. But the peculiarity of the struggle is that the old party lines are to a great extent being lost sight of, the main issue being the silver question. The Republicans, as we are all aware, have decided in favor of a gold standard. This means that the nation and all its citizens shall continue to pay its obligations in gold or its equivalent in monetary value. The Democrats—or rather a large majority of them, for the party is divided on the question—on the other hand, have taken as the chief plank on which the party shall stand during the campaign the making of silver a legal tender, equally with gold, for the payment of all obligations, and the free coinage of silver at the ratio of sixteen to one.

Now, what do these two policies mean? Gold and silver and any other metals used for current coin have, of course, their own intrinsic value as metals for various purposes of use, or ornament, or art, and it would seem that in order to meet all requirements, it should be necessary that each coin should contain a quantity of the precious metal equivalent at market rates to the value stamped on its face. This rule, it is evident, must hold with regard to gold in countries in which, as in Great Britain and Canada, it is recognized as the standard of value. As a matter of fact, the ultimate test of weighing is constantly applied in the Bank of England. But as the intrinsic or market value of all metals is liable to fluctuation, according as they become more or less plentiful, or more or less in demand for other uses, it is plain that if gold is the standard, and if the value of silver coins depends likewise upon their intrinsic value, a constant fluctuation of size and weight must be kept up in the case of silver coins, in order that, as the price of silver fluctuates in the market, they may retain an intrinsic value equal to that stamped upon them as coins. But this would be inconvenient and impracticable. Hence arises the difficulty in regard to a bi-metallic standard, upon which we need say nothing here. As a matter of fact, our Canadian silver coins do not contain to-day much more than half the weight of silver required to make their intrinsic equal to their face value. They are readily accepted at their face value, evidently on the faith that the banks, representing the Government, will redeem them in gold, at such face value, whenever presented. Perhaps this arrangement is theoretically objectionable, but so long as the coining process is strictly under the control of the Government, and new coins are put in circulation only in sufficient quantities to meet the wants of the people for purposes of exchange, in small amounts, no harm is likely to result.

Suppose, however, that in consequence of the discovery and working of vast silver mines many persons and companies in different parts of Canada were to become possessed of immense quantities of silver, and were able to produce it in practically unlimited quantities. Suppose, also, that their influence and that of their friends could prevail upon the Government to offer to coin, free of charge, all the silver that might be brought to their mint, putting into each dollar only the weight of silver now contained in a dollar, *i.e.*, let us say, about one half-dollar's worth, and, at the same time, passing a law compelling all creditors to accept these silver coins at their face value. Think out what the consequences would be, and you will have a pretty clear conception of what is proposed by the Democrats of the United States in their platform. Who, save an exceptionally honest man, would pay his creditor a gold dollar, or its equivalent in bank notes, if a silver dollar were all that the law required for the fulfilment of this obligation? And what creditor, either at home or abroad, knowing that such a state of affairs was likely to be brought about a year hence, would not in the meantime hasten to collect every dollar owing to him in the country about to take such action, while he could yet compel its payment in gold?

We have not space to follow out the policy in imagination to its legitimate consequences, or to point out its sure effect upon domestic creditors and foreign creditors respectively. Applied to the latter, it would be national repudiation, in part, and must destroy the credit of the nation doing it. Applied at home, could it mean less than ruination, or revolution? Morally, could it be less in either case than the most glaringly dishonest robbing of the great mass of creditors for the benefit of the owners of silver? This may help us to understand the great commotion now going on in the United States, and the terrible danger that lies before the nation, if the friends of such a policy can but have their way.

WE hope, during the year, to hear often from young and inexperienced teachers. Let us hear of your difficulties and discouragements. Doubtless some amongst our many readers will be able and glad to help you, out of the riches of their experience. Tell us, too, of your successes, and the methods by which you have achieved them, that thus your experience may become helpful to others similarly circumstanced. And be assured that whatever aid in the way of sympathy, advice, or help of any kind THE JOURNAL may be able to render is most heartily at your service.

WE hear a good deal from time to time of the teacher who sneers. We wonder if he is to be found in Canadian schools—the man, or woman, we mean, who takes advantage of a position of superiority to launch jeers and jibes at the defenceless pupil. The latter, of course, cannot retort. To do so would be insubordination. We can think of few meaner little cruelties. It is ungenerous, contemptible. But what shall we say of the teacher whe uses this weapon habitually? There are too many such. They do incalculable mischief. Many a promising pupil has been driven from school and college, deprived of his birthright of education, through dread of them. In many another case the shaft of ridicule has rankled in the sensitive breast until the whole spirit has become poisoned.

High School Entrance and P. S. Leaving Department

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With the assistance of several special contributors.

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Entrance Literature.

THE HEROINE OF VERCHERES.

AUTHOR'S LIFE.

Francis Parkman was born in Boston, Mass., 1823. When only twenty years of age he travelled in Europe (1843-44), and on his return was graduated from Harvard. He was soon after drawn to the consideration of the early history of America, and in 1846 he abandoned the pursuit of law, in order to observe the habits of the Indians and to become acquainted with their legends and traditions. Owing to the severe hardships he encountered during his stay amongst the Dakota and other Indians his health was broken and he became an invalid. Notwithstanding the great difficulty he afterwards experienced in reading or writing, he visited France twice in order to examine original documents in Paris. He produced a series of animated and accurate works, with reference to the early settlers of the States and Canada. The complete series consists of the following twelve volumes: "History of the Conspiracy of Pontiac," 2 vols.; "Count Frontenac and New France under Louis XIV."; "The Jesuits in North America in the Seventeenth Century"; "LaSalle and the Discovery of the Great West"; "The Old Regime in Canada"; "Montcalm and Wolfe," 2 vols.; "The Oregon Trail"; "The Pioneers of France in the New World"; "A Half-Century of Conflict," 2 vols. This series is worthy of a place in every Canadian library, as it is the result of Parkman's belief that the annals of French rule are not barren of interesting and important events that have had much influence on the formation of character and opinion in North America. The "Heroine of Verchères" appears in "Frontenac and New France." Parkman died in 1893.

NOTES AND SUGGESTIVE QUESTIONS.

"The Heroine of Verchères." What is a heroine? Name any whom you know of. Why is this girl worthy of the name?

"Incidents that are preserved." What is an incident? Is it right to talk of one being preserved?

"Frontenac's troubled second administration." Frontenac's first administration lasted from 1672 to 1682. He was recalled to France because of his quarrel with his Council. In 1689 he was sent out a second time to command the French in their struggle with the British. Though arriving at a time when affairs in Canada were greatly confused, he soon restored order, and in his contest with the British regained for the French name the dignity and honor that his immediate predecessors had lost.

"None are so worthy of record." Should *are* be *is?* Give reasons for or against.

"Seignior." French officers that decided to live in Canada received large grants of land from the Government, and in course of time became a privileged class, a sort of feudal system having sprung into existence.

"Recital." Meaning?

"Twenty miles below Montreal." How wide is the St. Lawrence here? In what county is Verchères? What river is on the east of the county?

"Blockhouse." A sort of fort made of hewn timber and loopholed for purposes of defence.

"Inhabitants were at work in the fields." At what, probably?

"On duty at Quebec." Meaning? How far away was he?

"His wife was at Montreal." What sort of place was Montreal in 1692?

"Madeleine." Pronounced Mă-dĕ-lān.

"Here come the Iriquois." Much of the history of Canada is concerned with the struggles with the Iroquois from the country south of the lakes, and the Hurons and Algonquins in what is now British territory. This warfare was characterized by sudden attacks, fierce conflicts, ruthless torture of prisoners, and insults to the dead.

"At the distance of a pistol shot." How far would this be?

"Made the time seem very long." What is meant?

"Whistled about my ears." Why *ears?* Why not arms or legs?

"Few people." How many?

"Palisades had fallen." What does this show concerning the arrival of the Iriquois? A palisade is a fence made of strong stakes, or small, round timbers, set close together firmly in the ground.

"Putting on a hat." Why was the bonnet exchanged for a hat?

"Let us fight to the death." Meaning?

"And our religion." The Iroquois despised the Hurons for adopting the religion of the French.

"Two of the bastions." A bastion is a tower, very broad in proportion to its height, projecting from the wall in such a way as to permit an uninterrupted view along the outside of the wall. It would seem that in this case there was a bastion on each of the four sides of the fort.

DRAWING.

BY A. C. CASSELMAN.

In a well-equipped school each pupil should have a model of the object under consideration. This is absolutely necessary if the teacher is to do good work, and if the pupils are to derive the greatest benefit from the subject. In the study of the sphere it was advised to procure a rubber ball, or any spherical object, for the first lessons, but if a sphere turned from wood can be procured, so much the better. The teacher should, before asking the pupils to procure expensive objects, get them interested in the subject of form study and drawing with as little friction as possible. Nearly every pupil could possess himself of a ball of some kind, and apples, tomatoes, and other objects like the sphere may be obtained in every house. It is only a tax on the memory of the pupil to bring the object for the day's exercise. If sufficient care has been taken to "enthuse" each pupil in the work, the teacher need not fear to ask each pupil to make some effort to obtain a sphere divided into hemispheres. The sphere should be about three inches in diameter, and so arranged that it may be easily divided into two parts. It would be advisable for the class to club together and get the nearest turner to turn the spheres out of two blocks of wood, fastened together with small iron or wooden pins. This will enable the model to be used either as a sphere or as a hemisphere. Before each model is taken up in these papers, full explanations will be given of how each member of a class may become possessed of the model. If the teacher, at the outset, can get the School Board to buy enough models for each member of the class, so much the better; but their refusal to do so should not interfere in the least with his purpose to become possessed of good models. Reach the parents and the Board through the pupils.

THE HEMISPHERE.

The teacher and each pupil holds in his hand a model of a sphere that may be readily separated into hemispheres.

The teacher questions somewhat as follows, and by other questions, if necessary, arrives at the answers given:

What is the name of the model we each hold in our hand? A sphere.

Take the model apart, and hold one part in each hand.

How much of the sphere is held in each hand? Half of the sphere.

What name would you give to the part held in each hand? Half-sphere.

Write *half-sphere* on the blackboard, and tell the pupils that we have another name for it which means the same as *half-sphere*. Write the word *hemisphere* under *half-sphere*.

What does *hemi* mean? *Hemi* means half.

Proceed to get the pupils to give the definition of the *hemisphere* after the method outlined when the sphere was studied. This definition will be the *language expression* of the *hemisphere*.

How does the surface of the *hemisphere* resemble the surface of the *sphere?* The curved part is *curved* the same as in the sphere.

How does the surface differ from that of the sphere? (1) The surface of the sphere is *whole* or *unbroken*, and the surface of the hemisphere is *broken* into *two* parts. (2) One part of the surface of the hemisphere is *plane*, and no part of the surface of the sphere is plane. (3) The surface of the hemisphere is not so great as that of the sphere.

Here the teacher might tell the class that the *curved part* of the surface is just *twice as great* as the *plane part* of the surface.

What is the boundary between the two parts of the surface? An edge. What *kind* of edge is it? A curved edge. All touch the edge.

What name is given to each part of the surface? A face.

What is a face?

How many *kinds* of faces on the hemisphere? Two kinds.

Name the kinds. One is plane and the other is curved.

All touch the *plane face.*

All touch the *curved face.*

What is the shape of the plane face? The plane face is circular. (The pupils will answer *round*, but as *round* may mean either *spherical* or *circular*, it is better to tell the pupils to use circular when shaped like a *circle*, and *spherical* when shaped like the surface of a sphere. It is better not to ask the shape of a curved face.

Point to the *centre* of the plane face.

Put the two hemispheres together so as to form a sphere.

What is the centre of the plane face called now? The centre of the sphere.

Compare by measurement the distance of several points on the curved face of the hemisphere from the centre of the plane face. All these lengths are the same. Get the class to see that *every part* of the curved face is the *same distance* from the centre of the plane face. This will give the position of the curved face with regard to a *point* which is the *centre* of the plane face.

After questioning the class as outlined above, and writing the salient points on the blackboard, the blackboard work should appear something like the following :

Half-sphere.

Hemisphere.

The hemisphere is a *solid.*

Faces.
- Kind. The hemisphere has a curved face and a plane face.
- Number. The hemisphere has two faces.
- Shape. The plane face is circular.
- Position. Every part of the curved face is the same distance from the centre of the plane face.

The teacher can now make use of the above facts to give the pupils a valuable exercise in composition. It is required to put in one sentence the facts regarding the faces of the hemisphere. The sentence should be framed by each pupil independently, and the amount of aid given by the teacher will depend upon the age and experience of the class. Several different answers will be given, and all may be equally correct. A type definition would be something like the following :

A hemisphere is a solid enclosed by one circular, plane face, and a curved face, every part of which is the same distance from the centre of the plane face.

The next method of expressing the hemisphere is by modelling in clay. Model the sphere, and cut it into two equal parts with a knife.

The pupils must now be taught to express the hemisphere by a drawing.

The hemisphere may present different appearances, depending upon the position in which it is held with regard to the eye of the observer.

Get each pupil to hold the hemisphere in different positions, and be sure that each sees that the appearance differs for each position.

Hold the hemisphere with the plane face upward in a horizontal position. Move the hemisphere until the plane face is on a level with the eye. Draw the appearance of the plane face. The appearance of the plane face is a straight line. This can be still further impressed on the pupils by getting them to cut a circular piece out of cardboard. Hold this on a level with the eye. What part of the edge of the plane face is nearest to you? How do you express the part of an edge that is near to you as compared with the part that is farther away from you? The part near to you is drawn heavier. The line expressing the visible part of the edge of the plane face will be light at both ends and gradually getting heavier towards the middle. Express the limit of vision of the curved face by a line. This line will be a semicircle.

Hold the hemisphere below the level of the eye, plane face upward and horizontal. Move the hemisphere up and down, and observe the difference in the apparent width of the plane face. In what position does it appear widest? Note that the plane face does not appear as a circle but as an ellipse. Draw the appearance of the plane face, and a line to represent the limit of vision on the curved face. Draw the table line. Note that the table line must be drawn lighter than any line on the hemisphere. Why? Hold the hemisphere, plane face upward, above the level of the eye. Draw the appearance of it. Show the hemisphere in this position suspended by a string. Draw the string.

Place the hemisphere on a book resting on its plane face. Draw the appearance of it.

Draw the appearance of the hemisphere in these four positions in *outline* first. Draw their appearance again, and add shade and shadow.

Many objects are shaped like the hemisphere, such as a bowl, a cup, a chemist's mortar, a bird's nest, a wire screen for covering dishes on the table, an Esquimaux hut.

Many objects approach the hemisphere in appearance, such as a saucer ; half of such fruits as an apple, a peach, a tomato, an orange, a pear ; a toadstool, an open umbrella.

Procure some of the objects named and make drawings of them.

No pictures are given of these objects this issue, but in the next several pictures of common objects like the hemisphere will be given, and the pupils can compare their drawings with them and can criticize their own work.

COMPOSITION.

BY G. H. A.

[*Note.*—In the last issue of the "Entrance' the printer took unwarranted liberty with the arrangement of the heading and salutation of our letter. We submit it to our friends again.]

THE LETTER.

57 Acme St.,
Toronto, Sept. 20, 1896.

DEAR UNCLE,—

Your letter of the 15th inst. duly received. I was glad to hear that you and aunt were so well. I thank you very much for the gold pen you sent me. I am writing this letter with it. I shall always use it when writing to you.

Our school was closed during July and August. I remained at home until the 1st of August. On that day I started for Owen Sound on my wheel. There were six in our party. We took two days to make the journey. The weather was very warm, and we were all glad when we reached the town. After a few days' rest we went to Goderich. While there we visited the salt wells, and saw the whole process of preparing salt for market. Our ride home was very pleasant, for the weather was cool. Our friends scarcely knew us, we had become so tanned by the sun and wind.

At the beginning of this term I was promoted to the Senior Fourth or Entrance class. There are forty scholars in our room. It takes me an hour and a half every night to prepare my home lessons. I like literature better than any other subject. We are studying "Pictures of Memory" now. Our teacher showed us a picture of Alice Cary, the lady who wrote this poem. I liked her face. It was sweet and thoughtful.

I went to see our Exhibition on Labor Day. The greatest event of the day was the visit of Li Hung Chang. Let me tell you about him. He is China's greatest statesman, and is making a trip around the world. Our Government sent a special train to carry him and his suite through Canada, and paid all their travelling expenses. Sir Henry Joly had the party in charge. At 3 o'clock his train arrived. He was received by the mayor and other distinguished citizens. Four stalwart policemen carried him around the grounds in his sedan chair. He wore his famous yellow jacket and peacock feathers. Although seventy-five years old, he looks fresh and strong. He took much interest in many of the exhibits, and had his secretary take notes of some of them. Before leaving, he said he was well pleased with his reception. At eight o'clock the same evening he resumed his journey to the Pacific coast.

Hoping to hear from you soon, I shall now say good-by.

Your loving nephew,
RUSSELL HOWARD.

ENGLISH GRAMMAR—ENTRANCE EXAMINATION, 1896.

BY G. H. ARMSTRONG.

1. Write in full the subordinate clauses in the following, giving the kind and the relation of each :

As I looked more attentively, I saw several of the passengers dropping through the bridge into the great tide that flowed underneath it ; and, upon further examination, perceived there were innumerable trap-doors that lay concealed in the bridge.

As I looked more attentively. An adv. clause, mod. *looked.*

That flowed underneath it. An adj. clause, qual. *tide.*

There were innumerable trap-doors. A noun clause, obj. of *perceived.*

That lay concealed in the bridge. An adj. clause, qual. *trap-doors.*

2. Analyse fully the following sentence and parse the italicised words : *Failing* in *this*, they set themselves, *after* their custom on *such* occasions, to *building* a rude fort of *their own* in the *neighboring* forest.

ANALYSIS.

Kind, a simple, declarative sentence.

Subject, they.

Modifier of subject, failing in this.

Predicate, set, incomplete ; completed by *to building.*

Object, themselves.

Modifiers of predicate, (1) after their custom on such occasions ; (2) to building a rude fort of their own in the neighboring forest.

PARSING.

Failing, an imperfect participle, attributive to *they*.

This, a demonstrative pronoun, object of *in*.

After, a preposition, connecting *custom* with *set to building*.

Such, an indefinite pronominal adjective modifying *occasions*.

Building, a verbal noun, object of *to*.

Their, a possessive pronominal adjective, governed by *of*.

Own, an adjective added for emphasis to *their*.

Neighboring, a qualifying adjective, qualifying *forest*.

3. (*a*) Define *case*, *voice*, *participle*, giving an example of each from the passage in question 1. (*b*) Give the past indicative, second person singular, of *go*, *write*, *defy*, *be*. (*c*) Give the principal parts of swell, dare, shorn, and spit.

(*a*) *Case* is the name given to that relation which nouns and pronouns bear to other words with which they are connected in sense. Examples : *I* is nominative case, subj. of *looked*. *Passengers* is objective case, obj. of *of*.

Voice is that inflection of the verb which shows whether the subject named is the actor, or the recipient of the action. Examples : *looked* and *saw*, active voice.

A participle partakes partly of the nature of an adjective, and partly of the nature of a verb. Example : *dropping*.

(*b*) Thou wentest. Thou wrotest. Thou defiedst. Thou wast or wert.

3. (*c*)

Present tense.	*Past tense.*	*Past participle.*
swell	swelled	swollen or swelled
dare	dared	dared
shear	shore	shorn
spit	spat or spit	spit or spat.

STUDIES IN ENGLISH GRAMMAR.

G.H.A.

Analyse and parse : "Still in thy right hand carry gentle peace to silence envious tongues."

Kind, a simple, imperative sentence.

Subject, [you].

Predicate, carry.

Object, peace.

Mod. of object, gentle.

Mods. of predicate, 1. still ; 2. in thy right hand ; 3. to silence envious tongues.

PARSING.

Still, a simple adverb, modifying *carry*.

In, a preposition, connecting *hand* with *carry*.

Thy, a possessive pronominal adjective, poss. *hand*.

Right, a qualifying adjective, qualifying *hand*.

Hand, a common noun ; singular number ; objective case, object of *in*.

Carry, a verb, transitive ; weak conjugation ; active voice ; imperative mode ; present tense ; second person ; singular or plural number to agree with its subject, [you.]

Gentle, a qualifying adjective, qualifying *peace*.

Peace, an abstract noun ; singular number ; objective case, object of *carry*.

To silence, an old infinitive, used as an adverb to modify *carry*.

Envious, a qualifying adjective, qualifying *tongues*.

Tongues, a common noun ; plural number ; objective case, object of *to silence*.

ENTRANCE ARITHMETIC.—TYPE PROBLEMS.

BY G. H. ARMSTRONG.

1. A merchant buys cloth at $1.60 a yard, and marks it so as to gain 25 per cent., and yet allow a discount of 20 per cent. from the marked price. Find the marked price.

SOLUTION.

$25\% = \frac{1}{4}$ gain.

Since $\frac{4}{4}$ of cost of cloth = $1.60,

$\therefore \quad \frac{1}{4}$ " " " $= \frac{\$1.60}{4}$

And $\frac{5}{4}$ " " " $= \frac{5 \times \$1.60}{4} = \$2.00$

$20\% = \frac{1}{5}$ discount.

Since $\frac{5}{5}$ of marked price $- \frac{1}{5}$ discount, or $\frac{4}{5}$ of marked price = $2.50,

$\therefore \frac{1}{5}$ of marked price $= \frac{\$2.00}{4}$

And $\frac{5}{5}$ " " $= \frac{5 \times \$2.00}{4} = \$2.50$. Ans

SOLVE.

2. A merchant buys cloth at $1.20 a yard, and marks it so as to gain 40 %, and yet allow a discount of $12\frac{1}{2}$ % for cash. Find the marked price.

3. A dealer buys an article for $3.20, and marks it so as to gain $37\frac{1}{2}$ %, and yet allow a discount of 10 % for cash. Find the marked price.

---

1. At what time between 4 and 5 o'clock are the hour and minute hands of a watch exactly over each other?

Note.—The minute hand moves over or through 60 minute spaces, while the hour hand moves through 5 *minute* spaces on dial.

Note.—At 4 oclock the hands are 20 minute spaces apart, and the minute hand *must gain* this space before the hands are over each other.

SOLUTION.

Since the minute hand gains 55 minute spaces on hour hand in 60 minutes,

$\therefore$ the minute hand gains 1 minute space on hour hand in $\frac{60}{55}$ minutes.

And the minute hand gains 20 minute spaces on hour hand in $\frac{20 \times 60}{55}$ minutes $= 21\frac{9}{11}$ minutes. $\therefore$ the minute hand will be exactly over the hour hand at $21\frac{9}{11}$ minutes after 4 o'clock.

SOLVE.

2. At what time between 8 and 9 o'clock are the hour and minute hands of a watch exactly over each other.

3. At what time between 2 and 3 o'clock are the hour and minute hands of a clock exactly opposite each other.

Note on No. 3.—The hands will be opposite when there are 30 minute spaces between them. This will occur when the minute hand has gained 40 minutes on the hour hand. Now solve as in number one.

---

1. A watch which gains 90 seconds in 14 hours marks the correct time at the beginning of the week. What will be the correct time when it marks the end of the week?

SOLUTION.

One week $= 7 \times 24$ hours $= 168$ hours.

In 14 hours correct time the watch goes 14 hours and 90 seconds, or $14\frac{1}{40}$ hours.

Since $14\frac{1}{40}$ hours of the watch = 14 hours correct time,

$\therefore$ 1 hour of the watch $= \frac{14}{14\frac{1}{40}}$ hours correct time.

And 168 hours of the watch $= \frac{168 \times 14}{14\frac{1}{40}}$ hours correct time, or 167 hours $42\frac{6}{187}$ minutes.

$\therefore 17\frac{181}{187}$ minutes to 12 o'clock Saturday night. Ans.

SOLVE.

2. At what time are the hands of a clock exactly 3 minutes apart between 1 and 2 o'clock?

3. One clock gains 2 minutes in 3 days, another loses 6 minutes in 6 days. If they are set right at 12 o'clock to-day, when will their times differ by a quarter of an hour?

A SPELLING TEST FOR ENTRANCE AND LEAVING CLASSES.

G. H. ARMSTRONG.

Summary, secretary, salary, celery, vegetable, prejudice, superintendent, attendant, prairie, continent, etiquette, treasurer, dairy, diary, proceed, succeed, exceed, recede, accede, concede, occurred, committed, benefited, bouquet, emigrant, immigrant, ceremony, trials, thermometer, diameter, equator, furnace, innumerable, irresistible, satiated, reverence, benefactor, unconscious, conscience, channel, canal, desert, dessert, governor, sovereign, imperative, interrogative, inexhaustible, furniture, paralysis, rheumatism.

LATITUDE.

BY M. PARKINSON.

The following, it is thought, may prove useful to the teacher of geography. It shows, by question and answer, how the subject of latitude might be developed, and furnishes some necessary map-drill, the object of which is to give the pupils an intelligent grasp of the latitude of places in different continents, in comparison with each other.

Have you ever seen the north star? Yes.

Where would you have to go so as to have the north star immediately over your head? To the north pole.

If you were at the south pole could you see the north star? No.

If you walked north from the south pole when would the north star be first seen by you? When the equator was reached.

Where would you then see the north star? On the horizon.

If you travelled north of the equator what would the north star appear to do? Rise in the heavens until the north pole was reached, when it would appear immediately overhead.

If a horizontal line were drawn through your feet as you stood on the north pole, looking at the north star, what relation would that line bear to your body? It would be at right angles to my body.

How many degrees in a right angle? Ninety degrees.

Then how many degrees high is the north star when you stand on the north pole? Ninety degrees high.

How far is the north pole from the equator? One-fourth of the circumference of the earth.

The circumference of the earth is divided into how many degrees? Three hundred and sixty degrees.

Then from the equator to the north pole is how many degrees? Ninety degrees.

Then you see that the distance from the equator may be found by observing what? The height of the north star.

This distance of any place from the equator is called latitude. Now, how may the latitude of a place, say Toronto, be found? By observing at Toronto the height of the north star above the horizon.

How high above the horizon is the north star when viewed from the equator? The north star is on the horizon when viewed from the equator.

Then what is the latitude of the equator? It has no latitude. It is the line from which latitude is measured.

What is the greatest latitude a place can have? Ninety degrees, because that is the distance from the equator to the north pole.

You will now open your geographies at the map of the world.

Where will you expect to see latitude marked on the map if it measures distance north or south of the equator? It must be shown on the sides of the map if the lines used to mark off latitude run parallel to the equator, so as to measure distances from it.

You will now find on your map the latitude of your own town, of Ottawa, of the capital of each province, and of London, England.

What is the latitude of the most northerly city in Canada? Of the most southerly city in Canada?

What is the latitude of the most northerly village or town in Canada?

What is the latitude of the most northerly town in the northern hemisphere? In the southern hemisphere?

What do you mean by high latitudes?

What is the highest latitude a place can have? Why?

Where is that place which has no latitude?

What city has no latitude?

What three large cities in Europe have the same latitude as Ottawa?

What European countries lie south of the latitude of Toronto?

What city in Russia is 60° north latitude?

What is the latitude of the southern point of England, of Canada, of the United States, of Italy, of Iceland, of South America, of Australia, of Africa?

The capitals of what countries are on the following latitudes: 39° north, 22° south, 40° north, 59° north, 42° north.

What large North American city has the same latitude as Madrid, Athens, Paris, Toulon?

Define latitude, parallel of latitude, and degree.

How many parallels of latitude are there? As many as you wish to draw to mark each degree or portion of a degree?

What is the length of each in miles? In degrees? Each is 360° long, but they vary in length from 25,000 miles at the equator to nothing at the poles.

Are they greater or lesser circles? They are lesser circles, because their planes do not pass through the centre of the earth.

HISTORY.

BY M. PARKINSON.

The following is an attempt to make plain the development of Parliamentary Government in Canada:

I.

From 1760, when, after the surrender of Quebec and Montreal, Canada fell into the hands of England, to 1763, the country was ruled by a Military Government, as a necessary result of the unsettled condition of affairs; that is, justice was administered by the officers of the army.

II.

From 1763, when George III. issued a proclamation establishing a system of English government, to 1774, Canada was controlled by a governor-general, the first of whom was Murray, and a Council to advise him, appointed by the Crown.

III.

From 1774, when the Quebec Act was passed, to 1791, Canada was governed by—

(*a*) A governor appointed by the King.

(*b*) A legislative council or senate, consisting of not fewer than seventeen or more than twenty-three members, appointed by the King.

(*c*) An advisory council of five, chosen by the Governor, chiefly from the Legislative Council.

The scheme of an elected assembly, or House of Commons, was "postponed, as inexpedient under existing conditions."

IV.

From 1791, when the Constitutional Act was passed, to 1840, Canada was divided into two provinces. Each province was governed by—

(*a*) A Governor-General appointed by the King.

(*b*) An Executive Council, or Ministry, chosen by the Governor, from his friends.

(*c*) A Legislative Council, or Senate, chosen by the Governor.

(*d*) A Legislative Council elected by the people on a restricted franchise.

The people were now represented for the first time in an assembly elected by themselves.

V.

From 1840, when the Union Act was passed, to 1867, Canada was reunited under the name Province of Canada, which was to be governed by—

(*a*) A Governor appointed by the Crown.

(*b*) A Legislative Council, or Senate, of twenty members, appointed by the Crown for life.

(*c*) A Legislative Council, or House of Commons, of forty-two from each province, elected by the people. This Council to control the revenue.

(*d*) An Executive Council, or Ministry, of eight, *chosen from the stronger party in the House of Commons.*

Canada now, for the first time, had Parliamentary or Responsible Government, and the Ministry then became fully responsible to Parliament for the advice given to the Governor.

VI.

From 1867, when the British North America Act was passed, to the present, we have enjoyed the same system of government, only with a wider scope.

The provinces of Ontario, Quebec, Nova Scotia, and New Brunswick, entered the union in 1867.

In 1869 the monopoly of the Northwest Territory was purchased from the Hudson Bay Company, and formally transferred to the Government of Canada, and in 1870 the new province of Manitoba was formed.

British Columbia came into the Confederation in 1871, and was followed by Prince Edward Island in 1873.

CURRENT EVENTS.

Parliament was prorogued on Monday before last, after a session in which very little business was done except passing the estimates. There was, however, a good deal of talking.

The chief subjects of discussion were the action of His Excellency the Governor-General in refusing to sign a number of Orders-in-Council passed by the late Government just before their resignation, but after the result of the general elections was known. These Orders-in-Council were chiefly those making appointments to the Senate, to the Bench, that is, to judgeships, and to other public offices.

Under our system of responsible government the Governor himself can do no act of government on his own authority. He can do only what he is advised to do by his Government, the Ministers of the Crown, the Executive, or the Cabinet—for they are known by all these titles. Thus the Government becomes responsible to Parliament, that is, to the people's representatives, for everything done by the Governor. As a matter of course, the former Government, composed of Sir Charles Tupper and his colleagues, regarded the refusal of the Governor-General to sanction the appointments they had recommended as a withdrawal of his confidence in them as his advisers, and promptly resigned.

His Excellency immediately called upon the leader of the Opposition to form a new Government. Mr. Laurier did so. In accepting office the new Government accepted responsibility for the action of His Excellency in the matter referred to, and the attack of the Opposition had then to be made upon them, not upon the Governor-General. The new Government, after a lengthy debate, was sustained by a majority in the Commons. This put an end to the incident. There is, however, a nice constitutional question involved which it would take too much space to explain here.

Two other matters upon which there was a good deal of warm discussion during the session were dismissals and appointments to office in the Civil Service and the estimates for the ensuing year. The Civil Service consists of all the officials employed in all the Government offices, from the deputy heads of departments down to the lowest clerkships, and even to the mechanics and laborers employed in works carried on by the Government. A general principle agreed to by both parties is that no employee of the Government should take any active part in elections. The policy announced by Mr. Laurier is that any such employee, no matter what his position, who is proved to have taken an active part in support of the former Government during the recent election shall be dismissed. Of course the place will be filled with a supporter of the Government. The Opposition, led by Sir Charles Tupper, occupied a good deal of time in criticising changes thus made by members of the Government. The latter defended themselves in almost every case on the ground, not the highest, certainly, that their predecessors had done the same thing.

As the Government cannot constitutionally expend a single cent of the public money, even in paying the salaries of its employees, without the sanction of Parliament, it becomes necessary for it every session to lay before Parliament a detailed estimate of the amount of money which will be required to carry on the government for the ensuing year. Its Minister of Finance must also present a detailed statement of the estimated revenue from all sources during the year. The examination and voting of these estimated expenditures almost always gives rise to one of the keenest debates of the session. This session was no exception, especially as the estimates are unusually large, considerably larger, in fact, than the estimated revenue. The Government's defence is that, not having had time to frame estimates of their own, the bulk of those presented are those which were prepared by the former Government; that they hope that all will not be actually used.

Intermediate P.S. Department.

Designed specially for teachers of Second and Third Class. Edited by M. A. WATT.

A DRAWING LESSON.

SENIOR SECOND CLASS.

The first thing they did was to talk about the cubes they held in their hands. They found out the number of faces it had, and they called them faces. They measured each edge, and found it to be a two-inch cube. They observed its steadiness, and compared it mentally with a sphere, finding the cube to be the emblem of stability and repose, the sphere being the opposite. Then they considered the cube in the way of drawing it, observed how many faces they could see when it was held opposite to and level with the eye; how many more if the cube were lowered—raised? What faces they saw of a cube resting on a chair before them.

This proved sufficient for one day's lesson. Next day I stepped in just as they were about to draw it on their drawing sheets. They were sitting in position for drawing, feet flat on the floor, easy erect posture, with pencils on the desks, rulers near, and papers before them. I noticed one thing about the paper: The longer edge of the paper was parallel with the edge of the desk. This was explained to be the way best suited to make this drawing appear to advantage. At the command, "Pencils—take," the little hands poised themselves over the centre of the pencils (lying points to the right), and when the word "take" was ended the pencils were all pointed to the front and poised ready to draw. The next command was: "Find the centre of your papers from right to left; put a light dot there"; the following one: "Find centre of paper from top to bottom; put a light dot an inch lower down." These orders were obeyed by the children, who quickly estimated the distances. The last dot was used as the starting-point of the drawing of the front view of the cube. The children's attention was now directed to a cube in the teacher's hands, and lively question and answer followed:

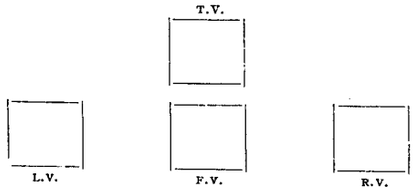
"What is this?" "The face of the cube." "Which face?" "The front face." "If I draw a picture of it I shall call it a view. What view will it be?" "The front view." "What will this view be like on the paper?" "A square." "Why will it be a square?" "Because each edge is two inches long." "What other reason?" "Because it has four right angles." The order was now given: "Pencils in position for drawing a horizontal line." The pencils were now put in such a way as to be at right angles to the direction of the line. "Draw a line one inch on the right of your dot. First, pretend to draw the line—trace," and the hands moved in the air obediently. "Draw." The line appeared gray and light on the paper. "Rulers—measure."

The line was corrected as to length and the rulers laid aside, not to be used again, as the children now had a standard in their own inch line. "Draw to the left of your dot a line one inch long." "From the right hand end of the line draw a line two inches long downwards." "From the left hand end of the line do the same." "Join the ends of these lines." The letters F.V. were neatly printed below this. No erasers were used in correcting the length of the line; the children simply marked the distance by a dot. The papers were kept straight while drawing the vertical lines, though some children evidently found it hard to avoid turning them. In drawing all lines the pencil was at right angles to the line of direction

There now followed questions on side view to right, side view to left, and a nice point arose as to distances apart of the views and the width of the margin to be left on each side. Taste was shown to require that the views should be at the same distances apart, and the right margin as wide as the left. I left before the lesson was finished, but the class were as interested as if they were drawing a picture, evidently delighting in the exactness of the work and their own ability to follow orders.

The work was done on sheets of drawing paper taken from old blank drawing books which had been partly filled by other pupils. The question was asked, "Why not use the books instead of the leaves separately?" and the answer was, "Because the children do not then see the faulty work of other children; also there is nothing to distract them from this lesson when the leaves are given, as there would be in the books." This lesson and the previous work in drill on position for drawing lines were carefully examined and faults marked and credit given for good work.

The page looked like this when done:



and great pride and pleasure were shown in it, especially as their teacher promised me that I should see the drawings when they were finished. A thoughtful teacher will see that the drawing was the smallest part of the lessons learned by this simple exercise. M.A.W.

A HELP IN DIVISION.

Table.

764^1
1528^2
2292^3
3056^4
3820^5
4584^6
5348^7
6112^8
6876^9

I. 764|937628|1227

764
1736
1528
2062
1528
5348
5348

II. 764|1076532|1409

764
3125
3056
6932
6876
56

III. 764|36784672|48147

3056
6224
6112
1126
764
3627
3056
5712
5348
364

Question on them as: I. Exactly divisible. II. Exactly divisible by adding what? (708) or subtracting? (56). III. Exactly divisible by adding? (400) or subtracting? (364).

GRAMMAR.

One of our experienced teachers tells me that her class can easily take up in a term the following work in grammar. She teaches a junior second class, and finds it can be pleasantly used as an outline for language lessons in that grade. It looks like a large amount of technical work for so young a class, but she is not one to drive a class beyond the line of pleasure in its work, and, as she assures me of its practicability, I give the outline for the benefit of other teachers. M.A.W.

JUNIOR SECOND CLASS.

1. The sentence.
2. The parts of a sentence.
3. Division of very simple sentences into complete subject and complete predicate.
4. The bare subject.
5. Nouns.
6. The bare predicate.
7. Verbs.
8. The use of capital letters at the beginning of (1) the sentence, (2) of names of persons and places.
9. The use of periods at the termination of the sentence, and after abbreviations.
10. Exercises in forming sentences.
11. Correction of incorrectly formed sentences.
12. The following abbreviations: Mr., Mrs., Dr., Esq., Ont., Can., U.S., N.A. The months and the days of the week. (The work in this class is based on lessons 1, 2, 3, 4, 5, and 7, of the P.S. grammar.)

A METHOD IN SPELLING.

BY JASAW.

Instead of asking the pupils to write on their slates the words, Bruce, Scotland, monarch, crown, sad, grieved, pondered, etc., found in Third Reader, in the lesson on "Bruce and the Spider," I asked them to write:

(1) The name of the king mentioned.
(2) The country in which he was king.
(3) The word used instead of sovereign king.
(4) The name of that which he wears in authority.
(5) The word meaning sorrowful.
(6) The word meaning sad.
(7) The word meaning thought, etc.

Of course it is expected that the word spelled by the pupil is the one found in his reader. I asked my pupils which plan they liked the better. They answered the latter. I then asked one of the boys why he liked the latter the better. He replied, "Because you've got to think more." Hence if they find it necessary to "think more," it is an educative process.

In second classes the work might be slightly simplified. Not much, however, as the difference in the text of their readers would be almost enough simplification. For example: On the "what kind of banks" of "what river," when, "who" was "near," No "what kind of lad" was so, "what" as I? No harp like "whose" could play "how," and wherever I went was my poor dog, "what was his name?"

The parts quoted require an answer. That answer would be written on the slates and corrected by the teacher, when from ten to twenty had been given.

In this method we have more than one exercise. Let us see what the pupil does in answering the quotations given by the teacher.

(1) He will require to "know" the "facts" of the lesson.

(2) To know the facts he must "read" the lesson a number of times.

(3) In reading the lesson so often he learns to "read it well."

(4) Knowing that his spellings will be given in the above manner, he will rivet his "attention" on the "words and ideas" of the lesson while preparing it, in order to follow the teacher's dictation when he goes to the class.

(5) Then he must "reflect" and "think" where the teachers quote to get the correct word.

(6) He then "spells" the word mentally.

(7) He then "writes" the word.

Thus we see that he learns facts, reads, reads

well, cultivates attention, cultivates memory, reflects, thinks, spells, and writes.

In the Part II. class, the method may be somewhat similar. Suppose the words *fast*, *behind*, *long*, *good*, *down*, *old*, *over*, etc., are found in the lesson, I don't ask them to spell these words, but ask them to spell the opposite to each, *slow*, *front*, *short*, *bad*, *up*, *new*, *under*, etc. These words of opposite meaning may seem simple to us, but just try it with Part II. pupils, and you will find that they require to think before they write them. In doing so they also develop the faculty of comparison.

ARITHMETIC—PROBLEMS.

BY J.C.L.

The main object of teaching arithmetic is to train the children *to think*. For this purpose practical problems should form a part of the work in every grade. It is a mistake, however, to give much time to problems in the first and second forms. That, in the long run, is the best economy of time and energy which concentrates effort in these forms on acquiring quickness and accuracy. The very best preparation for passing to the third form is a high degree of speed and accuracy in working the simple rules. This should be done in the second form, whatever else is left undone. Is it possible, in the second form, to give drill and practice sufficient to reach a high degree of speed and accuracy, and also to cultivate such power of thought as may reasonably be expected in pupils at this stage of mental development? I think so. I believe that to keep pupils of the second form constantly solving problems for the purpose of training them to think, while they are slow and inaccurate in the so-called mechanical work, is the surest way to defeat the end in view. The quick and accurate workers are generally the best thinkers.

But, as already stated, some problems are necessary. At every new step in his progress the child should be required to apply the knowledge learned in solving simple, practical problems.

The following suggestions, I think, indicate the course that should be adopted in order to produce the best results from teaching of problems in the second form:

1. As a rule, problems, for junior second at least, should be stated orally, and should be such as the children can solve mentally. This leaves the mind free to give its entire attention to the rationale of the problem without expending its energy in the often more difficult task of understanding the phraseology. "One difficulty at a time is enough for the child," is a maxim that must be observed if we are to have clear, concise thinking in our classes.

2. It is a good plan to state a problem, and require the children to think over it and tell *how* it should be worked, without actually doing the work. When this is done it is not necessary always, and, in fact, it is better not always, to use small numbers. Small numbers should be used at first, but the children should be led, through them, to see clearly the *method* of solution, no matter what may be the size of the numbers. If the numbers are small the correct answer may be often seen by inspection, without any thought as to the *method* of working the problem. For instance, correct answers may readily be obtained to such questions as: "Tom has 15 cents, how many more cents must he earn in order to have 25 cents?" and yet, if given the same problem with 3428 cents and 5836 cents, say, substituted for 15 cents and 25 cents, the answer given would almost certainly be 9264 cents. In the first example the child saw at once that 10 cents *added* to 15 cents would make up the whole, and wrongly concluded that he *obtained* the correct result by *adding*, and, further, concluded that *adding* should bring the correct answer in the second example also. Now, before giving the larger numbers the class should have been led to see that the 25 cents was a whole, made up of the 10 cents which Tom had and an unknown quantity which he had to earn, and that the unknown quantity was obtained, not by *adding*, but by *subtracting* the given *part* from the given *whole*. The mental process was one of analysis, not of synthesis.

3. In mental arithmetic the child should always be required to tell *how* he has obtained, or would obtain, the correct result; and in all problems, whether written or mental, he should be able to tell his reason for believing the method correct. He should be trained from the first to constantly ask himself such questions as, "How do I know that this method is the correct one? That this step I am taking is the right one to take? That this result is true?" In the effort to establish by irrefutable reasons the *certainty* of its conclusions the mind is trained to think. It is because this is not done that we so often hear teachers complain that their pupils cannot, or will not, *think*.

4. Addition and subtraction, and multiplication and division, should be taught together; the former in each pair preceding the latter by a single step. If this plan is followed problems can be given in which the child has to decide whether to add or subtract, to multiply or divide, as the case may be, thus giving greater exercise to judgment and reason.

5. In written work connected statements showing all the steps in the reasoning should not be attempted, as this requires a command of language beyond the powers of a second form. It is sufficient to work out the operation involved in each step and indicate the result. For instance, the work for No. 5, "Second Class Arithmetic," in the JOURNAL of October 1st, might be written as follows:

16 marbles belong to John.
10 more " Tom.
2)26 marbles " Tom.
13 marbles " George.

Better have it as follows:

16 marbles;
10 marbles;
2)26 marbles;
George has 13 marbles,

than attempt to have it written out in this way:

John has 16 marbles.
John has 10 marbles less than Tom.
∴ Tom has 16 marbles + 10 marbles, or 26 marbles.
Tom has twice as many as George,
∴ George has 26 marbles ÷ 2, or 13 marbles.

PRACTISE WORK IN ADDITION.

BY WILLIAM M'KENZIE.

In the last issue of THE JOURNAL, under the heading "The Simple Rules," I read these words, "Practise to secure rapidity and accuracy in working the four simple rules in Arithmetic should take a very liberal share of the time of the junior classes." With this I perfectly agree, and in this paper I propose to discuss how the teacher may, with the least effort on his part, get the greatest amount of work out of the pupils. True, you give us a number of questions, with their answers, and these questions may be rearranged to furnish work, *ad infinitum*. This is very good, but can we not get something better? When I go to the board to set down questions in addition, it will hamper me considerably to look at a paper and copy them from it on the board. Again, there will be some trouble in rearranging the questions. I want to go to the board and put the questions down just as fast as I can make the chalk fly. I want to be able to do so without having made any preparation whatever. I want to be able to make the questions of any size. I want to be able to set down the answers as fast as I can read the figures, and that without any mental effort on my part. Can all this be done? Most certainly it can. And now let me explain how. If I set down on the board this line of figures 4687623 (any figures will do, and as many as you like in the line) and under it put its arithmetical complement, thus

4687623
5312377

of course the sum will be 10000000, but if I put another line under these two, thus

4687623
5312377
4126134

then the sum will be 14126134, or 10000000+4126134.

Just here, perhaps, some one will say that it will require some delay to put down that complement. I think not. I think that any teacher, with very little practice, will be able to put down the second line just as quickly as he did the first. The sum of the two units figures is 10, that of the tens, the hundreds, etc., nine.

But to resume. Of course, it would never do to put down questions like that. We must follow this out a little farther. Suppose I put two lines down, and then put their complements, thus:

5468764
6521683
4531236
3478317

Here, you see, the third line is the complement of the first, and the fourth the complement of the second. Now, the sum will be 20000000 or 10000000 + 10000000. If another line were put under these lines the answer would be 20000000+that line, thus:

5468764
6521683
4531236
3478317
4218614

24218614 or 20000000+4218614

But we must go farther. Will it make any difference in what part of the question I place that line? No, certainly not. Then I may put the question down thus

5468764	5468764
4218614	6521683
6521683	4218614
4531236	4531236
3478317	3478317
24218614	24218614

and so on. Still we have not gone far enough. Suppose, after putting the pairs of lines down, I put two lines down. Then, you say, I shall have to add those two lines together. But surely that will not require either time or effort. Now we have the question thus:

5468764
6521683
4531236
3478317
(4218614)
(5141362)

29359976

Again, it will not make any difference where I put those two lines. So I may put the question down

thus

5468764	or 5468764	or 5468764
6521683	(4218614)	x42186l4x
4531236	5141362)	6521683
(4218614)	6521683	4531236
5141362)	4531236	x5141362x
3478317	3478317	3478317
29359976	29359976	29359976

In this way we may vary the questions every time we make use of the exercise. I would always put all the questions down in the same way at one time, to avoid having to stop to think when I come to put down the answers. Or else I would have the "answer lines" in some order. Thus, in the first question you might have lines one and two give the answer; in the second, lines two and three; in the third, lines three and four; and so on. Now, I have used this method, on and off, for over four years in my school, and, although I have a number of advanced pupils, I venture to say not one of them has ever discovered the secret. On the other hand, I explained the method to one of my neighbor teachers a short time ago, and within a few months some of his pupils had found out how to do the questions without adding. How so? The reason was simple. He always put the answer lines in the same place in the question. As soon as he changed the position of the answer lines, of course the pupils were lost when they came to find the answer. However, these questions may be varied to such an extent that there is absolutely no danger of the pupils finding out how to get the answer without adding the figures. I will now give a few more examples and close this paper. In my next paper I propose to deal with some of the other rules. By the way, if any teacher has any better method than this, let us have it. I do not claim that mine is the best, but I claim that it is the best that I have found.

1. 4263416
(3214312) Ans.
(4214614)
5736584
17428926

2. 64326187
45168163
21687164
35673813
54831837
78312836
(45216145) Ans.
(41314312)
26147163
67416124
73852837
32583876
586530457

3. 46862413
81416816
21641876
x46314162x
53137587
18583184
78358124
x31462314x
26471684
86174163
61471618
73528316
13825837
38528382
677776476

4. 6876412
4312143
4234699
5687857
x2763164x Answer line.
5416314
6141612
4583686
3858388
43874275. Add 1 to each figure in answer line.

The figure to be prefixed at the left is always half the number of lines, leaving off the answer lines.

Science.

Edited by W. H. Jenkins, B.A., Principal Owen Sound Collegiate Institute.

NATURE STUDY.

ILLUSTRATIVE LESSON ON THE COW, FOR PUBLIC SCHOOL PUPILS OF FIRST AND SECOND YEARS.

BY MRS. M'MURRAY, STATE NORMAL UNIVERSITY, ILLINOIS.

To what animal did the old woman (in the story of "The Old Woman and Her Pig") go last for help? (To the cow.) What did she want the cow to do for her? (Give her some milk.) But before the cow would give her any milk she must do something for the cow. What was that? (Give her some hay.) How much did she give her? (An armful.) Is an armful of hay enough to last a cow all day? How many of my armfuls do you think it would take? Why does a cow need so much to eat? (She is large.) As large as a shepherd dog? (Much larger. A shepherd's dog could walk right under a good-sized cow.)

Where do the farmers get this hay that the cow likes? Do the cows ever get it from the fields themselves? When? Did you ever watch a cow eating grass? What did she do first? (Put her head down to the ground.) Could you do that? (Yes, if I could stand as a cow stands.) Do you think so? *How* does the cow stand? On what? Its toes, as the dog does? (No, it stands on the *nails* of its third and fourth fingers and toes.) What do we call these nails of the cow? (Hoofs.) [Have hoofs in class, if possible.] Where are the nails on our fingers? (On the back of the ends of our fingers.) Where are the nails of the cow? (Her nails or hoofs go all the way around.) Feel of them? (They are very hard and thick.) Does she need such hoofs? Why? Notice the shape. (They look like one hoof cut in two.) Because they look this way, we say the cow has a *cloven* hoof. Cloven means cut in two, but we know that she has two nails or hoofs on each foot.

Now you know how the cow stands while she eats. How is it? Would any like to try standing as she does? (Cannot do it.) Why not? (Our nails are not strong enough to bear our weight.) Does the cow have any trouble to stand? Can she reach the grass on the ground with ease? How does she gather the grass? (She reaches out with her tongue, and draws a wisp into her mouth, and nips it off with her teeth.) What kind of a tongue has she, that can be used in this way? (A long, limber rough one.) What else does she use in gathering the grass? (Her thick, broad lips.) [These answers should be the result of the child's careful observation.] How does she bite off the grass? (With her front teeth.) Have you noticed anything strange about these front teeth? (The cow has no front teeth in her upper jaw.) How, then, can she bite off the grass? (The upper front jaw is very hard, almost as hard as a bone.)

Does she eat rapidly? How long does she chew on a mouthful of grass? Does she keep on eating all day at this rate? (No, after a while she lies down, or stands and rests.) Did you ever notice how a cow lies down? Does she lie down as the dog does? What did she do first? Then what? If you watch her mouth when she is lying down or resting standing, what will you find her doing? (Chewing her cud.) What is this cud, and where does it come from? I will tell you. Where does your food go after you swallow it? (Into the stomach.) Now, a cow has a very large stomach. The grass which she bites off she chews but a little, if any? She swallows it, and it goes into a room in this big stomach, where it soaks for a while. Watch a cow's throat a little while after she lies down, and tell me what you see. (Something going up her throat toward her mouth.) This is a little of the soaked grass going up to be well chewed. We now call it a cud. What becomes of this cud? (After it is chewed up fine, the cow swallows it and it goes into another part of this big stomach.) Then what? (Another cud goes up to be chewed in the same way, and so on.) Do the cow's jaws move as yours do when chewing? How do yours move? (The upper jaw does not move. The lower jaw moves chiefly up and down.) Do the cow's move in that way? (Her upper jaw does not move, but her lower jaw moves from one side to the other.) What does this side-wise motion of the lower teeth on the upper teeth do for the grass? (Grinds it up. It is her mill in motion.) Which teeth do the grinding? (The back teeth.) Let us see if they are good grinders. [Have jaw of cow if possible.] (They are broad, flat, and hard.)

Is it a good thing that the cow can pack away her food, and chew it when at rest? (Yes. She can gather grass in the cool of the day, then lie down in the shade when the sun is hot, and eat it. She does not have to stand as much as she otherwise would, but can rest while eating.)

In the winter time, what does the cow eat instead of grass? (Hay, straw, and fodder.) She eats these as she does the grass, *i.e.*, chews them slightly, swallows, then re-chews as a cud.

What besides grass, hay, and straw does the cow like to eat? (Corn.) How does she get hold of the ears of corn? How does she eat corn? What becomes of the cob?

What else does the cow like? (Oats, meal, and bran.) How does she eat them? What is bran?

Can you think of anything else we feed the cow? (Carrots, turnips, beets.) How does she eat them?

Anything else? (Salt.) Do we salt the cow often? How does she eat it?

Can you think of something else she would want? (Water.) How often should a cow be watered? Does she lap up the water as a dog does? How, then, does she drink?

[All these answers made by the children should be the result of their own observations.]

Now, is there anything we can do for the cow in the summer, besides feeding her well? (Give her a pasture in which there are trees or a shed to protect her from the hot sun.) And in the winter, what? (Give her good shelter from the cold and snow, and a good straw bed at night.) But has she not a hair coat to keep off the cold and snow? (This coat helps, but it is not thick enough to keep her warm in bad weather.) Is it as thick as the shepherd dog's coat? Are the hairs of the same length as his? Are they as fine? Does she wear the same coat in summer and winter, or has she a lighter coat in the summer, as the dog has? How do you know? Is her coat the same color as that of the shepherd dog? We do not often see the cow's coat wet from sweating. When she gets warm, she opens her mouth, lolls out her tongue, and pants, much as the dog does. In the winter you can see the steam coming from her great nostrils. Have you noticed these nostrils?

Where is the hair longest on the cow? (On the end of tail.) What use does she make of this long brush? But she cannot keep the flies off her neck and shoulders, even with so long a brush? (She drives them off by tossing her head around.) How does she keep them off her feet and forelegs? (Stamps her feet.) Children speak of the trouble of milking cows in summer on account of flies.

Can you think of any other way she has of driving away things that bother her? Does she bark or bite, as the dog does? (She has horns to hook with.) [Have a horn in the class if possible.] Can she hurt with such horns? (Yes, the outside is very hard, and they are strong and sharp pointed.) From what part of the head do they grow? Is that a good place for them? Why do you think so? How does she use them? When? (Not so often to defend herself as to protect her calf. She is very fond of it.) Did you ever see her drive away dogs? How else does she show that she is fond of her calf? (She cries for it if it is taken away. She licks it with her tongue. That is the only way she has of kissing it. She stands still

for it to get its dinner. Do you think the little calf pretty? What do you like about its looks? (It has pretty eyes for one thing; so has its mother).

Children draw pictures of cow and dog side by side. Draw from objects if possible. The teacher will lead the children to correct their own drawings by reference to the objects. Before drawing notice the form of each closely, and compare so as to be able to draw them correctly.

We have found many things that we can do for the cow; now we shall see what she does for us. What does she give us night and morning? How do we get the milk? Which gives the more, the cow kindly cared for or the cow poorly housed and fed? For what do we use milk? Do we get cream from the cow? Do you see it when she is being milked? (No, we see only the milk.) Where do we get the cream? (It rises on the milk.) What is made from cream? (Butter.) Tell me how butter is made. [If possible watch the process.] What is made from cream and milk? (Cheese and cottage cheese.) What else is cream used for? (Ice cream, etc.)

What other food do we get from the cow? What is the flesh of the cow called? (Beef.) Do we eat much beef? What do we call the beef we use? (Steak, roast, soup-bones, dried beef, etc.) Beef is also used in mincepies.

The flesh of the calf is called veal.

The fat of the cow gives us suet for puddings and mince-pies. We also get tallow from the fat. From tallow, candles and wagon-grease are made. It is also used in making soap. Oleomargarine, which takes the place of butter, is made from tallow.

The tongue and heart are used for food.

Is the hair coat of any use to us? (Men put hair in plaster to hold it together.)

Does the thick undercoat keep *us* warm? (Yes, it is made into leather.) From the leather, boots, shoes, and shoe-soles are made. From the calf's coat fine shoes are made.

What do the cow's horns give us? (Combs and knife handles.) Have these in the class for the children to look at.

The hoofs, too, are useful to us. For what? (They are made into glue.) [Have glue in class.] Show pieces of furniture glued together.

Even the bones of a cow are of use to us. For what? (Buttons and knife handles.)

You may tell me all the things the cow gives us.

Which, now, do you think is the more useful to us, the dog or the cow? (The cow.) But they are both our good friends.

A large product-chart or collection of products can be made by the teacher and pupils; it adds greatly to the interest in the subject. Milk, cream, etc., can be sealed up in small bottles

EDUCATION DEPARTMENT, ONTARIO—ANNUAL EXAMINATIONS, 1896.

The High School and University Examinations.

FORM III.—BOTANY.

B.

1. Describe accurately the stem, leaves, and flower of the plant submitted.

2. Define the terms cohesion and adhesion as used in reference to floral organs, and illustrate by reference to Canadian examples.

3. Describe and compare the characteristic features of gymnosperms and angiosperms.

4. What are the essential features of the ranunculaceæ? Illustrate your answer by Canadian types.

5. Give an account of the structure and mode of reproduction of Chara.

ANSWERS.

1. The answer to this question will depend upon the plant submitted. These differ at different centres.

2. The term cohesion, as applied to the floral organs, refers to the presence or absence of any union between the like parts of various sets of organs; that is, sepals with sepals, stamen with stamen, etc.

Examples.—In the phlox the petals are united with one another for two-thirds their length, the upper third of each being separate from its neighbors. The corolla is here said to be gamopetalous. In the dandelion the stamens have their anthers united in a ring around the style, a kind of union designated by the term syngealsious. Various other kinds of union among parts of the same set of organs may take place.

Adhesion refers to the attachment of one set of organs with regard to some other set. For example, in the phlox the stamens are attached to the corolla tube, a method described as epipetalous. In the same flower the calyx is not attached in any way to the pistil. This condition of a calyx is described as inferior or free.

3. The main characteristic of angiospermous plants is the fact that the pistil consists of a *closed* ovary, containing the ovules, which, at maturity, become the seeds. Most of the angiospermous plants produce flowers, which we have no difficulty in recognizing as such. They may be herbs shrubs, or trees.

The gymnosperms include those plants which produce the ovules behind a scale or bract, and thus are not completely protected, or are said to be naked. They are mostly trees or shrubs, chiefly evergreens, and the seeds are produced in "cones," whence the term coniferæ, in which class most of our gymnosperms are included.

4. The ranunculaceæ are mostly herbaceous plants, *e.g.*, clematis, buttercup, marsh-marigold. The petals and sepals are distinct and unconnected, as are also the stamens. The stamens are usually numerous. Buttercup, when ripe the pistil forms an achene; clematis, anemone; a pod, as in the columbine; or a berry, as in blue cohosh.

The leaves are commonly dissected, as in any, of the above examples.

5. For a fairly full description of the chara, with illustrations, see the High School Botanical Note Book, Part II.

Primary Department.

MARCHING.

RHODA LEE.

When the signal to "stop work" is given at a quarter after ten o'clock there is always great promptitude displayed in the careful placing of pencils, the little folks sitting up very straight, with a look of expectancy that says, "I wonder what we are going to do this morning."

And what can we do to rest the tired minds and hands that have been so busily employed, and relieve the feet that have been so quiet on the floor for the last half hour or more? It must be something that will be a complete change and rest and still be an outlet for extra energy that might degenerate into mischief-making.

Fortunately there are enough exercises meeting these requirements to permit of great variety in the recreation. The interest in this period would be apt to flag had we not variety and special favorites for play-time. Sometimes it is a motion-song or calisthenics. Other days we have a game, or a dream, and very often we have *marching*. This is one of the favorite exercises, and can be varied in so many ways as never to lose its attractiveness.

Of course, in marching, as in all kinds of drill, our underlying aim is to promote definiteness of action, and thereby influence character. That is why we find such exercises so helpful—I had almost said indispensable, in obtaining and preserving order.

Marching is a very good index of the spirit of a class. Careless and indifferent in other departments of work, they will be doubly so in their marching; prompt, obedient, and careful at other times, they will be sure to appear so in their drill.

Assuming the desirability of having good marching, and also the necessity for making it attractive, let us consider how best to vary it.

Music is, of course, a delightful inspiration, and this we may have of a primitive kind. Pianos are rarities in the schoolroom. We do not aspire to such, but we have a much-appreciated substitute in the form of a coarse comb and a piece of tissue paper. As a rule, the teacher plays, although sometimes a scholar is found who can produce most inspiring strains.

Sometimes we have been so fortunate as to have a pupil who could play the mouth-organ, and this with the accompaniment of a triangle is everything that could be desired.

Singing we can always have. Words arranged to the tune of "John Brown" make a good marching song. Others are "The Maple Leaf," "Red, White, and Blue," "Keep to the Right, Boys," "Gwine Back to Dixie," etc.

In the serpentine march (marching up and down the aisles in single file) it will spur up your "little soldiers" to tell them that you intend to step in behind the boy or girl who is marching best. You will then see the shoulders thrown back, the chins drawn in, and every child doing his best to induce his teacher to walk next him.

A flag march is another favorite. The best marchers carry each a little five-cent flag. If the room boasts a banner, let one child carry it, and occasionally bring out paper caps for the "captains" to wear. The old paper cap has lost its original office altogether, and, instead of shaming some tearful dullard or truant, it adorns the straightest, manliest little fellows in the class, being, instead of a disgrace, a much-coveted honor.

Another exercise that requires close attention consists in the teacher giving certain commands while the march is in progress, such as "Hands Up," "Down," "Fold Arms," "Out," etc.

Never allow careless marching at any time; in going to and from the board, entering and leaving school, let them march in time and step. With little ones this is at first a somewhat difficult matter, but with care and persistency in starting, always starting with the left foot, it can be done.

READING.

RHODA LEE.

III.

The introductory story must be short and simple, the letter and its sound being the central thought. The object of the story is to associate the sound of the letter with that made by some object fami-

liar to child-life. By this means the children are interested, and the sound, to some extent, impressed upon their minds.

In addition to this, we may occasionally connect the words of the lesson in narrative form. This we will do in Lesson III. While numbering the lessons, I do not intend that one should teach a new sound every day. At first it may be necessary to take the same sound for two or three lessons. Later, a new sound may be taught every day, but never more than one at a time.

LESSON III.

(*a*) Review work already taught, by dictating words; also read several from the blackboard.

(*b*) Sound-combining drill. (See Lesson II.)

(*c*) Letter "p."

Introductory story: One day this summer, when I was driving in the country, I saw an engine pulling a train up a hill. It was a long freight train, and must have been heavily loaded, as it went very slowly, and made a noise like this, "p—p—p." Tell me what the engine said.

Here is a letter that says the same thing. (Writes "p" on the board.)

He carries his load on his back. See the bundle. What does he say? Now make him, and we will see who can make the bundle just like mine.

I know a little boy whose people keep a store, and after school he likes to help his *pa*. Write *pa* on your slates. He had a dog. Find his name. (Teacher writes *Pat* on the board.) When the dog wants a drink he goes to the *tap* and barks. Write *tap* on your slates. Last night this little boy was watching his brother drawing. He was drawing a ——. (Teacher writes *map* on board. Children raise hands and whisper the word.)

After this the work may be erased from the blackboard, and the eye problems be given as ear problems, and *vice versa*.

NEW WORDS.

pa
pat
tap
map.

In examining the words as they are written, make a small chalk mark on the slates of those who succeed in getting the word right without any help. When the lesson has been taught, let those who have succeeded in getting all, or almost all, the marks go to their seats. Give the remaining ones an extra drill, dictate a test word, and again send to their seats those who are successful. In this way those who require most attention receive it. As long as the brightest ones are in the class, the slower ones will depend on them to a certain extent.

SEAT WORK.

(*a*) Give each child an envelope containing ten of each of the four letters learnt. With these they may make words. The letters may be made with ink on strong white or brown paper.

(*b*) Write the four letters *m*, *a*, *t*, and *p* on the board. Ask the children to make words with them.

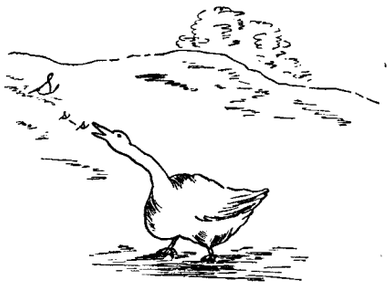
LESSON IV.

(*a*) Review of old sounds. (Never drill on the sounds separately in reviewing, but always in words.)

(*b*) Sound-combining drill.

(*c*) Letter "s."

Introductory story: One day, when this little letter (write *s* on board) was going down the road, he passed a big gray goose. The goose opened her mouth and said "s—s—s." The letter, instead of being frightened, turned round and said the same thing. That was all he could say. He was not mocking the goose. It was just all that he could say.



Pupils give the sound and learn to make the letter.

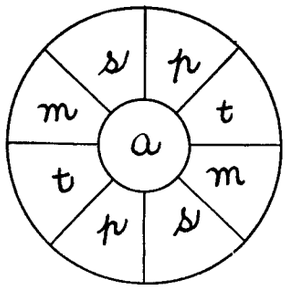
NEW WORDS.

sam	taps
sat	mats
sap	pats
pass	spat
mass	stamp
past	mast.

SEAT WORK.

(*a*) Exercises given in Lesson III.

(*b*) Draw a wheel on the blackboard. and let the children make words with the letters.



DRAWING IN THE SCHOOLS.

(From an article by the late Professor Huxley.)

If there were no such things as industrial pursuits, a system of education which does nothing for the faculties of observation, which trains neither the eye nor the hand, and is compatible with utter ignorance of the commonest natural truths, might still be reasonably regarded as strangely imperfect. And when we consider that the instruction and training which are lacking are exactly those which are of most importance for the great mass of our population, the fault becomes almost a crime, the more that there is no practical difficulty in making good these defects. There really is no reason why drawing should not be universally taught, and it is an admirable training for both eye and hand. Artists are born, not made; but everybody may be taught to draw elevations, plans, and sections; and pots and pans are as good, indeed better, models for this purpose than the Apollo Belvidere. The plant is not expensive; and there is this excellent quality about drawing of the kind indicated, that it can be tested almost as easily and severely as arithmetic. Such drawings are either right or wrong, and if they are wrong the pupil can be made to see that they are wrong. From the industrial point of view, drawing has the further merit that there is hardly any trade in which the power of drawing is not of daily and hourly utility. In the next place, no good reason, except want of capable teachers, can be assigned why elementary notions of science should not be an element in general instruction. In this case, again, no experience or elaborate apparatus is necessary. The commonest things—a candle, a boy's squirt, a piece of chalk—in the hands of a teacher who knows his business may be made the starting points whence children may be led into this region of science as far as their capacity permits, with efficient exercise of their observational and reasoning powers on the road. If object lessons prove trivial failures, it is not the fault of object lessons, but that of the teacher, who has not found out how much the power of teaching a little depends on knowing a great deal, and that thoroughly; and that he has not made that discovery is not the fault of the teachers, but of the detestable system of training them which is widely prevalent.

For Friday Afternoon.

SONG OF THE FAIRIES.

We come from far
Where twinkling star
Shines ever fair and bright,
To gladden the earth
With our joy and mirth,
And dance in the silver light
Of the Queen of heaven,
And the shadowless Seven;
Through the livelong summer night,
Through the beautiful summer night,
Through the witching summer night,
We dance and sing
And then take wing
Ere the morning comes in sight.

We float in the stream
Of the pale moonbeam,
Halfway twixt earth and sky,
Till we find some spot
Where man is not,
Then downward swiftly fly,
To rest by some nook
Of a rippling brook
Where the moonbeams love to lie,
Where the moonbeams streaming lie,
Where the moonbeams dreaming lie;
There our voices ring,
But we take swift wing
Ere the morning draweth nigh.

For as we sing,
Each gossamer wing
Is spread on the dewy air,
And we fly away
To our own sweet day,
To our land no one knows where,
To our land of love
Through the clouds above,
Where we know not grief and care,
Where we know not pain and care,
Where we know not sorrow and care;
But sing and dance
'Neath the loving glance
Of our Queen so good and fair.

—*Barry Dane.*

AUTUMN.

Shorter and shorter now the twilight clips
The days as through the sunset gates they crowd,
And Summer from her golden collar slips
And strays through stubble-fields, and moans aloud,
Save when by fits the warmer air deceives,
And stealing hopeful to some sheltered bower,
She lies on pillows of the yellow leaves,
And tries the old times over for an hour.

—*Alice Cary.*

Literary Notes.

Two articles in *Appleton's Popular Science Monthly* for October will appeal strongly to teachers and others who enjoy the conflicts of science; "The Metric System," a defense by Prof. T. C. Mendenhall against the recent attack of Herbert Spencer, and "The Vivisection Question," by Prof. C. F. Hodge, a concluding article, in which the utility of the practice is set forth. Another paper of special interest to teachers is that by Henry L. Clapp on "The Educative Value of Children's Questioning," which his experience leads him to rate high.

In the *Arena* for October the following topics of living interest are discussed by competent and clever writers—senators, clergymen, professors, editors, and ladies of high literary standing: Silver—a Money Metal; The Religion of Jesus Christ in its Relation to Christendom; Municipal Reform; What the Remonetization of Silver Would Do; How Prince Edward Island Settled its Land Question; Dual Suffrage; The Peril of Encouraging the Persecuting Spirit; Japanesque Elements in "The Last Days of Pompeii"; Free Silver v. Free Gold; Three Travellers (a sketch); The Question of Genius; Are our Christian Missionaries in India Frauds?; The Divine Afflatus of the Etruscan Gold Spinners; Soul Evolution; The Future (poem); Between Two Worlds (serial).

The *Atlantic Monthly* for October is one of the most important issues of the year. There is the usual fine literary flavor to the contents, and this is supplemented by timely papers on political, scientific, and historical subjects. The leading article of the month, by President Eliot, of Harvard, is on "Five American Contributions to Civilization," viz., the practice of arbitration instead of war, the increase of wide religious toleration, the safe development of manhood suffrage, the proof that people of a great variety of nations are fit for political freedom, and, fifth, the diffusion of well-being among the population in general. President Eliot holds these five contributions as characteristic of his country, and, in his opinion, they will be held in grateful remembrance by mankind for all time; for they are distinct contributions to civilization. This is a large claim. It is for the reader to judge whether and to what extent it is made good.

LITERARY NOTES.—*Continued.*

We have received the first two numbers (September and October of *Farming*, a new magazine of about eighty pages, handsomely printed and bound, and copiously illustrated. As the name indicates, *Farming* is devoted entirely to the interests of farmers. These numbers are well filled with matter and illustrations which cannot fail to be of great interest as well as of great service to intelligent farmers and those who are desirous of becoming such, all over the dominion. The magazine is published by the Bryant Press, 20 Bay street, Toronto, and is edited and managed, as many of our readers will be interested in learning, by Mr. J. E. Bryant, M.A., formerly one of our leading High School principals. Mr. Bryant was also the projector and first editor of the *Educatianal Weekly*, one of the two factors whose product is *The Educational Journal* of to-day. Teachers in the country might render farmers a good service by bringing *Farming* to their notice. Cheap as it is, it bids fair to maintain the position it already claims, as one of the best agricultural periodicals ever published in any country.

Dr. S. Weir Mitchell has for many months been gathering material for his romance, "Hugh Wynne, Free Quaker," which is to be the leading serial of *The Century* during the coming year. The novel is a story of the Revolutionary War and of Philadelphia society during the period from 1753 to 1783. The Historical Society of Philadelphia gave Dr. Mitchell free access to its great collections of family letters, deposited in its fire-proof rooms by nearly all the older Philadelphia families—the Shippens, McKeans, Logans, etc. Among these family archives, with their intimate revelations, and in the old gazettes, Dr. Mitchell found much of his material.

Marion Crawford has written a new story specially for *The Century*. It is called "A Rose of Yesterday," and it will begin in the November number and run for six months. The story opens in Lucerne, and while it is entirely separate in interest, some of the personages that appear in it will be familiar to readers of "Don Orsino."

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