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Editorial Notes.

A TRAINING-SCHOOL teacher says that no one caution has to be so often repeated to young teachers as the one against talking too much. Many teachers fall into the habit of constantly urging and nagging the pupil. If the teacher keeps repeating, "Now think," "Can you think?" he really gives the child no chance to think. Silence is often golden on the part of the teacher. The stimulating effect of an expectant silence is better than any amount of urging. The disciplinary effect of an impressive silence is often stronger than that of any amount of scolding.

"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, draws a picture which, it says, is from real life, of the 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 many 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 shares and clogs. Every teacher worthy the vocation will have his or her own methods, and will never let them become stereotyped.

THE intense political excitement which has thrown all Canada into a ferment, and which is now nearing the culminating point, cannot, of course, be admitted into the schoolroom. The responsibilities of the teacher's position and the relations which he sustains to members of both, or, rather, of all, political parties bind him to strict neutrality in the schoolroom, though he has, of course, the same rights as every other free citizen at the polls. There is one respect, however, in which

the teacher can make his influence felt for good, without offence to any reasonable and upright patron of any party. He can and should seize the opportunity to, condemn every form of untruthfulness and corruption, no matter by whom practised, and to create in the minds of his pupils such a moral horror of dishonesty as may tend materially to raise the political tone of the next generation to a much higher moral level.

WE were asked a few weeks since, by a teacher, if we could tell him of a good summer school, in which he could pursue certain studies during the holidays. We were at that time unable to direct him to any such institution in Canada, for we had no information regarding any. We are now glad to learn that the Western University, of London, has established such a school, following closely in the line of the summer schools of Harvard and Cornell, which have proved so great a boon to many Public School teachers, whose time is fully occupied during the regular sessions of the colleges. The fact that Mr. F. H. Sykes, M.A., Ph.D., so well known to our readers as former editor of the English Department of THE JOURNAL, is a member of the staff of this University, and of its summer school, is to us a sufficient guarantee that the work of the school will be energetic and thorough. Circulars, with full information, will, no doubt, be sent free on application to the registrar of the University.

ONE of the best of our exchanges, some time since, observed that "the teaching profession suffers more from the misguided enthusiasm of narrowing minds than from all other sources." The writer was dwelling upon the necessity that the teacher should broaden his ideas and aspirations, and avoid the too common mistake of belittling himself mentally and socially by allowing all his thoughts and interests to revolve about the routine of the schoolroom. "It matters not how broad a man may be by nature, if he rivets his attention upon the minor matters of his profession he is sure to have his common sense submerged in a sea of

trifling details. There is no cumulative force in centring upon the lesser matters of the schoolroom." There is great truth and force in this view. It is not that the teacher should not be an enthusiast in his profession. Every true teacher will be that. But no one, whatever his success in his profession, should be content to be "only a school teacher," as no one should be content to be "only a farmer," or "only a mechanic," or "only a lawyer or doctor."

READERS of this paper will scarcely need to be reminded of the meeting of the National Educational Association of the United States, which takes place in Buffalo, July 3-10. The first four days, July 3-7, will be occupied by the meetings of the National Council of Education, H. S. Tarbell, Providence, R.I., President. The topics to be discussed are such as "Moral Instruction in Elementary Schools," "Higher Life of the American College," "Schoolroom Hygiene," "The High School and its Functions," etc., by such well-known educationists as Emerson E. White, Columbus, O.; John E. Bradley, Jacksonville, Ill.; William A. Mowbray, Hyde Park, Mass., etc. Wm. T. Harris, Commissioner of Education, Washington, will deal with the metaphysical question, "How the Will combines with Intellect in the Higher Orders of Knowing." The programme of the General Association, whose sessions extend from July 7th to July 10th, is very full and promising, and includes the names of many distinguished educators. No doubt the meetings of this large and influential Association will be very interesting and profitable, not only to its members, but to all teachers and others interested in the work, who may be able to attend. Full information in regard to routes, travelling and boarding expenses, etc., will, no doubt, be promptly sent on application to the secretary, Irwin Shepard, Winona, Minn., U.S.A., or to J. R. Harper, Inspector of Schools, Quebec, Canada, who has been appointed Provincial Manager for Quebec. Buffalo is making provision on a royal, or, rather, as we suppose we should say, a Republican scale, for the entertainment of the immense number of delegates and visitors who are expected on the occasion.

English.

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

THE AGE OF TREES.

M. A. WATT.

The plan of this lesson will be much as any other prose lesson plan. Speaking generally, this consists of: (1) Getting the meaning of each paragraph, sentence by sentence. (2) Getting the relation of one paragraph to another. (3) Giving the thought in child-language to show possession of idea. (4) Reading the author's own words in a way to please the listener, by reproducing the author's ideas in clear, expressive style.

This is such a long and sustained story (really a chain of stories all bearing upon the one subject) that it must be taken in parts, securing a knowledge of each part before proceeding to the next. Any paragraph would do to begin upon, but let us take the author's sequence at this time.

Trees. Draw attention to their beauty and grandeur, their value in industries, and in keeping the air pure; speak of forms of various trees (draw on board if possible), notice any visible from windows. Speak of the poet's love for trees, the "Talking Oak," "The Spreading Chestnut Tree," and tell of Oliver Wendell Holmes' love for the elms of New England. Having aroused the interest, compare the tree's life with man's in point of length. Introduce the first paragraph. Question on words. Ask for questions. Get synonyms—counts, sapling, mature, gigantic, king of the greenwood, touch of time, decline, rears, reckons centuries of old age, just as it reckoned centuries of youth. Drill upon a clear pronunciation of mature, gigantic, *man* counts his life, one hundred years, proud head, reckons centuries, old age.

Reading of the paragraph. This gives a good exercise in expression. There are contrasts to be shown—*man* is held up to view, while we compare him with the *oak*, held up upon the other side. We are painters, using our colors as effectively as possible; some use the colors in a blur, and others put them on clearly, delicately, lively. So each reader is incited to use the words (colors) so that the author's meaning flashes out upon us as we listen. We see the young oak, we mark its growth to maturity, we watch its slow decline, we are delighted, we all want to show how we can paint the picture.

The second paragraph is a puzzling one. It begins, as you all know, with: "It has been said that the patriarch of the forest laughs at history. Is it not true?" The latter, in spite of the question mark at the end, is commonly read, "It is not true," with a downward curve of the voice which effectually kills all meaning. Before taking the sentence find out their ideas upon "the patriarch of the forest," then "why he laughs at history." Give concrete examples of persons surprised at finding things which occurred in their lifetime recorded in a book of history; show that often the history could be amended if such persons were consulted. Get the reason of the patriarch's laughter into their heads, use their imagination to picture the silent laughter of the tree as it hears man's wonderful story told. What a different story the tree might tell if it could speak as the author imagines it to do in this paragraph. Meanings of balmy zephyrs, generations, pass into silence, ears fine enough.

Again we prepare to paint. We have strange laughter, we have gentle breezes lightly stirring the leaves, we have small whispers of the leaves; these we have to paint with proper touch, and then, more solemnly, we come to the "suns rising and setting," the successive generations of frail man passing into the silence of death, and we find the "story of the trees" assuming a value that we should delight to fathom, if only they could speak and we could hear. Have you any story of ears opened to hear the language of the creation which is usually called "dumb"? Here tell your story. The *Goadrind* is nearly extinct, happily, and you need fear no censure from him.

With the third paragraph we are plumped into the region of the actual, and we feel the fall. Measurements are needed to show the size of "the king of white oak trees," or the interest fades to

inertia. The manner of estimating the age of trees from the wood is interesting to the class, who, you can see, are deciding to try the plan at their earliest opportunity. The teacher must be prepared to answer the question, "Why does the tree have these rings?" for it is generally forthcoming. In reading this paragraph a deliberate style must be used; special attention to commas will repay the reader in this and in the next paragraph. Imagine "One California pine cut down about 1855 was according to very good authority eleven hundred and twenty years old and many of its neighbors," etc., etc., given without commas and in a monotonous voice. It is not well to hurry these two paragraphs (as one feels like doing when the delights of the next paragraphs are in view), but, again impressing the class with the idea of being "painters," strive to obtain good reading before leaving them.

We come to the part where a love for history may be awakened in the children, for the real story is, after all, the one they love. Be ready with William the Conqueror (have the life of the Duke of Normandy also), and your class will listen to you, never fear. Use dates, and make as clear as possible the age of the King's Oak. After examining these two paragraphs as explained before try for definite expression in reading them. There is room for study in them.

The Roman departure and its cause are mentioned in the next paragraph. "The usual evidences" of the age of trees should now be given by the pupils, and, as in the other paragraphs, the children should give synonymous phrases to show the meaning. We begin to catch the idea of the author now in the progression he is making; he is leading us to great wonders in the way of the age of trees, he is "linking the far-off past with the living present." By this time the class are almost ready to formulate a rule for reading numbers, as "eight centuries ago," "fourteen centuries," "eight hundred and fifty years old." Unconsciously they, with deliberation, hold up the number to our view separated from the other words, and seem to impress upon us the marvellous fact thereby.

The allusion to "Fine-Ear of the fairy tale" is one I have not succeeded in finding out, and I should be glad to receive information in regard to it. King John and Edward I. are more easily found, and the former will prove interesting because of the Magna Charta, while the latter they may already have some notion of in a former lesson. If so, let them tell it.

We pass from the history of England to the ancient world. The use of an atlas has been invaluable before, and we turn to the map of the world to locate our new scenes, then to a larger map to find the mountains, thence to the map of Africa to find Senegal. (Why didn't the author tell us the name of his "eminent French botanist?" He might have known that question would be asked, and justly, too.) We have risen at last to the climax, reaching an age of five thousand years; we cannot expect to go any higher, and we pause and repeat our former quotation, this time making it our own exclamation, "Truly, the patriarchs of the forest laugh at history."

SENIOR LEAVING LITERATURE.

1. Give the bibliography (a) of Merchant of Venice, (b) of Richard II.
2. Explain:
 - (a) Let me *play the fool*.
 - (b) That *royal merchant*, good Antonio.
 - (c) The moon sleeps with Endymion.
3. Compare Jessica's character and conduct with those of Portia. Refer to the influences of (a) heredity, (b) home training, (c) education, (d) society.
4. Explain the following, and give the context:
 - (a) That hill of scandal, (b) the populous north,
 - (c) her bleating gods, (d) on the grunsel edge, (e) semblance of worth, not substance, (f) That fought at Thebes and Ilium, (g) Tears such as angels weep, (h) a fabric huge rose like an exhalation, (i) his hand was known in heaven, (k) Behold a wonder!
5. "No poet has ever had to struggle with more unfavorable circumstances than Milton." Enumerate a few of these difficulties.
6. "The poetry of Milton differs from that of Dante." Mention a few differences.
7. "Richard II. forms part of a trilogy." Explain this sentiment.

8. "The central idea of Richard II. is a tragical one; it is a tragedy of failure."
9. Compare the delineation of Richard II. and of Bolingbroke.
10. "Methinks I am a prophet new inspired,
And thus expiring do foretell of him:
His rash, fierce blaze of riot cannot last,"
etc.

Identify the speaker, and sketch the part he plays in the drama.

C. C.

PRIMARY RHETORIC.

High School Reader, pp. 330-396.

1. Number the paragraphs in this lesson for reference; state very briefly the topic of each paragraph *in your own words*.
2. Describe concisely the literary form of the whole extract.
3. State the subject of the whole section of which this lesson is one part.
4. Make an orderly list of all the words that serve to give explicit reference from paragraph to paragraph—the "official" words of each paragraph—and state accurately the function of each.
5. Select a transition sentence and a transition paragraph.
6. Point out several topic sentences each of a different character from the others.
7. Select several dwarf sentences of different forms, and state the office that each performs in its paragraph.
8. Divide the whole lesson into two or more parts, each including more than one paragraph; show how these parts are logically connected and constitute together one whole.
9. Select a good example of periodic sentence, of loose sentence, of rhetorical question, and of amplification.
10. Point out an example or instance used by the writer, and explain the end or purpose for which he introduces it.
11. Select all the instances of parallel construction. Tell what gain comes to the style from their use.
12. Write out the topic sentences as they occur, and, by means of letters, number them to show the framework of the whole lesson.
13. Point out in a few words the climactic order of the extract; select a single paragraph written in cumulative style.
14. What other lessons in the High School Reader resemble this one in literary form, in logical method, and in quality of thought?
15. Pronounce and explain mystery, fruition, myriads, tapestry, spectra, phantoms, impotent, Dies Irae, and Vaudois.
16. Mention three qualities of this author's style, and make clear what you mean by the descriptive terms you employ.
17. What is the form of reasoning used in the extract? Define it as well as you can.
18. State the conclusion to which Ruskin means to conduct us.
19. Point out a touch of sublimity, of sarcasm, of pathos, and show the intention of the author in each stroke.

C. C.

CORRESPONDENCE.

- Miss C. S.—(1) Please give a title for "The Bugle Song," Third Reader, page 132.
- (2) What is the cause of "the splendor and glory"?
 - (3) What are "the snowy summits"?
 - (4) What does the poet refer to as "the horns of Elfland"?
 - (5) Why "faintly blowing"?
 - (6) Explain "wild echoes," "echoes roll from soul to soul."
 - (7) What are "the purple glens"?
 - (8) What is "the moral of the poem"?

ANSWERS.

- (1) It is easy to suggest many titles, such as "The Dying Day," "A Sunset Requiem," etc., which might indicate tolerably well the spirit of the song, but it is not easy to be sure that the poet, were he alive, would accept any one that we might suggest.
- (2) The level rays of the sinking sun.
- (3) "The snowy summits" may mean either the snow-tipped peaks of high mountains, or the lofty

towers of ancient English castles. The descriptive phrase "old in story," as well as the context, favors the latter.

(4) The notes of the bugle echoing from cliff to cliff, and growing continually fainter and fainter, are, by a beautiful poetic fancy, identified with the notes of the horns supposed to be blown by the fairies or elves of the fabled elf-land.

(5) Because the fairies or elves were conceived of as diminutive beings, the notes from whose horns would be comparatively feeble.

(6) The echoes were "wild" because of the wild or rugged character of the cliffs and ravines in which the scene is located. It may either be a case of "transferred epithet," or the ruggedness of the hills and cliff may be supposed to give to the echoes a corresponding character. The first four lines of the last stanza express a striking poetic thought and contrast. The echoes aroused by the bugle notes among the hills and cliffs grow gradually weaker and weaker until they die away in sky, or hill, or field, or river; but the impressions which human souls produce upon other souls, instead of dying away, go on re-echoing perpetually from soul to soul, not dying, but growing, forever and forever.

(7) The "glens" are, of course, the small valleys or hollows from which the echoes are returned. They are "purple" by reason of the heather, or some other purplish plant, with which they are supposed to be covered.

(8) It is not to be supposed that a poem, much less a song, must necessarily contain a "moral." Indeed, a prominent school of present day literary critics would, no doubt, maintain that any attempt to teach a distinct "moral" is destructive of the true artistic spirit in poem or novel. It is easy, however, we think, to evolve a most valuable moral from the thought which underlies the contrast which we have above pointed out, as embodied in the last stanza—the perpetuity, or indestructibility, or the waves of influence set in motion by the human soul, and affecting other souls.

Though Tennyson's "The Princess" is a "medley," and a close connection is not always easily traced between the songs and the narrative, it is difficult, if not impossible, to enter fully into the spirit of this "Bugle Song" without a careful reading of the whole poem, especially of Part III., in which the song is embedded.

E.G.M.—(1) Give relation of the word "convictions," stanza 10, Lesson xcv., Fourth Reader.

(2) Supply ellipsis for analysis, stanza 111, Lesson xxxi., Fourth Reader.

ANSWERS.

(1) "Conviction" is in the same grammatical relation to "with" as "obedience" which precedes. The "with" is evidently to be repeated.

(2) "Our destined end, or way, is not enjoyment, (it is) not sorrow, but (our destined end or way is so) to act that each to-morrow (may) find us," etc.

A.M.—(1) How would you pluralize the following words?
Jack-in-a-box, Jack-in-the-pulpit.

(2) On page 21 of "Grammatical Analysis," by H. I. Strang, some sentences are given containing noun clauses in the adverbial objective, this being one: "You have no proof that he took it." To me, the clause "that he took it" seems to have an adjectival force. Is the construction similar to that given on page 310 of the H.S.G., illustrated by the expressions, "my dream last night"; "his adventures this day"?

In the analysis of the principal clause in, "You have no proof that he took it," where would the subordinate clause go?

Kindly demonstrate the adverbial value if possible.

ANSWERS.

If it is absolutely necessary to pluralize the compound form, we know no other way in which it can be done than by adding the sign of plurality to the initial noun, thus, "Jacks-in-the-box." But careful writers will be found, we think, to avoid such doubtful expedients, as far as possible, even at the cost of a little circumlocution.

We have not a copy of Mr. Strang's work within reach, and so cannot study his method of treatment. To our thinking, the clause "that he took it" is, in reality, a noun clause, in the objective, in virtue of (governed by) the verb force retained in

the noun "proof." Just as when we use the verb "prove" the question instantly suggests itself, "Prove what?" so the use of the noun "proof," derived from the verb, suggests "proof of what?" That is, "proof" is one of a class of nouns derived from verbs which retain so much of their verb force that they equally require the objective or complementary noun, or noun clause. Perhaps this is virtually the explanation favored by Mr. Strang. The clause certainly modifies the noun "proof," and may be said for this reason to have an adjectival force, but it modifies it in a peculiar way, the same way, in fact, in which the same clause would modify the verb, had "prove" been used instead of "proof," and the explanation or classification should, we think, indicate this peculiarity. Its construction is clearly *not* similar to that referred to on page 310 of the High School Grammar.

In analysis "that he took it" must go in predicate, as modifying the noun "proof," which is itself objective modifier of principal verb "have."

C. M.—Please explain fully the last stanza of Coleridge's poem "Youth and Age," "Dew drops are . . . without the smile."

ANSWER.

We can find no such words in Coleridge's "Youth and Age." Please give exact reference, or quotation in full.

For Friday Afternoon.

THE VOICE OF THE HELPLESS.

BY CARLOTTA PERRY.

I hear a wail from the woodland,
A cry from the forest dim;
A sound of woe from the sweet hedgerow,
From the willows and reeds that rim
The sedgy pools; from the meadow grass
I hear the fitful cry, alas!

It drowns the throb of music,
The laughter of childhood sweet,
It seems to rise to the very skies,
As I walk the crowded street;
When I wait on God in the house of prayer,
I hear the sad wail even there.

'Tis the cry of the orphaned nestlings,
'Tis the wail of the bird that sings
His song of grace in the archer's face,
'Tis the flutter of broken wings,
'Tis the voice of helplessness—the cry
Of many a woodland tragedy.

O! lovely, unthinking maiden,
The wing that adorns your hat
Has the radiance rare that God placed there,
But I see in place of that
A mockery, pitiful, deep, and sad,
Of all things happy, and gay, and glad.

O! mother, you clasp your darling
Close to your loving breast;
Think of that other, that tender mother,
Brooding upon her nest!
In the little chirp from the field and wood,
Does no sound touch your motherhood?

That little dead bird on your bonnet,
Is it worth the cruel wrong?
The beauty you wear so proudly there
Is the price of a silenced song;
The humming-bird on your velvet dress
Mocks your womanly tenderness.

I hear a cry from the woodland,
A voice from the forests dim;
A sound of woe from the sweet hedgerow,
From the willows and weeds that rim
The sedgy pool; from the meadow grass
I hear the pitiful sound, alas!

Can you not hear it, my sister,
Above the heartless behest
Of fashion, that stands, with cruel hands,
Despoiling the songful nest?
Above that voice have you never heard
The voice of the helpless, hunted bird?

THE PUZZLED BIRD BEAST.

BY GEORGE S. BURLEIGH.

I've a hole in the eaves of the house,
And I lie there and play mouse
Till the day is almost gone;
And then I slip out and fly—
A bird in the evening sky—
And creep in my hole at dawn.

Because my feathers are fur,
And my wings are of "gossamer,"
And I cannot twitter a note,
Some think it is quite absurd
That I should pass for a bird,
No matter how well I float!

The boy shouts: "Here's a bat!
Ho, bat, come under my hat!"
He tosses it up, and I come;
Then he bangs me with a pole,
And I wish I was back in my hole,
And that boys were blind and dumb!

Then puss comes out of the house,
"Ho-ho!" she says, "it's a mouse!"
And I show her my teeth, how nice!
She stops, she spits, she stares,
You could half believe she swears,
"Oh, my, I'm shy of such mice!"

Ah! what is the use of my wings?
The birds disown such things.
"No feathers? Oh, what a sham!"
And where is the use of my fur?
The mice will never concur.
Oh, I wish I knew what I am!

—Our Little Ones.

ONLY.

It was only a sunny smile,
And little it cost in the giving;
But it scattered the night
Like morning light,
And made the day worth living.
Through life's dull warp a woof it wove
In shining colors of light and love;
And the angels smiled as they watched above,
Yet little it cost in the giving.

It was only a kindly word,
A word that was lightly spoken;
Yet not in vain,
For it stilled the pain
Of a heart that was nearly broken.
It strengthened a fate beset by fears,
And groping blindly through mists of tears
For light to brighten the coming years,
Al though it was lightly spoken.

It was only a helping hand,
And it seemed of little availing;
But its clasp was warm
And it saved from harm
A brother whose strength was failing.
Its touch was tender as angels' wings,
But it rolled the stone from the hidden springs
And pointed the way to higher things,
Though it seemed of little availing.

A smile, a word, or a touch,
And each is easily given;
Yet either may win
A soul from sin,
Or smooth the way to heaven.
A smile may lighten the failing heart,
A word may soften pain's keenest smart,
A touch may lead us from sin apart—
How easily either is given!

—Selected.

If we cannot command attention and enforce the command, we are much like ships without a rudder, and must drift with the strongest tide.—
B. F. Austin, St. Thomas, Ont.

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Editorials.

WHY NOT A PROVINCIAL MINIMUM?

A BILL is before the Prussian Landtag with regard to teachers' salaries, proposing a minimum annual salary of \$214 for men and of \$166 for women, to be obtained after four years probationary service. Men are to have nine triennial additions of nineteen dollars each, making the maximum \$385, and the women nine of fourteen dollars each, giving a maximum of \$292. This has aroused a number of objections, *The Teachers' Journal* of Berlin demanding a minimum salary of \$285, with additions so arranged as to double the sum in twenty-five years; also equal pay for men and women at the lower stages, and more pronounced differences in the higher ones. The just settlement of details in such legislation is, undoubtedly, very difficult. But, so far as we have seen, no objection has been made to the principle of the legal minimum. Of course, the German Government can do many things without challenge which, under our more democratic system, our governments could not ven-

ture to do. But we have not yet seen any objection which seems to us fatal urged against the principle of a *minimum* salary, or, if found necessary, several of such *minima*, for the protection of both teachers and patrons of schools in Canada? The fact that a considerable proportion of the salaries is contributed directly from the public funds makes it the paramount duty of the Government to protect the interests of parents and the general public in every practicable way.

We are still of opinion that the raising of the standard in respect both to age and educational qualifications is a reform which cannot be much longer delayed. But, so long as trustees cannot be prevented from advertising for teachers, making it a condition to "state salary required," and otherwise "beating down" applicants to the lowest figure, and so long as the supply of teachers of the lowest class is greatly in excess of the demand, there will be a crying necessity for a salary qualification on the part of the employers as well as a qualification of another kind on the part of the employed.

THE HABIT OF ACCURACY.

ACCURACY is one of the trade-marks of scholarship. A man's education has failed in a very important particular if it has failed to form and confirm in him the habit of observing closely and remembering with exactness the essential qualities of that which is for the time being the object of study, whether that object be a thought or a visible thing.

The power of accurate observation is one that can be formed only by practice. The student should remember continually that in both worlds with which he has to deal—the world of thought and the world of action—*everything is exactly what it is*. The mental image should be an exact reproduction of its essential features, not an indefinite, hazy approximation. The habit of such observation once formed is invaluable. It shows itself in everything, in pronunciation, in quotation, in description, in all making and doing.

It by no means follows that teachers and others who recognize the value of this habit, and strive to attain it, need make themselves pedantic or finical in their relations to others. The distinguished (?) school man, of whom a contemporary tells, who said that he never went to hear a certain renowned orator because he mispronounced the name Galileo, has too many counterparts, even amongst teachers, in those who are always more ready to be impressed with a mispronounced word or a grammatical solecism than with an in-

spiring thought or a solid argument. On the other hand, those who are never able to reproduce correctly the simplest proposition or quotation may take warning from the case of a recent book criticized by an exchange. This book was called "A Primer of Memory Gems, Designed Especially for Schools," and out of 260 quotations examined by the critic no less than ninety-three were inaccurately given. The story conveys its own moral.

BE MERCIFUL.

"THE merciful man is merciful to his beast," says the ancient wise man. Notwithstanding all that has been said and written on this subject, and all that is being done through the agency of humane societies, bands of mercy, etc., there is still great need that parents and teachers should teach the boys and girls, and especially the boys, under their charge, to "love mercy" to the dumb animals. Of the girls we have little fear. The influences which, for the most part, surround them, as well as the greater gentleness and tenderness which are one of the peculiar charms of the womanly nature, will generally save them from forming habits of even thoughtless cruelty. A cruel girl or woman is a monstrosity in nature. But with boys the case is different. Whether the impulse to "go out and kill something," which is said to be a characteristic trait of the Englishman, is really innate, or merely the result of surrounding influences and false teaching in early youth, there can be no doubt of its strength and prevalence. It is a noxious plant, which will, unless restrained, soon shoot, as Cowper teaches, into "luxurious growth."

There are many cruelties of a minor, yet no doubt to the poor animals of a terribly real, kind which are the result of thoughtlessness. We might instance the prevalent fashion of the tight check rein on cartilage horses. It is, we are glad to believe, on the wane, but it dies lamentably slow and hard. Cases of survival, even in the most cruelly extreme form, fall under the notice of the careful observer daily. No thoughtful person can observe the uneasy and painful tossing of the head which the horse so pinioned generally keeps up, or the touching eagerness with which he stretches his neck and lowers his head to the very ground when released, and doubt that the check rein is an instrument of torture. As a matter of taste, it distorts the neck and destroys the graceful curves which constitute one of the chief beauties of the perfect animal. And yet, through sheer want of thought,

or blind adherence to a stupid custom people go on perpetuating a cruelty against which their better natures would revolt if they would but give a few moments of serious attention to the matter. Teachers can help the young to form no better habit than that of thoughtfulness in regard to the effect of their actions both upon other persons and upon the inferior animals. The mute helplessness of the latter should not appeal in vain to all that is noblest and most generous in our natures.

Persons not naturally unfeeling often, we suspect, fortify themselves in acts of cruelty to brutes with the thought that nature's example is on the side of indifference to the pain these suffer, as witnessed by the ruthlessness with which the stronger among them maim and prey upon the weaker. There is good reason to doubt the reality of much of this pain. A cat, playing with a mouse before devouring it, seems to the onlooker the very incarnation of cruelty. Careful observation, however, affords good reason to infer that there is little or no real suffering in such cases. Nature seems to have mercifully provided against it by causing either the sudden terror, or some occult influence proceeding from the stronger animal, to produce a paralysis of feeling on the part of the weaker. Persons have rescued mice which seemed unable even to crawl away from their tormentors, only to find them apparently unhurt, and as active as ever after being for a few moments out of sight of the foe. It is said that African travellers who have been caught and maimed by lions or tigers declare that they felt no pain, but only a kind of dreamy curiosity, while in the grasp of the devourer.

Be that as it may, it is ill to reason from the blind and conscienceless instincts of the lower animals to the being endowed with rational and moral faculties. Nor should it ever be forgotten that pity and mercy and other noble attributes are to be inculcated more for the sake of the child than for that of the brute. No one can doubt that habits of cruelty are degrading. An unfeeling man can never be a high type of man. Persons of refined and elevated feelings would shrink from such a one, though he had the intellect of a Bacon and the manners of a Chesterfield, were such a combination conceivable. If we would mould the young of our generation after the highest models, if we would have them grow up into brave, high-minded, large-hearted men, we cannot too assiduously train them to shun, not only every species of cruelty, but every form of selfish disregard for the

comfort and convenience of those around them. Opportunities for effective lessons in this direction will be abundantly offered in the incidents of daily life in the school-room and playground.

ABOUT THE FUTURE.

AS the end of another school year draws towards its close, the time seems suitable for us to look back over the work of the year and of preceding years, and forward to the future. A survey of the past enables us, while recognizing our inevitable limitations and shortcomings, to feel thankful that THE EDUCATIONAL JOURNAL has been able to do so much for the aid and encouragement of teachers in Ontario and the other provinces of the Dominion, and also for its kind patrons in the United States and other countries. That it has done a good work is no idle boast. It is an assurance which has been from time to time given us by educationists whose opinions carry special weight, and by hundreds of teachers of all grades, assurances which are indubitably accredited by the best of all credentials—our subscription lists. To these subscribers the paper is primarily indebted for what it has been able to accomplish, for without their subscriptions that work could not have been done. They have the sincere thanks of those who have been, and are, responsible for the contents and management of the paper.

There are usually marked stages in the history of a progressive educational paper, as in that of everything else which lives and grows. Its form and its size have been changed from time to time, always in the direction of enlargement and progress. In no year of its history has this progress been greater than during the one which is now about to close. Within this year the proprietorship of THE JOURNAL has changed, without change in the editorial management and control. The introduction of more capital and a new investment of energy and business enterprise have already told advantageously, in various respects, especially in the introduction of a new feature, in "the Entrance and Public School Leaving Department." This department, under the editorial management of one whose position as principal of the Toronto Model School gives ample assurance that he is regarded by the educational authorities as standing in the front rank of the Public School teachers of the Province, supplies, we are sure, a felt want, and leaves little to be desired in the way of direct practical help, in the semi-monthly issues of the paper. Still further, to make up to the general Editor

for the curtailment of space caused by this very material improvement of the paper on the strictly practical side, within the last few weeks it has been enlarged from sixteen to twenty pages, by the addition of what our readers will permit us to call a handsome cover, in colored paper of good quality. It is easily seen that all these improvements, coupled with the freer use of half-tone lithograph portraits of leading educators, and other useful illustrations, must have added very materially to the cost of production.

These changes are about the best assurance that can be given to our subscribers, and to all who are interested in educational progress, that the proprietors and editors of THE EDUCATIONAL JOURNAL intend to spare neither labor nor expense in order to keep the paper in the very front rank of educational periodicals. They have, moreover, further improvements in view for the coming year. And just here the Editor begs leave to say that suggestions from experienced teachers, who know the wants of the profession, with a view to its still greater efficiency and usefulness, will be thankfully received at all times, and will be acted upon, so far as the judgment of the managers may approve and circumstances permit.

Announcements will be made in due time, and from time to time, of the special franchises which will continue to be one of the new attractions in connection with the business management of THE JOURNAL. Enough has been said, we feel sure, to satisfy every present and prospective subscriber that in no other way can one dollar and a half be invested with assurance of so great a return in educational value as in the twenty-two numbers which make up a yearly volume of THE EDUCATIONAL JOURNAL. And may we not be equally certain that very many of them, at least, will feel that in no other way can they better serve their brothers and sisters in the profession who do not see THE JOURNAL, and so do not know what it has in store for them from fortnight to fortnight, than by inducing them to give it a trial?

THE true nobleness of the teacher's calling is seen from the character of the material upon which he operates. The architect who builds a noble cathedral, the artist who carves a breathing statue, the painter who makes the canvas glow with the semblance of living forms, are all working for posterity. But canvas, marble, granite, all are perishable. The plastic material with which the teacher has to deal is imperishable, and the impress of his moulding hand must endure so long as the mind on which he works shall continue to "flourish in immortal youth." It is inconceivable that an impression once made for good or evil, upon a living mind, can ever pass away, so as to leave no trace in that mind's history.

High School Entrance and P. S. Leaving Department

EDITED BY

ANGUS McINTOSH,

Headmaster Boys' Model School, Toronto, Ont.

With the assistance of several
special contributors.

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HIGH SCHOOL ENTRANCE AND PUBLIC SCHOOL LEAVING EXAMINATIONS.

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

ENTRANCE—1896.

Thursday, July 2nd.

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

Friday, July 3rd.

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

Saturday, July 4th.

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

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

PUBLIC SCHOOL LEAVING—1896.

Thursday, July 2nd.

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

Friday, July 3rd.

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

Saturday, July 4th.

- A.M. 9.00-11.00....Algebra and Euclid.
11.10-12.30....Physiology and Temperance.

P.M. 2.10-4.00....English Poetical Literature.
Reading may be taken on the above days at such hours as may suit the convenience of the examiners.

LITERATURE.

"THE EXILE OF ERIN."

Page 192, Fourth Reader.

In introducing this lesson, an account should be given of the Irish Rebellion of 1798. A body of men, known by the name of "The United Irishmen," taking advantage of the assistance offered by France, rose in rebellion. Their aim was to free Ireland from English rule, and to establish a republican form of government. In a few months the rebellion was put down, but not without atrocities on both sides. Many of the rebels took refuge on the continent; among these was Anthony MacCann, whom the author, Thomas Campbell, met at Hamburg. The keen sympathy felt for these exiles inspired this poem. The author says in a note on this song: "It was in consequence of meeting him (MacCann) one evening on the banks of the Elbe, lonely and pensive at the thought of his situation, that I wrote 'The Exile of Erin.'" The poem was published in 1801 with the following preface: "The meeting of the Imperial Parliament, we trust, will be distinguished by acts of mercy. The following most interesting and pathetic song, it is to be hoped, will induce them to extend their benevolence to those unfortunate men whom delusion and error have doomed to exile, but who sigh for a return to their native homes."

General subject of the poem.—The condition of the Irish exile.

Purpose of the author in writing the poem.—To enlist sympathy for the unfortunate exiles.

Divisions of the poem.—(1) The author's general description of the exile, given in stanza 1. (2) The thoughts and feelings of the exile, expressed by himself—stanzas 2, 3, 4, and 5. In stanza 2 the exile describes his own wretched condition, without home or country; in stanza 3 he gives utterance to despair; in stanza 4 are given his thoughts of home and tender family ties; in stanza 5 he pronounces his blessing on his native land.

Stanza 1.—The author's description of the exile, which implies poverty, loneliness, exposure, sadness, and loving thoughts of his native land. "Exile."—One who has been banished from his country. It is also applied to one who leaves his own country to reside in another. "Erin."—This is a Celtic name for Ireland, and means West Island. It is now used as a poetical name. "Robe."—This word is here used in the general sense of clothing. "Twilight."—It is quite probable that this refers to the evening rather than the morning, especially as the author mentions the meeting of the exile as occurring in the evening. The use of the term "day-star" may suggest that the reference is to the morning, and that the author, for the time being, is not simply thinking of those who have taken refuge on the continent, but of others as well who have gone to America.

But the name "day-star" may be taken to mean Venus, which is at one period the morning star, and at another the evening star. "For it rose o'er."—This phrase must mean "for it appeared above," to be consistent with the previous explanation given of "day-star." It must, however, be admitted that this passage is somewhat obscure. "Anthem."—This name is here used in the sense of song, not sacred song—Erin-go-bragh—"Ireland forever."

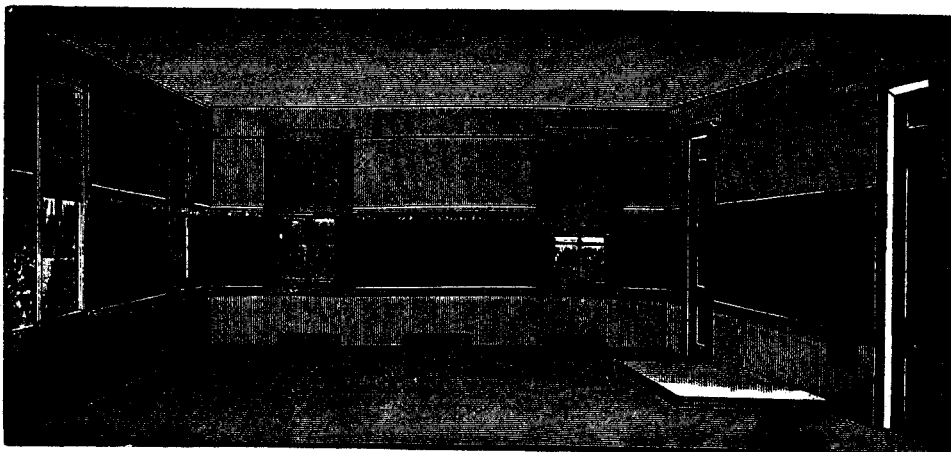
Stanza 2.—The exile's description of his own condition. He gives an account of being cut off from his home and country. He pictures himself as being worse off than the wild animals, which can find a place of shelter. In this stanza there is lack of hope expressed. "Green sunny bowers." This phrase suggests light, warmth, and shade. The word "bower" literally means a room in a house. It is not unlikely that the reference here is to the cabin itself, shaded by trees and vines, as viewed in bright sunny weather. "Wild-woven."—"Wild" refers to flowers, which it modifies, and the connection with "woven" by a hyphen suggests a natural wreath. Truly translated, the phrase "wild-woven flowers" is equivalent to natural wreath of wild flowers. "Strike to the numbers."—Accompany the song by music. The harp is the national musical instrument of Ireland, as the guitar is of Spain, and the violin of Italy. "Numbers."—Song.

Stanza 3.—The exile's despair. Emphasis is gained by the contrast implied between his dreams and the sad realities of his awakening. Compare with "The Soldier's Dream," by Campbell, which ends with

" . . . fain was their war-broken soldier to
stay;

But sorrow return'd with the dawning of morn,
And the voice in my dreaming ear melted away."

"Sea-beaten shore"—This expression is quite appropriately applied to Ireland. "Far foreign land"—It was in Germany, on the banks of the Elbe, where the exile was. The exile imagines it to be far from his native land. To him his place of exile was a far foreign land. "Replace"—To put again in the former place. The word is here used in its literal sense. "Mansion of peace"—Mansion is also used in its literal sense of a dwelling place, and the general reference is to his former life of peace and security at home with the other members of the family. "Chase"—This word may not perhaps appear to be most suitable for a poetical passage; but it was no doubt selected partly on account of the rhyme, and partly because he considers himself as a hunted fugitive. This idea is quite consistent when account is taken of the executions and massacres which followed the defeat of the rebels at Vinegar Hill, in the county of Wexford. "They died to defend me, or lived to deplore"—He does not know whether his companions in arms are dead or



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alive; if dead, they died in defending him and the cause with which he was connected; if alive, they are deploring his sad fate as an exile.

Stanza 4.—In this stanza the exile expresses his thoughts of home and those near and dear to him. In a previous stanza he spoke of friends and brothers; in this he refers to his sisters, father, mother, and his bosom friend. This order of reference constitutes a climax. "Bosom friend"—The exile's most intimate friend, no doubt his sweetheart. "Fast-fading treasure"—This refers to the "bosom friend," from whom he was so soon separated. "Fast-fading" refers to his early separation from the one he loved, and not to the bosom friend herself in the sense of losing her beauty by age or grief. "Rapture and beauty"—This refers to his own joy and to his bosom friend; these cannot be brought back to him by sorrow.

Stanza 5.—The exile's blessing on Ireland. This blessing involves (1) prosperity; (2) true loyalty, which will find expression in the songs of Ireland. The exile turns his thoughts from himself to his native land. "All its sad recollections suppressing"—This phrase modifies "bosom." "Can draw"—Can express. "Lone bosom"—This refers to the exile, and implies his loneliness and love. "Mavourneen"—My darling.

The poem, as a whole, shows clearly the intense love which Irishmen have for their native land.

Compare and contrast this poem with the "Lament of the Irish Emigrant," "Dear Harp of my Country," "The Soldier's Dream," and "The Slave's Dream."

PUBLIC SCHOOL LEAVING.

LITERATURE.

BY MR. R. W. MURRAY.

"MY KATE"—ELIZABETH BARRETT BROWNING
(1809-1861).

Mrs. Browning, the first poetess of England, was born in London in 1809, of English and Italian parentage. From her infancy she was of a very delicate constitution, which received a severe strain in an illness, resulting from the bursting of a blood-vessel, in 1837, and in witnessing the drowning of a brother, in 1839, at Torquay. In 1846 she married Robert Browning, the poet, by whom she was tenderly cherished during the remainder of her eventful life. In 1861 "the sweet-faced English lady" died in Florence, Italy, remembered lovingly by the Italians, whose struggles for freedom enlisted her sympathy.

Her clear mental vision and her profoundly sympathetic nature were early shown. At seventeen she published her first volume of poems. In all her poems we see that sympathy with all who are oppressed by cruelty and injustice, and her clear appreciation of true merit, which forms the main theme of this extract.

EXPLANATORY.

1. "As pretty as"—After the negative we usually write "so" instead of "as"—"so pretty as." "Sunshine and snow"—Indicating a beautiful complexion—pink and white. "Drop to shade . . . melt to nought"—Observe how these terms are connected with "sunshine and snow," of the second line. "Long-trodden ways"—The long journey of life.

2. "Her air had a meaning"—Her manner indicated her true, noble spirit. This attracted rather than the fair face of another. The "forehead and mouth" are here mentioned as the features that showed "her soul and her truth."

3. "Blue inner light . . . fancied she spoke"—Here the author gives expression to the power of the eye. Though silent, yet she spoke. The eye is the mirror of the soul. She was heard when she did speak, even though "the loudest spoke a'iso," because of the tone of the voice and the manner of the speaker.

4. "Act as a thought or suggestion"—There was not much in what she said that indicated profound thought, or that would start new currents of thought. Observe what is suggested as the cause of her influence—"her thinking of others." This would represent the author well. It was "her thinking of others" that made her so popular. There is always respect and attention shown to those who are unselfish and sympathetic.

5. In this stanza the writer shows that it was not through finding fault with the conduct of others, but through the influence of her own true life that "men grew nobler," "girls purer," etc. "The children were gladder . . . at her gown." Compare Goldsmith's Village Preacher, "And plucked his gown to share the good man's smile."

6. "Confessed lovers in thrall"—The insincerity of these lovers is contrasted with the reality of the results of her influence. "They knelt more to God." What is gained by saying "that was all"? Was the result a trivial one?

"When she went"—She was charming, no doubt, when present, but the real value of her presence was not appreciated until she was absent.

7. "The weak and the gentle . . . all good"—She did good to all classes.

"Ribald"—Evil in mind and therefore in word.

"See what you have"—This is an example of the figure of Vision. The scene represented as actually before you becomes more vivid. "Grass greener"—Even nature herself benefited by her presence, even in death.

8. Observe the change to the second person, throughout this stanza. Though dead she is not forgotten, and has yet one to take her part, "as thy smiles used to do."

BY MR. R. W. MURRAY.

"THE CANE-BOTTOM'D CHAIR."—WILLIAM MAKEPEACE THACKERAY (1811-1863).

Thackeray was born in India, 1811. His father, a civil servant of the East India Company, sent his son home at an early age, that he might avoid the deadly climate of India. The lad was sent to the Charterhouse School, and afterwards to Cambridge University. Being left a considerable fortune by the death of his father, he became extravagant while at college, and left Cambridge before graduating. He made an extensive tour of the continent, and, running short of funds, he tried to turn his natural talents to account. Having failed in 1835 to obtain the position of artistic illustrator of the Pickwick Papers, he determined to devote himself to literature.

Thackeray became the famous delineator of character, dealing especially with the follies, the prejudices, and the modes of thought of the upper classes. Dickens, on the other hand, appealed to the feelings of the people, as he interpreted the wishes, hopes, and aspirations of the lower and middle classes. Thackeray preferred prose to poetry as a means of expressing his thoughts, and it is in the former he excelled. He had talents, however, as a poet, and he showed great skill in his mastery of metre and versification. His poems are rather the products of his fancy for the moment than the result of deliberate and careful work.

EXPLANATORY.

In the study of this poem, observe the metre, the easy flow of the lines, the many terms used in

depreciation of the contents of the room, the humor, and the pathos. Why does he use these terms of depreciation? In what sense has he a "kingdom" or "realm"?

"Bars"—The bars of the grate.

"Four pair of stairs"—Four flights of stairs.

"Pair" is sometimes used to indicate an object in a complete form.

"To mount to this realm"—Observe the appropriate use of mount.

"Chimney-pots"—The tiles placed upon the chimneys.

"Knickknacks"—Trifles or toys.

"Odds and ends"—Fragments, refuse, scraps.

"Crack'd bargains"—What was cracked?

Notice the figure.

"Prints"—Engravings.

"Rickety tables"—Unsteady. "*Rickets*" is a disease that affects the bones.

"A twopenny treasury"—A collection of curiosities that you might give twopenny for.

"Divan"—This word has a variety of meanings. It may mean a council chamber. It is also used for the low seats around the wall of the council chamber. Hence a sofa.

"Ramshackle"—Loose, old, falling to pieces.

"Wheezy spinet"—A spinet was a horizontal harp. It was played on by means of quills set in motion from a key-board. These quills were like thorns in shape (It. spina a thorn).

"Turcoman"—A marauder from the country east of the Caspian Sea. They often plundered Persia.

"By Tiber"—Figurative expression for the country by the Tiber, that is, Rome.

"Mameluke"—The Mamelukes were Caucasian slaves, serving as guards to the governors of Egypt. Increasing in power, they became masters of Egypt; and even when their kingdom was overthrown the governors of the provinces were chosen from their number. They played a brave part during the French invasion of Egypt, but shortly after (1811) they were for the most part massacred by order of Mohammed Ali.

"Latakia"—A kind of tobacco, so called from the port of Latakia in Syria, near which it is grown.

"Bandy-legged"—Bent, crooked. From a Fr. word "*bandé*," participle of "*bander*," to bend (a bow). Notice the contrast between this "bandy-legged," "high-shoulder'd" chair, with its "creaking" back and "twisted" feet, and the description of Fanny, "All beauty and bloom; So smiling and tender, so fresh and so fair."

"Saint Fanny"—Referring to the belief that particular persons, places, trades, etc., had each a special protector among the saints, known as the patron saint. Cf. St. George, St. Patrick, St. Crispin (for shoemakers).

DRAWING.

BY MR. A. C. CASSELMAN.

QUESTIONS ON DRAWING.

ENTRANCE, JULY, 1887.

1. When is a leaf said to be conventionalized? Draw a natural leaf. Draw the same leaf conventionalized.
2. Draw a calla lily.
3. Give a perspective drawing of a (solid) cube.
4. Draw a vertical line three inches long; bisect this line; through the point of bisection draw a horizontal line extending $1\frac{1}{2}$ inches on each side of the vertical line; join the extremities of these lines, forming a square; trisect the sides of this square; join the points of trisection by lines parallel to the diagonals.

DRAWING—ENTRANCE, JULY, 1889.

1. Draw a book in a vertical position, showing its side, back, and end finish.
2. Give a perspective drawing of a cube 2 inches to a side, and represent it as being divided, by means of faint lines, into 64 smaller cubes, each half an inch to a side.
3. Sketch a vertical and a horizontal line not less than four inches long for the diagonals of a square. Draw the square. Bisect each side of the square, and sketch its diameters. Connect the ends of the diameters by horizontal and ver-



tical lines to form a second square. Divide each side of the second square into four equal parts. Draw oblique lines connecting the upper angle of the first square with the first and third points of division in the upper side of the second square. Draw oblique lines from these points to the centre of the square. Repeat this in each of the other three angles of the first square.

4. Sketch a square (each side to be not less than four inches in length). Sketch its diagonals and diameters. Join the ends of the diameters forming an inner square. On each side of the outer square sketch a semicircle passing through the centre of the square. On each side of the inner square sketch a semicircle curving outward. Bisect the semi-diameters of the inner square. Sketch a circle through these points of bisection. Line in all the curves.



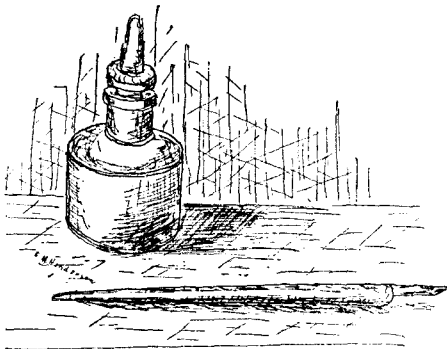
ENTRANCE, DECEMBER, 1889.

1. Make a drawing of an ordinary coal-oil lamp, four inches in height.

2. Draw a frame and door four inches in length, showing panels and handles; first, shut; then, half open.

Nos. 3 and 4 omitted, because similar to Nos. 3 and 4 of last paper.

These are exercises in Dictation Drawing, abundant examples of which may be found in the Public School Drawing Course. All that the teacher has to do is to write out in words what is expressed in the drawing, then get the pupils to draw as he dictates. In the following papers such questions will be omitted.



ENTRANCE, 1890.

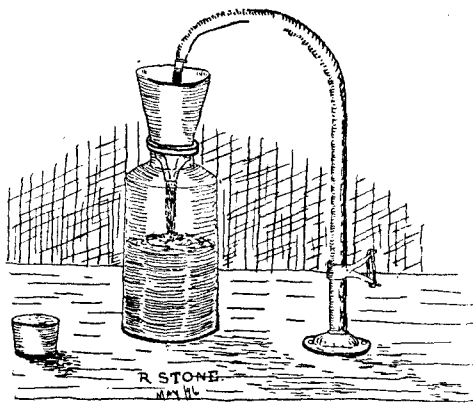
1. Draw a teacup and saucer as seen when placed below the level of the eye, the cup to have a handle and to stand in the saucer.
3. Draw a common table in perspective.

ENTRANCE, 1891.

2. Draw a common pail (a) above the line of sight, (b) below the line of sight.
4. Draw a pair of scissors, half open, four inches in length.

ENTRANCE, 1892.

1. Draw an axe with the handle leaning against a wall, the figure to be six inches in height.
2. Draw a table lamp, five inches in height.
3. Draw the wheel of a wagon, with sixteen spokes, drawing to be three inches in diameter.
4. Draw a trunk three feet long, twenty inches wide, and twenty inches high, with the lid partly open; size of drawing, one-half inch to a foot.
6. Draw a watering-can below the line of sight, two inches in height.



ENTRANCE, 1893.

2. Draw three books of equal size, one inch in length, standing on end, side by side, so that an observer behind them may see one side of them, and an end of each.
3. Draw two butter tubs of equal size above the line of sight, one sitting partly within the other; drawing to be two inches in height.
4. Draw a lounge six inches in length.

SELECTED.

All objects are to be drawn below the eye level unless otherwise stated.

1. Draw a cup, (a) top upwards, (b) top downwards.

2. Draw a saucer, (a) top upwards, (b) top downwards.

3. Draw a cup, (a) top upwards in a saucer, (b) resting on its side in the saucer.

4. Draw a teapot, a sugar-bowl, a cream jug, and a spoon-holder with a few spoons in it.

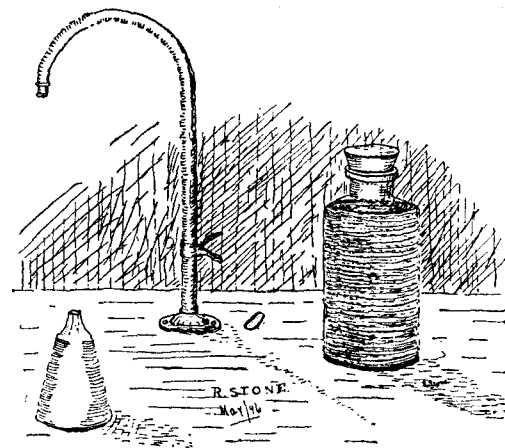
5. Draw the objects in question 4 and two cups and two saucers in a group to suggest a particular meaning. Group the same objects again so as to suggest a different meaning from the first group. Write out in words under each group the meaning you intend to be conveyed by your drawing.

6. Draw a blacking-brush, a box of blacking, and a pair of boots in a group to suggest some meaning. Repeat in another group to suggest a different meaning.

7. Draw a pitcher, a funnel, a cork, and a bottle in a group to show that the bottle is being filled by some liquid. Repeat the objects to show that the bottle has been filled.

8. Draw a table, two chairs, a few books, a lamp, an inkstand, some paper, and any other accessories you wish, grouped in several different ways, each to express a different meaning.

9. Draw a pitcher, some glasses, a tray, spoons, sugar, a knife, some lemons, and any other accessories, grouped in several different ways, each to express a different meaning.



HINTS.

Before grouping can be attempted, the objects composing the group should have been drawn separately, in at least two or three different positions. Therefore, if there are any objects mentioned in the preceding questions that have not been drawn from the object, draw them from observation in two or three different positions. It is better in all cases to draw groups from observation of the actual objects, placed in position by the pupil who is to do the drawing.

To get a good supply of questions for class purposes, that will be, to say the least, suggestive, get the pupils to write out, say, three questions each. From these may be selected suitable ones for the whole class to practice on. It is surprising to one to notice how quickly some will sketch a group and do it well at the same time. At this time of the academic year pupils require a great deal of practice in sketching objects from memory in a given time. Try time exercises.

The drawings in this issue are by Marion Long, Senior Fourth Class Girls, and Ross Murray, Ernest M. Henderson, Richard Avis, and Robbie Stone, Senior Fourth Class Boys, R. Stone's drawing is his interpretation of a question similar to No. 7 in this issue.

SUGGESTIONS.

(1) Teachers will find that a good deal can be done to impress the general meaning of the literature lessons by having pupils read aloud in class all the lessons assigned. This, of course, supposes that the literature of these lessons has been taught in detail. Each pupil might be asked to read, say, a page or so. Do not delay the exercise by giving too many comments. Whatever remarks are made should be given after each pupil has completed the reading of the portion assigned.

(2) Special pains should be taken by teachers to interest pupils in constructing as neat answer papers as they can, consistent with the rapidity necessary to present a reasonably complete paper for examination.

(3) A considerable portion of the month of June should be spent in review exercises; and, in conducting these, review what has been taught either by yourself or by the other teachers who previously taught the pupils.

(4) Give pupils explicit directions as to how they should proceed at an examination, but do not encumber them with too many new things at a time. Give such drill as will familiarize them with all the required lines of procedure.

(5) On the day before pupils go up to their examination, the teacher should read over to them the regulations, as they will (or should) be read by the presiding examiner before the examination commences.

(6) Do not worry pupils by meeting them after each paper and going over what they have written. Encourage them to look forward and not back. If pupils are allowed to brood over the work they have already done, and which they cannot amend, they will become hypnotized by the minor errors they have made and asleep in so far as the succeeding papers are concerned. More good can be done by arranging for pupils' physical comfort and for their usual habits, especially if they are young and away from home for the first time, than by attempting to give them examination "pointers," while they are in the midst of their work. Candidates should study less than usual, immediately before and during the examination. Success will depend more on the condition of mind than on any spasmodic effort at the time.

(7) Candidates should be warned not to leave the room until the full time is up. They should spend the whole time allowed on the paper. Many a young candidate has lost the examination by hurrying over the work and handing in the paper early. Although there is no regulation which prevents candidates from leaving after the expiration of one hour, yet teachers should give such cautions as will deter their pupils from slighting their work by limiting the time allowed.

NOTES AND ANSWERS TO QUESTIONS.

Solutions of problems 7 and 8 of Public School Leaving Arithmetic, 1895. Copied from mathematical department of JOURNAL, October 1, 1895.

7. Let CAB be the isosceles triangle and CD the perpendicular on AB; then CD shall bisect AB in D. Now, each side CA and CB is $15\frac{1}{2}$ feet, AB (the base) is 20 feet, and AD is 10 feet.

$$\therefore (CD)^2 + (AD)^2 = (AC)^2$$

$$\therefore (CD)^2 + (10)^2 = (15\frac{1}{2})^2. \text{ (Euc. I. 47.)}$$

$$\therefore (CD)^2 = 54\frac{1}{4}$$

$$\therefore CD = \sqrt{54\frac{1}{4}} = 11.842 \text{ feet, ans.}$$

8. Rectangular field is 12 units long and 5 units wide. Now, if 7 units be taken off the length, it will be square the short way; but 7 units off the length will take away $\frac{7}{12}$ of the area of the field;

so that $\frac{5}{12}$ of the area will still remain, and this will be the smaller square field:

$$\therefore \frac{5}{12} \text{ of } 6 + 160 \text{ sq. rods.}$$

$$= 400 \text{ sq. rods} = \text{area of smaller field.}$$

$$\therefore \text{side of smaller square field} = \sqrt{400} \text{ rods} = 20 \text{ rods.}$$

$$\therefore 5 \text{ units} = 20 \text{ rods,}$$

$$\text{and } 1 \text{ unit} = 4 \text{ rods,}$$

$$\text{and } 12 \text{ units} = 48 \text{ rods} = \text{length of rectangular field.}$$

\therefore the diagonal of the field is

$$\sqrt{(12)^2 + (5)^2} = 13 \text{ units} = 13 \times 4 \text{ rods.}$$

$$= 52 \text{ rods.}$$

In 1 minute the man walks $\frac{1}{3\frac{1}{4}}$ of 52 rods

$$\therefore \text{in } 60 \text{ minutes he walks } \frac{60}{1} \times \frac{1}{3\frac{1}{4}} \text{ of } 52 \text{ rods.}$$

$$= 3 \text{ miles. Ans.}$$

M.A.N.—Under the circumstances you mention in your letter of inquiry, it would probably be best to teach both the script and the ordinary printed forms side by side. There is no doubt that it is best to teach script from the very first, whether you begin at once with the other form, or delay it till the pupils can write fairly well. Many make the transfer, when the pupils have gone over the matter contained in the First Reader, Part I. The pupils may be asked to reproduce the blackboard stories at home, from memory, and read them next day in class. The parents will then have an opportunity of seeing the progress the children are making.

REVIEWS.

In reviewing for any examination, it is important to observe this rule: Review directly along the lines of the previous teaching in the particular subject in hand, and do not make the review exercises more difficult than can reasonably be expected from the work previously gone over. It will generally be found a mistaken policy to attempt to frighten students into an unnatural effort to "cram" for an examination by making the review exercises so difficult that the candidates go up to write with little or no expectation of passing. Teachers should make a special effort to avoid both of the two extremes: fear of failure on the one hand, and over-confidence on the other. Either of these conditions of mind in a candidate will lessen his chances of doing well on an examination.

REVIEW QUESTIONS IN GRAMMAR.

Suitable for Entrance.

1. Define the following: Part of speech, phrase, clause, and sentence.
2. Classify the different parts of speech (classes of nouns, pronouns, adjectives, etc.).
3. Give an example of each of the different relations which a noun may have (1) in the nominative case, (2) in the possessive case, (3) in the objective case.
4. Illustrate the various relations of adjectives.
5. Illustrate the various relations of adverbs.
6. Give an example of each of the different kinds of complements which the verb *to be* may have.
7. Distinguish between *subjective* and *objective* complements.
8. Distinguish between direct and indirect objects.
9. Distinguish between the restrictive and the descriptive uses of adjectives and adjective clauses.
10. Give an example of each of the different uses of *it*.

PHYSIOLOGY.

Review Questions.

1. What are the different stages in the process of digestion?

2. What organs secrete digestive fluids?
3. What are the effects of alcohol on (1) the stomach, (2) the liver?
4. Describe the constituents of blood.
5. By what organs are the impurities of the blood removed?
6. What effect has alcohol on the circulation of the blood?
7. Describe the lungs.
8. Explain the change of elements which takes place in the lungs.
9. How is the heat of the body produced and regulated (naturally and artificially)?
10. Describe the composition of the brain.
11. Distinguish between *sensory* and *motor* nerves.
12. Describe the effects (1) of alcohol, (2) of tobacco, on the nervous system.

ARITHMETIC.

Review Questions.

1. A man had 160 acres of land. He laid it out into 600 lots. The streets took up $\frac{1}{8}$ of the whole land. The lots were described as containing $\frac{1}{4}$ of an acre, more or less. How much more or less than $\frac{1}{4}$ of an acre were they?
2. A merchant's price is 25% above cost; what per cent. profit will he make if he allows a discount of 12%?
3. A man bought a horse which he sold at a loss of 10%. If he had received \$45 more for him he would have gained 12½%; find the cost of the horse.
4. Find the amount of the following bill: 3½ yards print at 17c.; 8¼ yards cotton at 9½c.; 15⅞ yards tweed at \$1.18; 16 yards silk at \$2.12½; ⅞ yard of velvet at \$9.50; 43 buttons at 25c. per dozen.
5. Simplify:
 - (a) $\frac{4}{5} \div \frac{2}{3} \times \frac{7}{9}$.
 - (b) $\frac{2}{3} \div \frac{3}{4}$ of $\frac{1}{2}$.
 - (c) $\frac{\$4}{\$5}$ of $\frac{10 \text{ lbs.}}{11 \text{ lbs.}}$ of 5½ days.
 - (d) .625 of $\frac{1}{25}$ of $\frac{\frac{2}{3} + \frac{1}{2}}{1\frac{1}{2} - \frac{2}{3}}$
6. Find the simple interest on \$640 from March 2nd, 1896, to June 1st, 1896.
7. The weight of a cubic foot of water is 1,000 oz., and a gallon contains 277.274 cubic inches; find the weight of a pint of water.

GEOGRAPHY.

Review Questions.

1. Define latitude, longitude, orbit of the earth, climate, and watershed.
2. What causes produce winds, dew, and the equatorial current?
3. What causes (1) day and night; (2) the changes in the seasons?
4. Trace the route of the C.P.R. and of the main line of the G.T.R.
5. Trace the course of the principal trade routes of the Atlantic and of the Pacific.
6. Name and state the position of the great commercial cities of Canada and the United States.
7. What are the principal productions of Ontario, and to what countries are they mainly exported?
8. Name and locate the chief naval stations of Great Britain in the Atlantic and in the Mediterranean.
9. Be able to quickly sketch an outline map of (1) Canada, (2) Ontario, (3) Europe, (4) India, (5) China and Japan, (6) the West Indies, (7) South America, (8) Africa.
10. What physical conditions render it desirable that Canada and the United States should freely trade with each other?
11. What advantage would Canada derive from free trade with all the other parts of the British Empire?

Special Papers.

PERSONALITY OF THE TEACHER.*

The lifetime of a human being, from infancy to childhood, to manhood, and to old age, is ordained of God, who directs by means of human agency our moral, intellectual, and religious culture. Indeed, we cannot, even if we would, divest ourselves of the idea of a Providence that cares for us and for our maintenance. True, the providence of God is mysterious, yet none the less unfailing, unwavering, faithful, just, and true. Mystery should be no bar or hindrance in the onward march of man. Experience is the truest of guides, and it teaches us that God shapes our destiny for good, employing man for his agent to bring about the desired end.

Children are dear to God, and we know that the Saviour, when upon earth, loved them for their simplicity and innocence. Except ye become as little children, He said to His disciples, ye shall be locked out of the kingdom of heaven. Their angels always beheld the face of God. Jesus took them in His arms and blessed them.

Care—tender care—should be bestowed upon them. Like the tendrils on ivy or vine, they must be handled gently, and the teacher who undertakes to develop the manhood or womanhood of the young must know what he is about.

He must have mental, moral, and spiritual endowments, which only will qualify him for the post. With these there is something more essential, namely, a striking personality.

The teacher must have a striking personality, whereby he will be able to attract and over-awe, to inspire love and exact obedience, to be familiar and yet win respect. This was one of the remarkable features of the great Dr. Arnold, of Rugby. The boys would say, "It is a shame to tell Dr. Arnold falsehoods. He believes all you tell him." He was an inspiration to the boys.

It cannot be too strongly impressed upon us to exercise the strictest self-control over our actions, so that our actions and our lives may be consistent. This is the surest source of influence. We are inclined to think that children do not notice our inconsistencies. But this is a serious mistake. They are the truest readers of character, and the injury done them is all the greater because of their dispositions not being yet fixed. It is of no use to teach benevolence if we use harsh, loud tones in so doing. What are they to think if we teach gentleness, and give way to temper a few minutes after? How can we dare teach truthfulness if we ourselves exaggerate or break a promise? It is this great difference between example and precept which is the cause of so much labor in teaching running to waste.

Let us for a moment view a few of the features which go to make up the personality of the ideal teacher—and, in my thinking, I would put humility first. This causes us to despise the attainments we have made when we compare them with those we might have reached. He who is proudly content with his present character forgets the dignity of his nature, and of his destiny. We should be humble, not so much in view of what we are as in view of what we might be. We do not humble ourselves when we say, "No teacher is perfect." It is quite possible for us to admit this and, at the same time, to only bless ourselves that we are not worse than the generality of teachers.

True humility is so ashamed of its own virtues as to conceal them, or, at most, to allow only slight glimpses of them. What it strives to obscure charms the world more than what it reveals, and what is denied to sight is more than supplied by the creations of the imagination.

Gravity is another quality very necessary. It is composed of seriousness and dignity. It does not betray ill-humor and fretfulness, does not indulge in loud talk and scolding. Its expressions of disapproval are void of bluntness and harshness. This quality is seen in the composed face, not in the long face. One who gives much attention to small matters, and talks much about nothing, may be serious, but he is not grave. A grave teacher never puts on airs to conceal his insignificance. He is not always begging leave to differ from others; nor is he anxious to make others assent to his opinions. Gravity will not extinguish the liveliness of a child, but will temper it; will not make

him appear old, but will give him an animated dignity.

Before the face of gravity all vice and irreligion is awe-struck, and the impertinent and the trifling are reproached.

Another feature: Cheerfulness, which makes itself felt everywhere, and affects our pupils more, perhaps, than any other trait. Without this, even courtesy itself is cold. But we must not confound cheerfulness and levity. The former is habitual temper of mind, shown, not by a smile or a laugh, but by the whole tenor of our conduct. Children love sunshine in the school as well as out, and it is the teacher who creates sunshine or gloom.

Hand-in-hand with cheerfulness goes gentleness, which invites the timid to trust us, and calms the agitated. It does not show an eagerness to please, nor a horror of offending, but is always calm. A great many of us think that, to be perfectly honest, we must be blunt in our manners. Not at all. We can be honest, and yet have a tender regard for the feelings of our pupils.

How a mild or gentle tone does conciliate us! A soft answer turns away wrath—a gentle address captivates us. Gentleness restrains even the shameless, and compels the uncouth to politeness.

We must treat our pupils respectfully, as if they were destined for a high calling, like the Greek schoolmaster who was wonderfully polite to his pupils. On being asked the reason of this extreme deference, he replied: "Who knows but some day these boys may occupy high and exalted positions in the state; so I pay them my respect in advance."

I have spoken heretofore on the different qualities that we should try to cultivate. I shall now speak very briefly of the appearance of the teacher. We should always appear before our pupils faultlessly attired. There is more personality in dress than we are apt to think. Children have an eye for the beautiful in dress, as well as in the bright things around us. The teacher who offends the eyes of his pupils by unbecoming clothing or slovenliness in movements deserves, as he is sure to have, a disorderly, unattractive school.

We should watch very carefully our manner of walking, sitting, standing, or talking. Walk with a firm, quiet step, not with the mincing gait which seems so prevalent nowadays. See that we stand erect, not leaning for support against whatever happens to be near us. Let us be particularly guarded against the now too common use of slang, which creates in children a sense of freedom with us. Why is it so many people say: "Oh, you can always tell a teacher. They look so teacherly." Ladies and gentlemen of other professions are not so easily distinguished. Why are we considered by the world to be narrow-minded? It is because we do not mingle enough with the world, or interest ourselves in what is going on in the outer world. We live too much within ourselves. Many, just by their walk, proclaim to the world, "I am the teacher of school so-and-so." All their talk is accented by the uplifted forefinger, or a decided bow of the head. They treat all their listeners as children, and never throw off the schoolroom look of authority, which only this class of teacher wears. Very often we come to these meetings, and gentlemen of other professions address us. They represent us as such self-sacrificing mortals that we really think our lot a hard one, and we go away with our vanity considerably heightened—that is, if we are unfortunate enough to be vain. I think if we were shown truly just how we stand in the eyes of the world, it would have quite an effect on our walk and talk.

It is our own fault that we do not take the stand we ought to take in the world. We are too ready to pander to public opinion; too eager to please those in authority; have too little originality in us; and practise so little of what we preach. Let us show to the world our better selves, and throw aside all affectation and pretence; then when we are true to ourselves we shall have that peace which only a conscience at rest can give us. Then only will our influence be what it should be, and our standing acknowledged by the world.

SCHOOLROOM FATIGUE.

BY S. B. SINCLAIR, B.A., VICE-PRINCIPAL, OTTAWA NORMAL SCHOOL.

The content of fatigue study naturally falls into three divisions, physical fatigue, mental fatigue, and the relation which each of these bears to the other.

All of these mines have been so thoroughly worked that with present methods there is little hope of evolving anything dynamic that has not already been brought to light. A few of the most important conclusions arrived at may be briefly referred to at the outset, as furnishing interesting and valuable data upon which to base an inquiry into the subject of schoolroom fatigue, the special form with which the teacher is more immediately concerned.

The student will find a complete bibliography and digest of investigations by reference to articles in the Pedagogical Seminary of June, 1892, and to published lectures by Dr. Cowles, of Boston.

A number of significant experiments in regard to shrinkage and recovery of nerve-cell contents were made by Dr. Hodge, and recorded in the "Journal of Morphology" of Clark University. In experimentations with frogs and cats, electrical stimulation of nerve going to a spinal ganglion produced a marked shrinkage of nerve cells, the nuclei being reduced forty per cent. after five hours work. After complete rest of six hours the cell had recovered about half of this shrinkage, and twenty-four hours elapsed before it had regained its original condition. Experiments with cases of actual work instead of electrical stimulation revealed a still greater shrinkage.

It has further been shown that the expenditure of muscular or of nervous energy is always accompanied by the formation of poisonous waste products. In either case there is always excess of uric acid in the blood. When the blood of a fatigued dog was injected into an untired dog it produced in him all the signs of fatigue.

It has also been demonstrated that a muscle worked to the fatigue point by voluntary stimulation may then be made to contract by electrical stimulation, and after a time again be innervated by the will. In this way Mosse kept a muscle constantly at work. It would seem that the nerve rested during electrical stimulation, for it began work with renewed energy after the interim.

Br. Burnham points out the following analogies between muscular and nervous fatigue.

1st. To do the maximum amount of work, muscular or nervous, intervals of rest must alternate with periods of work.

2nd. Working a fatigued muscle or nerve injures it much more than much greater work under normal conditions.

3rd. Remarkable individual differences occur in the curve of fatigue of muscle or nerve of different persons.

Nervous and muscular fatigue have been studied separately, but there is an intimate connection between the two, and each influences the other. Severe mental work lessens muscular energy, and when certain muscles are fatigued it is found that others are affected injuriously as by transmitted toxic effects.

The results of psychological and pedagogical investigations have been quite as valuable as those from the physical side. Dr. Cowles arrives at the following conclusions:

"In normal fatigue it is to be kept in mind that the dual physical condition is one of the expenditure of nervous energy in work to the immediate fatigue of nerve cells, and the accumulation, locally and in the circulatory system, of toxic waste products; and that the processes of nutrition and elimination require time and rest. The mental concomitants of this condition are: a diminished sense of well-being, or a feeling of fatigue, sometimes amounting to a sense of ill-being, which includes in its complex causation the influence of the toxic elements. The emotional tone is lowered, and there is less vivacity of feeling. There is also lessened mental activity in general. Voluntary attention is fatigued; that is, the mental inhibition is lessened, with diminished control over the attention, and one is conscious of an extra sense of effort in mental work. There is 'mind-wandering.' The logical processes work more slowly, and with less effect, in making comparisons and judgments, and in reasoning to conclusions; the tired attention holds on with effort to one member of a proposition, while another slips away. There is a consciousness of mental inadequacy and difficulty in keeping awake. This is the common experience of evening tire."

The investigation has brought prominently into view the abnormal condition of acute fatigue, called neurasthenia, a disease which is unfortunately becoming very common in America. In the initiatory stage there are the ordinary symptoms of

* A paper read by Miss Ford, of Markham, before South Grey Teachers' Association, Friday, May 22nd, 1896.

fatigue, but by constant overpressure these conditions become intensified, and sometimes entirely changed. There appear the symptoms of irritability and languor, dilatation of the pupil of the eye, cold hands, poor appetite, insomnia, lowering of emotional tone, a sense of ill-being, excessive introspection, morning misery, second-day tire, etc. The subjective symptoms are arranged by Dr. Cowles under four heads:

(1) Depression of spirits. (2) Decrease of power of attention. (3) Morbid introspection, retrospection, apprehension. (4) Diminished sensitiveness. The worst feature of the case is that there is at times "anæsthesia of fatigue." The patient is not a guide to himself. The disease grows upon itself. The patient is unduly ambitious and anxious, and uses up all the little vitality regained.

The purpose of this paper is to give a summary of a number of experiments in regard to school-room fatigue, conducted along the lines instituted by Galton, Birkenstein, and others. The experiments were made in Truro Normal School, Nova Scotia, and in Ontario Normal and Public Schools. The returns were answers to a series of questions sent to one hundred and twenty teachers.

The following is a summary of questions and replies:

1. What prominent symptoms of fatigue have you noticed in yourself or in your pupils?

(a) In regard to the effects of fatigue upon the senses, the usual answer is that hearing power is diminished, especially in cases of partial deafness. One writer says: "I experience difficulty in understanding the speech of others, and frequently mistake one word for another. The effort required to catch what is said becomes a decided strain. The sounds seem less sharply defined and to run into one another." In some cases, on the other hand, power of hearing is increased, producing extreme sensitiveness to slight sounds not noticed under other conditions, especially in cases of monotonous repetition, *e.g.*, the ticking of a clock, the sound of violin practice, sipping sounds at meals, etc. Sight is not so keen as when rested. Reading becomes a conscious effort, one word or letter being frequently mistaken for another. A burning sensation of the eyes is experienced.

Speaking generally, the power of attention in sense perception, by which the raw material of sensation is developed into a knowledge of an object located in space, is diminished. In other words, the analytic-synthetic function of mind, the power to interpret sensuous data, to unify, discriminate, and relate, works at low pressure. On the other hand, inhibition is weakened. Sensations which we do not wish to receive, and to which we refuse admission, become importunate, and at length enter at the too weakly barred door of consciousness. One teacher remarks: "The hearing power of the teacher increases in direct proportion to fatigue, but that of the pupil apparently diminishes."

(b) Memory is much impaired. There is inability to spell common words, and especially difficult combinations, such as "ei" or "ie." One teacher says: "Children seem unable to remember the simplest facts when greatly fatigued." There is a report from a student suffering from neurasthenia (aggravated by insomnia), who did not sleep during four nights immediately preceding an examination on which she wrote. She says: "When writing on memory subjects, I had only to keep myself quiet enough and memory came to my assistance, but I found subjects demanding clear and logical reasoning much more trying." After the two days examination this student took a visual memory span test. She says: "I had in the interim been out of the examination room only a few minutes, but long enough for the reaction to set in, and my head had begun to ache. With the first set of twelve letters I got eight right, with the second five; the third and subsequent spans seemed to vanish when read." This student secured honors on examination. She is still suffering from neurasthenia, but, so far as can be observed, the disease was not specially aggravated by the examination experiment. She holds that the extra strain was not more injurious than the worry from feeling that she had not been able to take the examination would have been.

(c) Thought-power is quite as much diminished as memory. The following symptoms are noted: Inability to concentrate attention, failure to obtain ideas readily from reading, inability to solve simple exercises in mathematics or in common sense prob-

blems of any kind, a tendency to wool gathering, dissipated attention, a long time spent in trying to understand what is self-evident when the mind is not fatigued.

(d) The moral sense is weakened. There is a tendency to violate rules by passing them unnoticed, *e.g.*, ordinary acts of politeness, also to yield to temptation more readily, *e.g.*, to "crib" at examinations. There is inability to control temper or to keep thought from responding to improper suggestions. In reply to the question, Do you find moral power weakened as the result of fatigue? ninety per cent. answer yes.

(e) Under general sensations of fatigue are mentioned headache, accompanied by feeling of fullness in brain region, flushed face, color blindness, sore eyes, heavy eyelids, burning cheeks, cold feet, drowsiness, irritability, inability to give attention, loss of power of muscular co-ordination and inhibition.

The results are much the same as those recorded by Galton in his résumé of replies to questions asked 116 teachers in England, recorded in the Journal of the Anthropological Institute, 1888. In reply to the question, When you are physically tired do you find that you are lacking in mental vigor? eighty-one teachers answer yes; fourteen answer no.

To the question, When mentally tired are you physically weakened? sixty-seven answer yes; twenty-eight answer no.

To the question, What is the most prominent symptom of mental fatigue? thirty-nine students out of ninety-five answer "headache."

2. What work can be performed easily when the mind is fresh which is found to be difficult when the mind is fatigued? The usual opinion is that fatigue lessens power to do all mental work, special weakness being noticed in power to commit to memory and to recall old knowledge, *e.g.* history, dictation. There was considerable difference of opinion here. One report says generally all work requiring concentrated attention, more particularly such work as demands original thought, *e.g.*, deductions in geometry. Another says a pupil with strong reasoning powers will notice less difference in the fresh and fatigued conditions in working common sense problems than he finds in memorizing, while one with strong retentive power will find little difference in memorization rate but will be unable to do anything difficult in reasoning if fatigued.

To the question, Which do you find the more difficult, memory-work or thought-work (meaning mental constructiveness)? sixty-four teachers out of ninety-five answer memory work, thirty-one thought work.

This would seem to accord with Dr. Bain's contention where (in Education as a Science, p. 23) he says, "The plastic or retentive function is the very highest energy of the brain, the consummation of nervous activity. To drive home a new bent, to render an impression self-sustaining and recoverable, uses up more brain force than any other mental exercise."

3. At what time of day is the highest mental activity? There were a great many tests made with classes during school hours.

A class of 33 boys averaged 41 per cent. on mental arithmetic at 9.35 a.m., and 23 per cent. when fagged after an examination in history at 12.50 a.m.

The tests in this case consisted of similar problems with figures changed.

The highest mental activity seems to be, with ordinary school conditions, in the early part of the morning; at the beginning not so high, but increasing to the maximum at about the end of the first hour.

That is, the highest efficiency is usually reached from 9.30 to 10 a.m. The next highest period is probably from 1.30 to 2.30 for senior pupils; but with very young children the morning is better than the afternoon.

Individually there is great difference of opinion. Answers are about evenly divided between morning and evening for adults. Many give late in the evening, from 9.00 to 12.00, or even later—especially when they have had full sleep the previous night. Some state that the mind is clear to understand what is presented in the morning, but rather passive as regards ability to do original work. In reply to question 3, ninety-four teachers answered as follows: 1 at 4.30 a.m., 1 at 5.30 a.m., 8 at 6.30 a.m., 9 at 7.30 a.m., 4 at 9.30 a.m., 13 at 10.30

a.m., 5 at 11.30 a.m., 4 at 7.30 p.m., 10 at 8.30 p.m., 16 at 9.30 p.m., 7 at 10.30 p.m., 9 at 11.30 p.m., 7 at 12.30 a.m.

4. To what extent does change of subject take the place of rest? The usual answer is, Change of subject, when the change is radical, rests in the same way as change of position, *e.g.*, a change from a thought subject, such as arithmetic, to a manual one, such as drawing, affords relaxation. A primary teacher writes, "An entire change of subject is as good as a rest, often better."

Change of subjects requiring similar activity of mind, *e.g.*, arithmetic and algebra, affords but little rest.

Change of subject after much fatigue does not furnish rest to any great extent.

Of ninety-five teachers, ninety answer that in fatigue they reach a point where change of subject does not afford rest.

5. What results follow from detention at intermission or after school? Some answer: "Pupils detained at intermission and after school are less able to do good work, unable to concentrate attention, restless, show that they feel aggrieved, stubborn."

"Perfunctory work, sullen and spiritless manner, loss of elasticity and responsiveness, follow as a rule."

There is great difference of opinion. One teacher says: "Detention after school is a mistake, mentally and morally."

Another says: "Detention is the proper remedy for lateness or carelessness. Pupils accept it as the discipline of consequence, and no evil results follow."

All agree that if pupils are detained at intermission they should be given time for physical exercise apart from the class at another time.

In answer to the question, Do you find detention at intermission unsatisfactory? eighty-one out of ninety-four answer yes.

6. How much time should be devoted to intermission and how should this time be distributed throughout the day to secure the best results for your class?

Some answer: "For young children short recesses at least every hour. For older pupils one recess of fifteen minutes in forenoon and one in afternoon. A short recess of five minutes every hour, provided pupils could have access to play grounds or gymnasium."

Some allow two or three minutes at end of each period for change of position, when pupils are allowed to communicate, etc.

One teacher recommends for intermediate pupils from 9.00 a.m. to 4.00 p.m. for working hours, with 2½ hours recess, as follows: 9.50-10.00, 10.50-11.00, 12.00-2.00, 2.50-3.00.

To the question, Do you think that in country and village schools as much work would be accomplished in the day if there were one and one-half hours noon intermission instead of one hour? fifty-nine teachers answered yes, and thirty-four answered no.

The problem regarding the proper length of the school day (notwithstanding the experiments of Dukes, Birkenstein, and others) is still unsolved, and has indeed little data collected as basis for solution.

7. Is resulting mental fatigue greater when pupils are allowed to remain standing during recitation than when allowed to remain sitting? In general the answer is,

"Pupils show all the evidences of great mental fatigue if compelled to stand during entire recitation, especially if recitation be long. With small pupils this is not so noticeable, especially when the lesson is short."

8. What fatigue symptoms follow from working in a room at too high a temperature? The following are noted:

"Headache, disinclination to work, restlessness, dullness, confusion of ideas, dizziness, lack of enterprise, noise, all symptoms of general fatigue, etc. Delicate children are very sensitive in this respect." Great unanimity prevails in answering this question. Ninety-four out of ninety-five answering: All the symptoms of fatigue.

9. After working in a room where you have grown to be unconscious of distracting noises, are you really more fatigued than if the noises do not occur?

One teacher says: "I am much more fatigued when working with noisy surroundings than when under quiet conditions, though able easily to be-

come absorbed in work and unconscious of noise. There is a subconscious fatigue."

Will power and sense power are opposed, causing fatigue. Some become accustomed to noise, and are disturbed when it ceases.

To this question fifty-one answer yes; forty-four, no. 10. In reply to the question, In your past teaching would it have been better if you had sat down more? thirty-eight answer yes; fifty-seven answer no. Some say "Yes, during my first year."

11. In reply to the question, Did you injure your health by over-fatigue when attending school? forty-four answer yes; forty-four answer no.

Of the forty-four who answer "yes," twenty give examinations as the chief cause, and twelve give home work. The other causes assigned are closely related to these, e.g., over-study, long hours, etc. One student says, I had six hours home work every night.

To the question, At what age was this overwork, one answers 10 years; one, 11 years; one, 12 years; one, 13 years; one, 14 years; two, 15 years; six, 16 years; eight, 17 years; four, 18 years; three, 19 years; four, 20 years; four, 21 years; two, 22 years. The remaining six did not answer definitely.

To the question, How long did these fatigue results remain, a large number answer about three months, five answer one year, five answer two years, seventeen say not yet entirely recovered.

12. To the question, Have you had experience in remaining in school during noon intermission, taking cold lunch, and assuming responsibility for order? forty-one teachers answered yes.

To the question, What per cent. of your teaching power during the afternoon was lost as the result of this detention, eleven answered more than 25 per cent., sixteen answered 25 per cent., seven answered 20 per cent., seven less than 20 per cent.

To the question, When pupils have been retained from 12 to 1 after a full forenoon of work from 9 o'clock, what percentage of an active hour's work was done? the general reply is that in the hour pupils did less than half an hour's work.

A few points may be noted by way of summary: 1. All exercise, physical or psychical, when kept within the limits of normal fatigue, is healthful, and such exercise is necessary for the growth and development of body and mind.

Chaplain Searles, formerly of Auburn State Prison, says "the prime cause of crime is idleness." Satan always finds mischief for idle hands, and it must forever be true that "the rest of the laboring man is sweet" if it be normal rest. There is such a thing as a wholesome, healthful, happyfying-normal tire of mind and of body, and it is the teacher's duty to feel its thrill from time to time, and to see that pupils are not deprived of a similar pleasure.

There are, no doubt, many people, in school and out of it, who are suffering from a chronic attack of an old-fashioned disease called laziness. Such persons will find much food for honest thought and improvement in an investigation of the advantages of normal fatigue.

2. Exercise carried beyond the fatigue point interferes with growth, is detrimental to the health of body and mind, and attacks the most sacred citadel of the personality, the moral power to resist temptation. "Tire and tire and at it again," when persevered in, may shatter every prospect for this life, and perhaps for the life to come.

Signs are not wanting to show that this great law is being ignored. The asylums are being overcrowded. How many there are whose hearts are beating too rapidly, who are working at high pressure and burning the candle at both ends!

The competition in all walks of life, the worse than slave-driving power of the monopolist, the demands of society and fashion, are hourly consigning their victims to lives of misery. The disease of neurasthenia has evidently come to stay.

With smaller classes, shorter hours, and improved hygienic conditions, the results in schools are more satisfactory than they were, and in many cases school authorities are to be congratulated upon what has been accomplished. But there is still need of watchfulness and improvement, even in the best. The fact that nineteen teachers out of fifty say that in three years' experience they believe they have injured their health is suggestive. How short the teacher's life in the schoolroom is! How often a student fresh from the Normal School (holding a certificate of highest grade), enthusiastic, brilliant, full of life and vigor, takes charge of a

large city class, teaches conscientiously, and in two or three years becomes so transformed that one can scarcely recognize in the frail, worn out woman of middle age the bright, sparkling girl of three years before. This is a species of slow suicide, and it is too common in our schools.

And what about the children? Galton and others have found that most teachers think they have few, if any, cases of over-fatigue in their classes. I find, however, that to the question, Did you suffer from over-fatigue yourself when attending school? fifty per cent. of the teachers answer yes! The ages given are worthy of note. Of thirty-eight who answer yes, there are only five who place the age of injury at under fourteen years. Eight place the age at seventeen. The time when the most mischief is done is when students are preparing for their Departmental certificate examinations. These examinations are usually taken a short time after the period of adolescence, when the vital forces are at low ebb. Dr. Burnham says, "An investigation of the subject of fatigue must do something to melt down the Moloch of examination." It will also do something to emphasize the dangers of excessive home work. The student who reports "six hours home work" also reports "not yet recovered from the effects."

In collegiate work it is very easy for one specialist master to assign home work in his subjects sufficient for the entire night. It is well for the teacher occasionally to wrestle with the question, What does it profit a student if he pass an examination and lose his health? The proper solution is not to discard examinations, which are necessary, nor home work, which is healthful, but to adopt the Aristotelian mean between "no work at all" and "overwork, causing excessive fatigue."

The number of hours and distribution of subjects in the school day is too wide a subject for the limits of this paper. The data are still insufficient, but all the conclusions arrived at seem rather to tend to the opinion that the hours should be shorter. For example, Birkenstein concludes that in the seventh year children should have eleven hours' sleep and three hours' school work. Fifty-nine teachers out of ninety-four express the opinion that schools opening at 9 and closing at 4 will do more work with one hour and a half noon intermission than with one hour.

7. The effects of overwork upon the moral sense are very great. Dr. Baker, of St. Paul's, says "a tired congregation means an empty contribution box." It would be interesting to know to what extent the decline in church attendance by the "lapsed masses" is due to increased pressure of work, and whether a half holiday on Saturday afternoon would not improve church attendance.

Children who are allowed to run the streets at night quickly run to ruin, partly because they are fatigued after the experiences of the day, and so fall an easy prey to temptation.

8. There are certain well-established remedies for fatigue. The most effective is *sleep*. It is doubtful whether one suffering from exhaustion can have too much sleep. Nutrition must also be looked after. There must be just as much nutrition as digestion will stand. Nitrogenous foods are probably not the best in such cases. Some one has said we shall be remembered as a generation of potato eaters with weak nerves. Energy must be carefully husbanded and not wasted by undue demonstration.

Every true teacher teaches in such a way as to feel energy go out of him, but he does not teach every lesson in this way, and he must be content to hasten slowly betimes. We sometimes teach so rapidly, and assist so much, that children have not the time for individual investigation.

The close relation between physical and mental tire must be kept in view. To quote the words of Paul Pry, "Much walking soon tires and all things grow worse."

The teacher should sit down at times, and it would not be out of place in every training school to study how to teach so as to husband energy.

I remember a teacher who examined papers until midnight, and came to school so nervous and irritable that he was unfit for work. This had gone on for some time, and at length he took the pupils into his confidence, and asked them whether they would rather examine their own papers under his supervision, and have him vigorous and good-natured, or continue as in the past. The pupils examined their own papers after that.

The element of repose should be cultivated. We

all avoid intense people. "He makes me tired" is a slang phrase applied to one whose cadence is too fast or too slow for our nervous system. Let us endeavor to conform to the old motto, "When most impressed be most possessed."

We must avoid over-fatigue—getting completely fagged out. There must be rest and relaxation.

There must also be outdoor exercise away from school environment. It is found that in resting a muscle occasional stimulus hastens relaxation. The unanimous verdict that remaining at school during noon hour, under the strain of responsibility, lessens working power at least 25 per cent. during the afternoon is worthy of consideration from the economic as well as from the educational standpoint.

Many teachers have found that difficult cases of discipline have become easy after a brisk walk of half an hour in the open air. A noisy, restless class becomes studious and quiet after a lively recess.

Dr. Arnold was not far astray when he said, "I shall stop teaching school when I get too old to go upstairs three steps at a time."

Science.

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

NATURE STUDY—LESSONS IN THE SCHOOLYARD.

BY F. O. PAYNE.

LESSONS ON A RAINY DAY.

A rainy day is always more or less difficult to get through with. The difficulty is equally hard upon the teacher and the pupil. There is something in the atmosphere that renders all such days oppressive. The opening exercises drag; the first class fails; the teacher scolds; the other classes go badly; they are kept in at recess; and so on, until the close of school. Then the pupils go home, thinking how hateful a place school is, and what an "ugly old bear" the teacher is; and the teacher goes home with a heavy heart, thinking that her lot was not cast in pleasant places, and wishing that she were a clerk, stenographer, or nurse-maid.

But why adhere so rigidly to the programme on such a day? Why not turn this very kind of a day to account, and make it a theme for instruction to the pupils and relaxation to yourself?

There is much in an ordinary shower to furnish themes for instruction in all manner of lines of thought.

If the weather threatens rain, bring out the fact in some way. The following is suggested:

BEFORE THE RAIN.

What makes it so dark in the schoolroom? Why have clouds come between us and the sun? What kind of clouds are they? Rain-clouds. Do we always have clouds before a rain? Let us go out and look at the clouds. What color are they? Why do they move about so fast? Why does the air feel so damp? In what direction is the wind blowing? What do we call such a wind? A north wind comes from the north. Winds are named from the place whence they come.

DURING THE RAIN.

Children, see how the rain is falling. Why are people holding their umbrellas in that slanting direction? How does the water get up so high in the air? In what form is it before it falls? Vapor, like steam from the kettle. Did you ever see a cloud in the house (steam)? How did it look? When did you see it? Why does the water change into steam in the kettle? Why does water change to vapor outdoors? Do I have to heat water to make it change to steam? Let us put some water here in this dish and leave it until to-morrow. What is the rain doing to the ground? Where does the water go after it falls on the ground? What becomes of that which soaks into the earth? Will we ever see it again? When? What becomes of the water that runs off on the ground? Why does it run toward the gutter Mary? Dwell upon slopes. When it gets to the gutter, why does it not stop running, Charlie? Where, then, does it go, Emma? Why does it

flow that way? Push these questions until no one knows where the water goes, and then appoint some pupil to find out. Thus, for example, you may find that the water runs in little rills to the gutter because the land slopes that way; thence to another ditch, thence to a river or pond. Do not trace it more than a mile, and with little children a half mile is enough. Lead them to see that it goes on and on. Teach them that there is something beyond; so will their minds, beginning with the little rills, open out toward the rivers and sea. The gentle slopes (plains) and steep slopes (hills) are easily taught in this manner.

AFTER THE SHOWER.

Now, children, we will try to see what the rain did to the ground. See where the little drops fell here under the eaves of the house. What do you see here? Why do these hollows come here? What has it left behind? Let us find where the water ran away from the house. Who can find the place? What makes you think this is the place where the water ran? Yes, it has left a little channel in the ground. The little stream that ran away from the side of the house did some work, didn't it? Every little stream has its work to do.

Let us follow this little channel, and see where it goes. What made it bend here, Freddie? Why did it go so straight here, Fannie? Why did it get larger here, Josie? Now we will follow it. Here it is quite large. Why is the coarse sand left here, and the fine sand carried farther down? Georgie, take this stick and see where this little pond is deepest. Why is the fine sand piled over there? Where is the coarse sand? Here is a weed dug out by the little stream. Let us see if we can draw on our slates the shape of this little pond, and show where the sand is piled, and where the little stream runs into it and out of it.

The above lesson gives opportunities to bring out higher lessons with higher classes. The rainfall is the origin of streams, and the laws of streams apply to the diminutive rill whose source is the eaves of the house and whose mouth is the little temporary pond in the lowest part of the schoolyard. Whole rivers and systems of rivers may be traced and mapped, and the laws of their growth, flow, deposits, and erosion studied from so humble an object, the watershed in this case being the roof of the building itself, and for that reason all the more conspicuous.

The formation of a mud-bank, *S*, and the delta, *D*, are well worth study. This shows how streams are the enemies of lakes. The inlets are constantly trying to fill up the lakes with mud, while the outlets are trying to cut open a wider and deeper channel to let out the water stored up.

Our pupils found a rill flowing down the hillside, which emptied into a small puddle of quiet water. At the mouth of this a delta had formed with thirteen separate streams. The sediment had been sorted in a truly wonderful manner. Practical and systematic observations on temperature, by the aid of the thermometer, are valuable as lessons. They are best given in the schoolyard. I have found them very helpful to geography work later on.

PROBLEMS IN PHYSICS FOR PRIMARY STUDENTS.

SPECIFIC GRAVITY.

1. Weight of lead 40 grams, height of water in a graduate jar 40 cm., rise of water when lead is immersed 10 cm. Find Sp. G. of lead. Ans., 4.
2. A nail weighs 10 grams in air and $8\frac{1}{2}$ grams in water. Find the Sp. G. of iron. Ans.
3. A piece of cork when totally immersed in water displaces 100 c.cm. It weighs 20 grams. Find its Sp. G. Ans., .2.
4. A piece of wood weighs 35 grams; when attached to a piece of lead which weighs 20 grams in water, both weigh in water 18 grams. Find the Sp. G. of the wood. Ans., .946.
5. An iceberg has 400 cubic metres above the water. Sp. G. of ice is .9. Find the volume of the whole iceberg. Ans., 4,000 cubic metres.
6. A specific gravity bottle weighs 45 grams. It holds 1,000 c.cm. of liquid. When filled with mercury it weighs 13,545 grams. Find the Sp. G. of mercury. Ans., 13.5.
7. Twelve cubic feet of oak weighs 875 lbs. Find its Sp. G. Ans.
8. A cylindrical piece of wood floats with $\frac{3}{4}$ its volume immersed in water and $\frac{7}{8}$ immersed in alcohol. Find Sp. G. of alcohol. Ans., .857.

9. If the Sp. G. of gold is 20, and of silver 10, find the specific gravity of a lump of 20 grams gold and 25 grams silver. Ans., 14.4.

10. What part of the volume of a lump of iron Sp. G. 7 will be above the surface of mercury Sp. G. 14? Ans., $\frac{1}{2}$.

11. Weight of a glass globe filled with air 500 grams, empty 480 grams. Filled with hydrogen, 482 grams. Find Sp. G. of hydrogen. Ans., $\frac{1}{10}$.

12. Twenty c.cm. of silver Sp. G. 10.5 are fused with 40 c.cm. of copper Sp. G. 9. Find the Sp. G. of the compound. Ans., 9.51.

13. Three-fifths of a piece of wood whose volume is 20 c.cm. is immersed in water. What volume of iron Sp. G. 7 placed on the wood will just immerse it? Ans., $1\frac{1}{7}$ c.cm.

ANSWERS TO CORRESPONDENTS.

A CONTRIBUTOR, Wroxeter.—What would be the effect on the seasons if the earth's axis were perpendicular to the plane of its orbit?

ANS.—We should have but two seasons—summer where we now have winter, and winter where we now have summer. The winter would be colder than now, and the summer also (*i.e.*, in the temperate zone.) The winter would extend from March 21st to September 21st (*i.e.*, when the earth is in aphelion), and the summer the other six months.

Why is the breath warm when blown softly on the hand, and cool when blown swiftly?

ANS.—The breath is laden with moisture. This, when it condenses, gives out heat. If the breath is blown gently, the moisture is not carried away from the hand, it is condensed. If blown swiftly, it is not retained but forced away, and also with it the natural moisture or perspiration of the hand. To convert this perspiration to vapor requires heat. The hand supplies this, and is thus left cooler.

State clearly why there are four seasons in the temperate zone.

ANS.—Examine carefully the advertisement and illustration of the "Helioterra" in THE EDUCATIONAL JOURNAL, and you will have no difficulty in settling this point.

BOOK NOTICES.

HIGH SCHOOL PHYSICAL SCIENCE, PART II. By F.W. Merchant, M.A., London Collegiate Institute. Copp, Clark & Co., Publishers.

This is a companion volume to Part I., and is intended to cover the courses of Forms III. and IV. in physics. The subjects treated are mechanics, hydrostatics, sound, light, and electricity. In all departments a thorough experimental basis is laid for future work. Multiplicity of experiments is avoided, while not sacrificing the clearness of the underlying principles. On every page it shows traces of the experienced teacher. The illustrations are good, the statements of principles terse and lucid, and the directions for carrying out the experimental work so clear that no student should fail. The author and publishers are to be congratulated on the production of so admirable a school book.

ADVANCED CHEMISTRY. The Copp, Clark Co., Publishers. W. S. Ellis, Principal Collegiate Institute, Kingston.

This little volume contains a series of experiments on the course in chemistry for Senior Leaving students, for whom it is primarily intended. A student who carefully performs the experiments outlined should obtain a good grasp of the subject.

School-Room Methods

SPELLING.

In noticing the spelling work of children from the first to the fourth grade inclusive, it seems quite evident that the great majority of the words which they misspell are the words which are entirely familiar in meaning, but to which their attention has not been especially called, and which they have formed the habit of spelling wrong in many cases. To, too, two are very frequently misspelled, so also are new and knew, no and know, there and their. Then such words as dirt, turn,

leaves, and stalk, words which the children constantly use and which occur in their written work are (I was about to say), usually misspelled. In looking over all these written exercises (the exercises from the lower half of the grades especially, and comprising all phases of work), I believe I am safe in saying that the misspelled words are, four out of every five, those which the children have frequently used from their earliest period of talking and which they constantly use in their common conversation.

Because of this fact, we have undertaken to make our spelling work for the lower grades include, at least for one phase of it, those common words which the children use both in their talking and writing. We have undertaken, to begin with, the words which are most frequently used in written work, and to continue the spelling of such words as long as we find they misspell them. Each teacher is supposed to keep a list of the common words which her children frequently misspell, and to bring them into succeeding spelling lessons again and again until the correct form is fixed. These words are, of course, very different in form and sound. They comprise words that might be spelled according to rule and those which are "a law unto themselves."

The second idea in the spelling work in the lower grades (especially in the work of the latter half of the first year and all of the second and third years) has been to group words that have some particular sound and to study these words in the groups. No special attempt is made to dwell upon each particular word, but the entire group, or as many as it is practicable to take, are studied, and when sufficient time seems to have been put upon these, if there are any exceptions to this common order of spelling and if these exceptions are such that the children need to have their attention called to them at present, they are also taken. In the group of words, tool, school, spool, fool, and cool, the sound ool represented by ool. In connection with this, I do not think it is well to call their attention to such words as rule, where the sound ool is shown by ule—the u after r having the sound of long oo. The other words with the long oo had best be given fully and clearly, and no suggestion made as to any word that sounds the same, but is spelled differently. After this one ending is pretty well associated with the particular words, then it is all right to suggest other words.

The third fact that we are also trying to insist upon as a key to spelling and pronunciation is what is commonly called some of the rules of spelling. We are trying to have little people see that c and g are hard and soft when they occur before particular letters; for instance, they are both hard before a, o, u, etc., and both are usually soft before e and i. We also wish these little people to learn, if possible, before the close of their first year, that the final e in most words makes the preceding a, e, i, o, or u long. The knowledge of these simple principles is a very great aid in the pronunciation of new words learned in spelling.

So it seems to me there are three ideas to be kept in view in primary spelling, and these are the three which I have just given. First, that children should learn to spell the common words which they constantly use in their written work, and the teacher should make a special effort in seeing that all these little words are completely mastered by every child in the school. Second, it is a great saving of energy to teach words in groups; for instance, head, dead, spread, dread, and thread can all be learned by taking them in a group almost as quickly as any one can be learned alone. In the third place, the very easy and common principles of pronunciation should all be taken as quickly as the child can understand them. By learning that c before o is hard, and that there is not a single word which they ever use (or which any of them will probably use for several years) beginning with the letter k before the o, the child ought to know how to begin the spelling of any new word that begins with this particular sound.—*Indiana School Journal*.

A man fifty years old has, according to a French statistician, worked 6,500 days, slept 6,000, amused himself 4,000, walked 12,000 miles, been ill 500 days, has partaken of 36,000 meals, eaten 16,000 pounds of meat and 4,000 pounds of fish, eggs and vegetables, and drank 7,000 gallons of fluid, which would make a lake of 800 feet surface of three feet deep.

Primary Department.

A SUBTRACTION LESSON.

RHODA LEE.

We had been working simple subtraction for several days, and this morning had reached the subject of borrowing. Everything was in order, slates cleaned, pencils, board, and chalk ready for use, and as bright a class of little folks before me as could be found in the country, and yet I dreaded beginning the lesson. It had on other occasions been unsatisfactory. The children had seemed puzzled, and I had determined that this time it should be made clear to them.

On my table were three empty chalk boxes, which bore respectively on the faces next the children the labels HUNDREDS, TENS, and UNITS. I had provided myself with a large quantity of tooth-picks and a number of elastic bands. In preparing for the lesson I had made a number of "ten" bundles, and also "hundreds," which were composed of ten small bundles held together with a strong elastic.

Turning up the boxes I said, "They are empty, children. We will now put in our stock like Mr. Billings did in his new store last week. Here are six loose sticks. Fred may come and put them in the right box. Four bundles of ten to be put in the proper place. Now five big bundles. Write on your slates the number held in the three boxes." The number 546 was, of course, written without hesitation, as they had done the same thing very often in the number lesson.

Writing 546 on the blackboard, I placed below it the number 259. "Nine to be taken away from the 'units' box. But there are only six there. What shall we do?"

Suppose your mother were making a cake, and just at the last minute, no one being at home to go to the store, discovered she had no baking-powder. What would she do? Up went the hands promptly. That was something they understood. "Borrow some" was the reply from several children. "Would she go five or six doors down the street?" I asked. Of course this elicited the answer, "Next door." "Well, that is what we will do in our trouble. We will go to the next box and borrow a bundle of ten. Removing the elastic we drop in the ten loose sticks. Now we have sixteen, and can take away nine, leaving seven in the box.

"How many tens have we left now? We had four, and we borrowed one, so that we have only three, and we want to take away five." I did not have to question long before the answer came to borrow a big bundle from the "hundreds" box. Removing the large elastic, the hundred bundle fell into ten small ones (bundles of ten each), and placing these with the others we had thirteen tens. Taking away five from thirteen left eight in the "tens" box. Then, as we had borrowed one of the hundred bundles, there were but four left. Removing two, the

problem was finished. We repeated this and a number of similar problems several times with the actual things before working in the abstract. This was one of my early plans of teaching subtraction, and I have never found any better way of making clear the borrowing process.

THE FROGS WERE TALKING.

At close of the day,
As I went walking,
This is the way
The frogs were talking.

"Croak, croak"—the big one spoke,
"Climb up, little frog,
If your legs are able;
You will find this log
Is very comfortable."

"Croak, croak"—the little one spoke,
"Oh, my darling Pappy,
Aren't we gay and happy?
Oh, my pretty Mammy,
Aren't we cool and clammy?"

"Croak, croak"—the big one spoke,
"Can you tell me whether
We shall have clear weather?
All the stars to-night
Are especially bright."

"Croak, croak"—the big one spoke;
"Mercy! How it shines,
Up above the pines,
That little moon, so high
In the crystal sky."

"Croak, croak"—the jolly one spoke,
"Let us make a noise.
There are not any boys;
I dearly love a riot,
And the lake's too quiet."

Splash! dash! away with a crash,
Off of every stump,
Each one gives a jump,
And, diving as they scatter,
Put an end to their chatter.

That was the way
The frogs were talking,
At the close of the day,
As I went walking.
—Blanche Nevin.

A DEVICE IN COMPOSITION.

BY KITTIE L. KOUFAL.

In most second and third grades a little written composition is expected from pupils. I believe every teacher finds that, no matter how much the subject is discussed in an oral recitation, the pupils seem at a loss as to *how* and *where* to begin, and *what* to write next.

One day my class was talking about domestic animals, and I do not know or remember how it came about, but I asked one of my little boys this question: "Paul, if you had a horse, how would you care for him?" That question seemed to illumine his countenance, so that I knew there was much he wished to tell, and of course I asked him some questions as to what kind of a horse he would like—a black, white, bay, roan, etc.—and what he would call it, how he would treat it should it be inclined to be stubborn, and what he would expect of the horse; and thus one question led to another, showing me that the little fellow knew more about a horse than I expected, and probably he found out that he knew more than he thought he did.

The next day, instead of the regular writing lesson, I wrote this question on

the board: "If you had a pet dog, how would you care for him, and what would you expect of him?" (I did not ask about the horse again because I feared some might be led by Paul's thoughts of the previous day, and kept that subject for another day.)

After I had written the question I gave the children paper and pencil, and told them to tell me nicely, in writing, their full answer to that question. That was a fifteen-minute exercise. Their spelling was not perfect, of course, much less their composition; but to read over the thoughts (some very amusing ones) of the children was enough to convince one that if the children had the power to write words and sentences correctly, they could write quite pleasing articles because they were so childlike and original.

It seems to me that here is a plan for good work in that line. So far I have taken up three subjects in this manner—the "dog," "horse," and "sheep"—and I find that our "stories" are improving in spelling, language, and length; indeed, some are too long.

As yet not one has told me "they didn't know what to write."—*Teachers' Institute.*

POPPY-LAND EXPRESS.

The first train starts at 6 p.m.
For the land where the poppy grows;
The mother dear is the engineer,
And the passenger laughs and crows.

The palace-car is the mother's arms,
The whistle, a low, sweet strain,
The passenger winks and nods and blinks,
And goes to sleep in the train.

At 8 p.m. the next train starts
For the poppy-land afar;
The summons clear falls on the ear,
"All aboard for the sleeping-car."

"But what is the fare to poppy-land?
I hope it is not too dear."
The fare is this—a hug and a kiss,
And it's paid to the engineer.

So I ask of Him who children took
On His knees in kindness great,
"Take charge, I pray, of the trains each day
That leave at six and eight.

"Take charge of the passengers," thus I pray,
"For to me they are very dear,
And special ward, O, gracious Lord,
O'er the gentle engineer."
—Edgar W. Abbott.

Attention is called by a recent writer to some of the remarkable effects produced by low temperature upon the physical properties of matter. Among the phenomena of this class mentioned is the fact of the vigor of chemical action decreasing and the elements apparently losing their ability to combine as their temperature is lowered. Thus, phosphorus and oxygen, which so energetically combine at ordinary temperatures, become more and more chemically inert as this temperature is decreased, until at 200° below the freezing point of water they appear to be unable to unite—in other words, there is in the absence of heat no chemical affinity. As heat is known to consist in the internal vibratory motion of atoms and molecules of matter, it appears that in the absence of such vibratory motion there is no possibility of such chemical action, while on the other hand, as the temperature falls, the magnetic and electrical qualities of some or all of the elements are exalted in a proportional way. Thus oxygen, which is feebly magnetic at ordinary temperature, becomes strongly magnetic at 200°, and when liquefied, as it easily may be, behaves like iron to a magnet, and will adhere strongly to its poles.

scrofula

Any doctor will tell you that Professor Hare, of Jefferson Medical College, Philadelphia, is one of the highest authorities in the world on the action of drugs. In his last work, speaking of the treatment of scrofula, he says:

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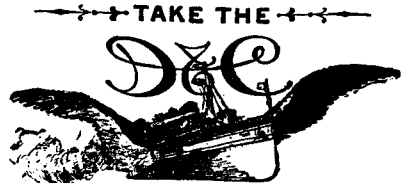
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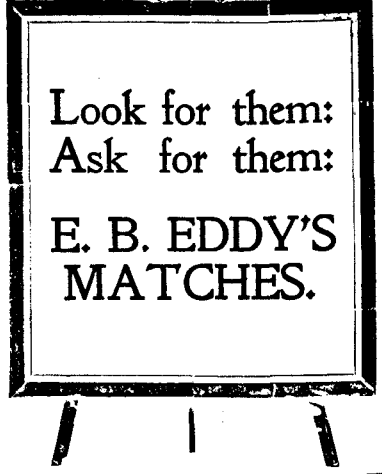
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