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CONTENTS OF THIS NUMBER.

SHORTER EDITORIALS... 113
CONTEMPORARY THOUGHT... 114
NOTES AND COMMENTS... 114
LITERATURE AND SCIENCE:
Two Poems... JAMES RUSSELL LOWELL 116
The Fairy Land of Science... MISS A. B. BUCKLEY 116
CURRENT EDUCATIONAL OPINION:
University Management... W. J. ROBERTSON, M.A. 118
The Mutual Obligations of Teachers and Trustees. A. PURSLOW, M.A., LL.D. 119
LONGER EDITORIALS:
Physical Recreation in Schools... 120
BOOK REVIEW... 120
TABLE TALK... 121
MUSIC... 122
DRAMA... 122
ART... 122
PRACTICAL ART:
Perspective: Fifth Paper... ARTHUR J. READING 123
THE HIGH SCHOOL:
Why we Speak English... RICHARD GRANT WHITE 124
THE PUBLIC SCHOOL:
Primary Arithmetic... ELLA KINSLEY 124
THE KINDERGARTEN:
Deeds of Kindness... 125
Importance of Children's Play... BARONESS VON MARENHOLTZ-BUBLOW... 125
EDUCATIONAL INTELLIGENCE... 126
PERSONALS:
Educational... 127
General... 127
EXAMINATIONS:
Papers on Geography... 128
BOOKS RECEIVED... 128

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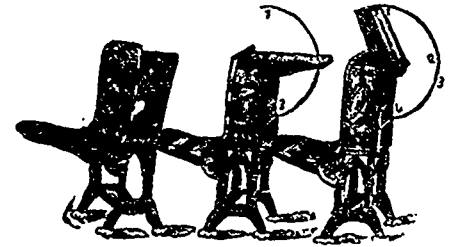
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THE bearings of indefectible equanimity upon the relationship between pupil and teacher are numerous, varied, and complex. How easy it is for a master who never "loses his head" to command the respect of those under him. How effective is a quiet, judicial manner in gaining the attention of one's scholars. How smoothly the unruliness, which must inevitably at one time or another break out, can be overcome by a nicely-balanced mean between petulant anger and

easy-going long-suffering.—In short, what a difference there is between the behavior of pupils under the governance of a nervous, irascible, impatient master, and the behavior of those ruled by gentle firmness, and unswerving justice.

Now, as to the means by which these latter may be cultivated—for cultivated they assuredly can be:—First and foremost comes one's own health. Physical quietude is a *sine qua non* to mental quietude. True, they act and re-act one upon the other: give the rein to worry (that so frequent precursor of irascibility), and unconquerable nervousness is the result. But by attention to the ordinary rules of health, there will by degrees be increased the ability to restrain, if not to put an end altogether to, this mental worry. Preserve the physical powers in a healthy state, and, with the beneficial effect of this upon the nervous system, will come the power to allay irritability. It is possible, too, keeping in mind, the interaction of mind and body, to cause the former to do its share towards inducing a healthy state in both. By putting a force upon one's self: by determining that this or that little matter *shall not* worry one out of school hours; that those hours of the day which one spends out of the school room shall be entirely devoted to quiet mental and physical recuperation; by making up one's mind that to-day's troubles shall not affect to-morrow's duties—we unhesitatingly say that, what before were insurmountable and obscuring heights, will now be surmountable and revealing points of vantage.

WHAT, then, we have more particularly to lay stress upon at this present is this: Commence early to form habits of self-restraint; take care at the outset of a teaching career not imperceptibly to lose the power always to be master of the emotions; impress upon the will the fact that unless it is brought under subjection, the pupils never will be; accustom the mind to preserve, by effort, its equanimity under the most arduous and trying circumstances.

FOR what, in truth, has at bottom success in all professions which involve the *command of others* depended? Has it not depended on *command of self*? *Satis imperat sibi imperiosus.*

THE necessity of self-command in all callings which involve command of others is an old maxim—older even than that ancient Delphic inscription, "Know Thyself." In the *Dhammapadam*, the oldest of the Pali books, is the text, "He who should conquer in bat-

tle ten times a hundred thousand were indeed a hero; but truly a greater hero is he who has but once conquered himself." Parallel passages to this are numerous. Perhaps the closest is, "He that is slow to anger is better than the mighty; and he that ruleth his spirit than he that taketh a city." *Proverbs*, xvi., 32; Dunbar's line may be added: He rewils weill that weill him self can gyd.

ONE of the most telling examples of the intimate connexion between self-command and that success in preserving one's equanimity so powerful in influencing others, is found in the life of Warren Hastings. *Mens æqua in arduis* was his crest, and of this he was the very concretion. "Calm indomitable force of will," says Macaulay, "was the most striking peculiarity of his character," and we need but to point to his career and to the many known anecdotes which tell of his mastery over even the most obstinate of the brute creation to enforce the maxim.

TO command is the nucleus of the duties of young teachers. They have to assert their authority. Until that is done nothing can be accomplished. It is the basis of their power—the shield by which to repel any attacks aimed at their influence. Let us repeat this, *the shield by which to repel any attacks aimed at their influence*—and the only shield upon which also, be it remembered, they may afterwards emblazon any brilliant successes which they may achieve.

COMING back, then, to our original proposition: this *mens æqua* is to be possessed in its entirety only by attention to the ordinary rules of physical and mental health. It is possible, of course, to possess it to a certain extent even in cases where both the mental and physical powers are below par. But in these cases the preservation of a calm judgment is up-hill work, and only to be attained by an indomitable will. With this, nature has gifted but few. Our thoughtful advice, therefore, is, recognizing the intimate connexion which exists between "strong nerves and a sound digestion," and success in dealing with children—our thoughtful advice is: Make not light of this factor as a trivial one amongst the essentials of a good teacher, but rather consider it as one of paramount importance; remember that the influence of character upon character is incalculable; that the side of character upon which we have laid so much stress is the side that affects, perhaps, most directly those under command; and that until of this a firm foundation has been built, no superstructure is possible.

## Contemporary Thought.

A *Gymnastic Manual* of the exercises practised by the junior class in Amherst College, has been prepared under the direction of Dr. Edward Hitchcock.

The *Dictionary of English History* announced by Cassell & Company, will be ready in a few days. It is edited by Sidney J. Low, B.A., and F. E. Pulling, M.A., and will be issued in one large octavo volume of 1,120 pages.

THE last issue of *The Nation* contains a three-column critique of Alexander Dumas' (the son) new play, *Denise*, which was lately acted in Paris. The play preserves the unity of place throughout, the whole four acts requiring only one scene—an ordinary drawing-room.

BIOGRAPHIES of the new type probably, as we may call them, are still the rage. There are soon to appear: Books and Pamphlets by the Dunlap Society on American actors; a biography of the late Thomas F. Appleton; the *Life and Work* of Bishop Gobat, of Jerusalem; *Autobiographical Memoirs* by the late Mark Pattison; *Memoirs* of the Rev. David Brainerd, missionary to the Indians; and so on.

NEW 'ologies are springing up—to say daily would scarcely be a hyperbole. The latest is microbiology. Germany has a chair devoted to it, and now France has followed the example. Neither do we think it is any too soon done. We only wonder some such thing was not thought of years ago, when Lister with his antiseptic method laid such stress on the germ theory of divorce.

"If the present generation does not know as much about the personal appearance, habits of thought and ways of living of the authors of recently past generations, as it does of its contemporaries," says the *Critic*, "it will not be for want of entertaining memories, biographies, and volumes of reminiscence, in which these matters are set forth."

It is interesting to know that whereas, formerly, men went to the universities only to prepare for the professions, now, many business men, merchants and manufacturers, and even well-to-do farmers and tradesmen, are giving their boys the advantage of the higher education, although destining them to follow their own pursuits.—*The Overland Monthly*.

MR. GLADSTONE has recently written a letter to G. W. Smalley, editor of the *New York Tribune*, in which he gives his estimate of Washington. He says: "If, among all the pedestals supplied by history for public characters of extraordinary ability and purity, I saw one higher than all the rest, and if I were required at a moment's notice to name the fittest occupant for it, I think my choice at any time during the last forty-five years would have lighted, and it would now light, upon Washington."

PROFESSOR TYNDALL, in a lecture recently, speaking of Pasteur's experiments and the good results that have followed from vivisection, was led to say, that never in the history of medicine had a brighter day dawned than the present. Those at all acquainted with the wonderfully rapid progress this science has of late years been making, will heartily agree with him. The empiricism which characterized the medical profession within the memory of our grandfathers, is giving way to the new light which

accurate researches have thrown upon the science.

SPEAKING of the lack of moral training which is the inevitable result of the extension of technical education, the *St. James' Gazette* says:—"If any large manufacturer were asked his experience, we believe he would tell us that no workman is a less reliable member of society than he who, idle and truant at school, has been early drafted into the workshops, and acquires there a manual dexterity, which teaches him to earn wages more quickly and easily, but to spend them, from want of any other training, more recklessly than do his fellow. But this type is just what the technical school, if it assumes too large proportions, will certainly produce."

SCHOLARSHIP is in fact already one of the professions, and its votaries, who were once near the literary, are now nearer the scientific class. As a consequence, learning, which was once truly, like poetry, a part of culture, is passing over to that division where it becomes, like the study of the law of medicine, merely an item of civilization. \* \* \* \* \*

It is not that the humanities have lost their humanizing power, but that they are inculcated as sciences. Culture must always be literary, but the classics, in consequence of the change in the ideal of scholarship, have become philology, antiquities, and cognate branches of research.—*The Culture of the Old School, Atlantic Monthly, January, 1885.*

THERE is a smack of Matthew Arnold in the sentiments of the following sentences from the *New York School Journal*:—

"When will our religious papers learn that there is but one kind of education—and that is education? This statement may seem to many a truism, but it is not. Education is the equal development of all the powers of a human being. An abnormal growth is not education. It is the want of it. We sometimes hear it said, 'What a pity his education has been neglected!' This may often be true, but it is never true that a man has a false education. A so-called discipline may have warped and twisted the whole nature out of the line of rectitude, but it was not education that did it."

SOME interesting educational topic is always discussed at the meetings of the Boston Schoolmasters Club. "The new education" was the question debated at the last meeting. The general conclusion seemed to be that it was well to make haste slowly in educational reforms. Mr. E. C. Carrigan of the State Board of Education, in the course of some well-put remarks, referred to two bills now before the Massachusetts State Legislature, one relating to the tenure of office of teachers, and the other to the abolishment of corporal punishment in public schools. He believed most heartily in the former but not in the latter. The teacher should have both tenure and the reserve power behind the throne. He did not believe in the injudicious use of the rod, yet there were cases where the rod alone was the best cure. For these cases the teacher should be vested with the right of proper correction. The Legislature recently had done much for education which was new, but which should have been long since old.—*New York Tribune*.

"LITTLE by little, the higher education of women has gained ground; bit by bit, they have got a place in the life of Oxford. It is almost the single direction in which the enthusiasm of reform has not been blunted by

satiety. Last year they were admitted to university examinations. Now they have been admitted to certain college lectures, and the principle of mixed classes has been conceded. It is true that the leaders of the party of reform were careful to explain that they had nothing to say to the principle of mixed classes; that all they desired was that women should not be debarred from obtaining the best teaching that could be had. A feeble and disunited opposition suggested certain provisos, limitations, restrictions, which the party of progress accepted cheerily, and with their tongue (if one may say so) in their cheek. It is easy to miscalculate the effects of a hitherto unknown force; but if the college system survives this new shock, it will have given another proof of its extraordinary and invincible vitality."—*T. W. Mackail, Fellow of Balliol College, Oxford, in the Pall Mall Gazette.*

THE following has been going the round of the press:—

### ENGLISH HISTORY IN RHYME.

First William the Norman,  
Then William, his son;  
Henry, Stephen, and Henry,  
Then Richard and John,  
Next Henry the Third,  
Edwards, one, two, and three:  
And again, after Richard,  
Three Henrys we see.  
Two Edwards, third Richard,  
If rightly I guess;  
Two Henrys, sixth Edward,  
Queen Mary, Queen Bess;  
Then Jamie, the Scotsman,  
Then Charles, whom they slew,  
Yet received, after Cromwell,  
Another Charles, too.  
Next Jamie the Second  
Ascended the throne;  
Then Good William and Mary  
Together came on;  
Then Anne, Georges four,  
And fourth William all passed,  
And Victoria came—  
May she long be the last.

IT might be well if the faculty of Harvard University, instead of turning its attention to the "brutal, demoralizing and dangerous" sport of football, should turn its paternal slipper to the chastisement of several of the undergraduates. For several nights past an occasional cannon cracker or mine has been exploded in the college yard, doing little damage except causing a momentary suspension in the closing studies of the examinations. Not content with this harmless amusement, however, the guilty ones have followed more closely the tactics of their friends, the dynamiteurs. A large cannon cracker was recently tied up to the knob of a student's door and exploded with great force and a deafening noise, charring the door and scattering the burning wadding around the entry. The noise called out the inmates of the entry, and the burning material was quickly extinguished. But the dynamiteurs were not discouraged. Yesterday, as a student was putting some coal upon his fire, he was very much startled to hear an explosion, and to find the burning coals scattered about his room. An examination as to the cause of this sudden activity on the part of his fire revealed the fact that some reckless person had scattered gunpowder in the coal bin, and that this powder, when thrown into the fire with the coal, had produced the explosion.—*Boston Herald*.

## Notes and Comments.

NO well-directed study is in vain. The child loses heart as well as power, by not appreciating, not believing this.

DOUBTLESS the *lapsus calami* by which *David Copperfield* was substituted for *Nicholas Nickleby* in the opening article of our last issue, has amused many of our readers.

WE acknowledge with much pleasure the receipt of the *Atlantic Monthly* for January and February. The numbers contain much matter of interest to the friends of education.

TO seek for bread more than truth, to believe in hand-skill more than heart-skill, may give us manners but no morals, sight but no insight. It may teach us logic but no song; it will make Vanderbilts but no Peabodys, as rich but nobler.—*Unity* (February 1).

THE *Current* seems to endorse our views on the value of English. It says: "THE EDUCATIONAL WEEKLY, of Canada, recognizing the growing tendency in the schools, toward the study of the English language and literature, advises all young teachers to give special attention to these subjects, as they hope twenty years hence to be counted among the educational leaders of the day."

WE have received the following from Mr. Reading:—

In making up the form for last week a few lines in my article on Perspective were transposed. The three lines near the bottom of the middle column "and as this is the G L . . . . to find the" should be inserted in the same column just before Fig 9, reading "where the P P and ground plane meet; and as this is the G L." etc.

THE list of books, telling the public of the inner life and character of great men, seems to be, if anything, on the increase. Within the last few months we have had the continuation of Froude's *Life of Carlyle*, embracing his life in London; Mason's *Personal Traits of British Authors*, in two volumes, in which we are told a great deal about Byron, Shelley, Moore, Rogers, Keats, Southey, Landor, Wordsworth, Coleridge, Lamb, Hazlitt, Leigh Hunt, and Proctor; Trail's *Coleridge*; Woodberry's *Edgar Allan Poe*; Isaac N. Arnold's *Life of Abraham Lincoln*; J. T. Morse's *John Adams*; etc., etc.

CLOSELY connected with the subject discussed in the opening article, is that of the necessity of exercise for both pupil and master. We are glad to see athletics gaining year by year a more important place in our

schools. Could not masters create a spirit of emulation in the field and the play ground as well as in the school room? In England this spirit of emulation is perhaps as strong in the former as in the latter—and who shall say not without beneficial results? Provide for the pupils a field, contiguous if possible, at all events not far removed from the school; procure materials—a foot-ball, cricketing paraphernalia, jumping poles, hurdles, base-balls and clubs, etc.; take an interest, even if it is impossible to take a part, in the games—and the rest is easy.

HOW many teachers complain of the bad hand-writing of their pupils! How few teachers think of the causes of this bad hand-writing! If there were no extraneous deleterious influences all tending to make as bad as it possibly can be the hand-writing of every person, man, woman, and child, ordinary chirography would probably be a very beautiful thing. As it is, it is generally the very reverse—a very ugly thing. Why? Let us consider for a moment some of these deleterious influences; perhaps this will answer the question. First of all, all pupils write hurriedly, and, than hurry, nothing is more injurious to good writing. Again this hurry is very often induced by the teacher's own fault: by dictating rapidly; urging the taking of notes when no time is given for note-taking; insisting on written exercises when the pupil is pressed for time; and so on. Secondly, the habit all children get into of writing with any sort of instrument upon any sort of material: little bits of pencils, worn out pens, rough paper, etc. Thirdly, the use of slates. These, we should imagine, are perhaps even worse than hurry, for no child ever writes carefully upon a slate, and we doubt if any child ever possesses a slate-pencil of any appreciable size for upwards of five minutes. Fourthly, writing on the black-board, requiring, as it does, a strained and unnatural position of body, arm, and fingers, has no little share in deforming the hand-writing. The long and the short of it is, ideally considered, writing should be regarded in the same light as drawing, and imagine the absurdity of drawing hurriedly, on any sort of paper with any description of instrument, on a slate, with a half-inch pencil, or on the black-board when no attention whatever was paid to correctness of form!

THE *'Varsity* has asked us to explain, and to harmonize the following sentences which it quotes from our issue of the 12th inst:—

The objects for which a child learns Latin and Greek, and the objects for which he learns French and German, are dissimilar. The one is a training for the mind; the other cannot be called so.

That systematic study of the construction of a language, a factor of such inestimable importance in training the mind, is as feasible in English as it is in Latin or Greek.

We think the passages from which these are cited contain their explanation. It is a most important subject, and it is a pleasure to see it commented upon.

JAMES Surtees Phillpotts, sometime second master at Rugby, at present head of the Grammar school, Bedford, Eng., has called the study of Greek a "muscle-giving study to the mind." Herein lies the difference between the study of the ancient classics, and the study of French and German. The study of the former may be compared to club-swinging and dumb-bell exercise; that of the latter to general gymnastics. The one increases the powers of the muscles; the other does not so much do this as does it give ability to use these powers gracefully. The Greek and Latin languages are such splendid examples of elaborate systems, different from that of our mother tongue, that their acquisition is of inestimable benefit to the mental faculties. French and German do not possess this perfection, neither are they so dissimilar to English in construction. In England this is recognized. The mind is formed, we may say, on Greek and Latin. The syntax is learned with a thoroughness that would be thought loss of power if applied to the modern languages; prose or verse composition occupies a large portion of the daily lessons; and both languages are studied from the root upwards. With French and German the method is reversed: commencement is made with the blossoms, as it were; much time is spent in conversation, in *ad aptum am* translation, *ex tempore* composition—plans which do not provide for the exact application of every rule which crops up; and it is not until afterwards, generally, that the roots are investigated. Learning like the classics is like learning to walk; learning French and German like the light calisthenic exercises undertaken to give an easy and graceful carriage and bearing.

WE come now to the second sentence—on the feasibility of making English a "muscle-giving" exercise for the mind. As English is now studied it can hardly be called so. What we have been at pains to point out is that, if the classics are ever removed from the fundamental position they now hold, English properly studied—in its ethnological, philological, grammatical, historical, literary, and kindred aspects—English, thus studied, will make an excellent substitute for Latin and Greek. Perhaps any language, thoroughly learned, could be made so. The line of argument adopted is this: There are many advantages to be gained by a thorough knowledge of our own language; can the study of that language be made so thorough as to make its acquisition so nearly as beneficial as the acquisition of more perfect languages, that the difference shall be outweighed by the above-mentioned advantages?

## Literature and Science.

### TWO POEMS BY JAMES RUSSELL LOWELL.

It is perhaps needless to make any note upon the name that heads these poems. Who has not heard of James Russell Lowell, LL.D., D.C.L., American Minister to Great Britain, the author of *The Biglow Papers*, once Professor of Modern Languages and Belles Lettres in Harvard, for five years editor of the *Atlantic Monthly*, and renowned as one of the most refined and cultured of Americans? We may, however, refresh the memories of our readers in regard to some of his numerous works. His first appeal to the public was made before leaving college by the publication of a class poem. At 22 he printed a volume of miscellaneous poems entitled *A Year's Life*. Then followed *Conversations on Some of the Old Poets*, *The Vision of Sir Launfal*, *A Fable for Critics*, and the celebrated *Biglow Papers*, humorous poems on political subjects, in 1848. Since then he has published various poems and essays. During his tenure of the post of Minister to Great Britain, Mr. Lowell has added lustre to his name. He took a prominent part in the celebrations upon the anniversary of the birth of Fielding; he was offered the Lord Rectorship of Glasgow University (refused on political grounds); and, not least, called forth most eulogistic criticisms from the press on an able speech on "democracy" delivered a few months since at Manchester.

#### AUF WIEDERSEHEN!

SUMMER.

The little gate was reached at last,  
Half hid in lilacs down the lane;  
She pushed it wide, and, as she passed,  
A watchful look she backward cast,  
And said—"Auf Wiedersehen!"

With hand on latch, a vision white,  
Lingered reluctant, and again  
Half doubting if she did aright,  
Soft as the dews that fell that night,  
She said—"Auf Wiedersehen!"

The lamps dear gleam flits up the stairs,  
I linger in delicious pain;  
Ah! in that chamber, whose rich air  
To breathe in thought I scarcely dare,  
Thinks she—"Auf Wiedersehen!"

'Tis thirteen years; once more I press  
The turf that silences the lane;  
I hear the rustle of her dress,  
I smell the lilacs, and—ah! yes,  
I hear—"Auf Wiedersehen!"

Sweet piece of bashful maiden art!  
The English words had seemed too vain;  
But these—they drew us heart to heart,  
Yet held us tenderly apart;  
She said—"Auf Wiedersehen!"

Professor Ruskin when lecturing on art at Oxford once apologized to his listeners for translating a quotation from Plato to them. After such an example apologies are needed for saying anything on the words *Auf Wiedersehen*. But as they occur so often, and as the whole poem loses its beauty to those unacquainted with German, it may just be said that they are exactly analogous to the French *au revoir*—a phrase hardly to be translated into English. They carry with them, too, a delicious breath of delicate sentiment which makes them peculiarly appropriate for the title and refrain of a poem. This Mr. Lowell has used to the best advantage.

### PALINODE.

AUTUMN.

STILL thirteen years: 't is autumn now  
On field and hill, in heart and brain;  
The naked trees at evening sough;  
The leaf to the forsaken bough  
Sighs not,—“We meet again!”

Two watched you oriole's pendent dome,  
That now is void, and dank with rain,  
And one,—O, hope more frail than foam!  
The bird to his deserted home  
Sings not,—“We meet again!”

The loath gate swings with rusty creak;  
Once, parting there, we played at pain:  
There came a parting, when the weak  
And fading lips essayed to speak  
Vainly,—“We meet again!”

Somewhere is comfort, somewhere faith,  
Though thou in outer dark remain:  
One sweet sad voice ennobles death,  
And still for eighteen centuries saith  
Softly,—“Ye meet again!”

If earth another grave must bear,  
Yet heaven hath won a sweeter strain,  
And something whispers my despair,  
That, from an orient chamber there,  
Floats down,—“We meet again!”

We append to this, as an admirable parallel passage, the first and second stanzas from the fifty-fourth canto of *In Memoriam*:

Oh yet we trust that somehow good  
Will be the final goal of ill,  
To pangs of nature, sins of will,  
Defects of doubt, and taints of blood:

That nothing walks with aimless feet;  
That not one life shall be destroyed,  
Or cast as rubbish to the void,  
When God hath made the pile complete.

We may also add the following lines from the same author's *Love and Duty*:

Shall Error in the round of time  
Still father Truth? O shall the braggart shout  
For some blind glimpse of freedom work itself  
Thro' madness, hated by the wise, to law,  
System, and empire? sin itself be found  
The cloudy porch oft opening on the sun?  
And only he, this wonder, dead, become  
Mere high-way dust?

Many points may be instructively noted in this poem. First, as to the title. The author has somewhat wrested the word "palinode" from its true and original meaning. Literally it signifies a recantation. The best known classical example of it in this sense, one which will in all probability recur to the memories of many of our readers, is in Plato's *Phaedrus* (§§ 40-84), where Socrates, after having first purposely taken a view of love which he knows to be wrong, afterwards recants all that he has said. Secondly, the poem contains some beautiful figures of rhetoric—note especially the aposiopesis in the third line of the second stanza. Thirdly, the pronunciation of the word "sough" in the first stanza may be pointed out as uncommon. Fourthly, the grammatical construction of the concluding lines is extremely complicated.

THE *Literary World* commences its last issue with a most severe criticism of Tennyson's *Becket*. "There is not," it says, "in all the four thousand lines or so of the poem, one passage of the old Tennysonian quality, one line that clings to the memory."  
\* \* \* There are some flashes of genius but they are few, and one puts down the book with a sigh, thinking of the Alfred Tennyson of other days."

### THE FAIRY LAND OF SCIENCE.

MISS A. D. BUCKLEY.

(Continued from last issue.)

BUT the reflected light-waves do more for us than this. They not only make us see things, but they make us see them in different colors. What! you will ask, is this too the work of the sunbeams? Certainly; for if the color we see depends on the size of the waves which come back to us, then we must see things colored differently according to the waves they send back. For instance, imagine a sunbeam playing on a leaf: part of its waves bound straight back from it to our eye and make us see the surface of the leaf, but the rest go right into the leaf itself, and there some of them are used up and kept prisoners. The red, orange, yellow, blue, and violet waves are all useful to the leaf, and it does not let them go again. But it cannot absorb the green waves, and so it throws them back, and they travel to your eye and make you see a green color. So when you say a leaf is green, you mean that the leaf does not want the green waves of the sunbeam, but sends them back to you. In the same way the scarlet geranium rejects the red waves; this table sends back brown waves; a white table-cloth sends back nearly the whole of the waves, and a black coat scarcely any. This is why, when there is very little light in the room, you can see a white table-cloth while you would not be able to distinguish a black object, because the few faint rays that are there, are all sent back to you from a white surface.

Is it not curious to think that there is really no such thing as color *in* the leaf, the table, the coat, or the geranium flower, but we see them of different colors because, for some reason, they send back only certain colored waves to our eye?

Wherever you look, then, and whatever you see, all the beautiful tints, colors, lights, and shades around you are the work of the tiny sun-waves.

Again, light does a great deal of work when it falls upon plants. Those rays of light which are caught by the leaf are by no means idle; we shall see that the leaf uses them to digest its food and make the sap on which the plant feeds.

We all know that a plant becomes pale and sickly if it has not sunlight, and the reason is, that without these light-waves it cannot get food out of the air, nor make the sap and juices which it needs. When you look at plants and trees growing in the beautiful meadows; at the fields of corn, and at the lovely landscape, you are looking on the work of the tiny waves of light, which never rest all through the day in helping to give life to every green thing that grows.

So far we have spoken only of light; but hold your hand in the sun and feel the heat of the sunbeams, and then consider if the

waves of heat do not do work also. There are many waves in a sunbeam which move too slowly to make us see light when they hit our eye, but we can feel them as heat, though we cannot see them as light. The simplest way of feeling heat-waves is to hold a warm iron near your face. You know that no light comes from it, yet you can feel the heat-waves beating violently against your face and scorching it. Now there are many of these dark heat rays in a sunbeam, and it is they which do most of the work in the world.

In the first place, as they come quivering to the earth, it is they which shake the water-drops apart, so that these are carried up in the air, as we shall see in the next lecture. And then, remember, it is these drops, falling again as rain, which make the rivers and all the moving water on the earth. So also it is the heat-waves which makes the air hot and light, and so cause it to rise and make winds and air-currents, and these again give rise to ocean-currents. It is these dark rays, again, which strike upon the land and give it the warmth which enables plants to grow. It is they also which keep up the warmth in our own bodies, both by coming to us directly from the sun, and also in a very roundabout way through plants. You will remember that plants use up rays of light and heat in growing; then either we eat the plants, or animals eat the plants and we eat the animals; and when we digest the food, that heat comes back in our bodies, which the plants first took from the sunbeam. Breathe upon your hand, and feel how hot your breath is; well, that heat which you feel, was once in a sunbeam, and has travelled from it through the food you have eaten, and has now been at work keeping up the heat of your body.

But there is still another way in which these plants may give out the heat-waves they have imprisoned. You will remember how we learnt in the first lecture that coal is made of plants, and that the heat they give out is the heat these plants once took in. Think how much work is done by burning coals. Not only are our houses warmed by coal fires and lighted by coal gas, but our steam-engines and machinery work entirely by water which has been turned into steam by the heat of coal and coke fires; and our steamboats travel all over the world by means of the same power. In the same way the oil of our lamps comes either from olives, which grow on trees; or from coal and the remains of plants and animals in the earth. Even our tallow candles are made of mutton fat, and sheep eat grass; and so, turn which way we will, we find that the light and heat on our earth, whether it comes from fires, or candles, or lamps, or gas, and whether it moves machinery, or drives a train, or propels a ship, is equally the work

of the invisible waves of ether coming from the sun, which make what we call a sunbeam.

Lastly, there are still some hidden waves which we have not yet mentioned, which are not useful to us either as light or heat, and yet they are not idle.

And now, tell me, may we not honestly say, that the invisible waves which make our sunbeams are wonderful fairy messengers as they travel eternally and unceasingly across space, never resting, never tiring in doing the work of our world? Little as we have been able to learn about them in one short hour, do they not seem to you worth studying and worth thinking about, as we look at the beautiful results of their work? The ancient Greeks worshipped the sun, and condemned to death one of their greatest philosophers, named Anaxagoras, because he denied that it was a god. We can scarcely wonder at this when we see what the sun does for our world; but we know that it is a huge globe made of gases and fiery matter, and not a god. We are grateful for the sun instead of to him, and surely we shall look at him with new interest, now that we can picture his tiny messengers, the sunbeams, flitting over all space, falling upon our earth, giving us light to see with, and beautiful colors to enjoy, warming the air and the earth, making the refreshing rain, and, in a word, filling the world with life and gladness.

### LECTURE III.

#### THE AERIAL OCEAN IN WHICH WE LIVE.

DID you ever sit on the bank of a river in some quiet spot where the water was deep and clear, and watch the fishes swimming lazily along? When I was a child this was one of my favorite occupations in the summer time on the banks of the Thames, and there was one question which often puzzled me greatly, as I watched the minnows and gudgeon gliding along through the water. Why should fishes live *in* something, and be often buffeted about by waves and currents, while I and others lived on the *top* of the earth and not *in* anything? I do not remember ever asking anyone about this; and if I had, in those days people did not pay much attention to children's questions, and probably nobody would have told me, what I now tell you, that we do live in something quite as real and often quite as rough and stormy as the water in which the fishes swim. The *something* in which we live is air, and the reason that we do not perceive it is that we are in it, and that it is a gas and invisible to us; while we are above the water in which the fishes live, and it is a liquid which our eyes can perceive.

But let us suppose for a moment that a being, whose eyes were so made that he could see gases as we see liquids, was looking down from a distance upon our earth. He would see an ocean of air, or aerial ocean,

all round the globe, with birds floating about in it, and people walking along the bottom, just as we see fish gliding along the bottom of a river. It is true he would never see even the birds come near to the surface, for the highest-flying bird, the condor, never soars more than five miles from the ground, and our atmosphere as we shall see, is at least 100 miles high. So he would call us all deep-air creatures, just as we talk of deep sea animals; and if we can imagine that he fished in this air-ocean, and could pull one of us out of it into space, he would find that we should gasp and die just as fishes do when pulled out of the water.

He would also observe very curious things going on in our air ocean; he would see large streams and currents of air, which we call *winds*, and which would appear to him as ocean-currents do to us, while near down to the earth he would see thick mists forming and then disappearing again, and these would be our clouds. From them he would see rain, hail and snow falling to the earth, and from time to time bright flashes would shoot across the air-ocean, which would be our lightning. Nay, even the brilliant rainbow, the northern aurora borealis, and the falling stars, which seem to us so high up in space, would be seen by him near to our earth, and all within the aerial ocean.

But as we know of no such being living in space, who can tell us what takes place in our invisible air, and we cannot see it ourselves, we must try by experiments to see it with our imagination, though we cannot with our eyes.

First, then, can we discover what air is? At one time it was thought that it was a simple gas and could not be separated into more than one kind. But we are now going to make an experiment by which it has been shown that air is made of two gases mingled together, and that one of these gases, called *oxygen*, is used up when anything burns, while the other, *nitrogen*, is not used, and only serves to dilute the minute atoms of oxygen. I have here a glass bell-jar with a cork fixed tightly in the neck, and I place the jar over a pan of water, while on the water floats a plate with a small piece of phosphorus. You will see that by putting the bell-jar over the water, I have shut in a certain quantity of air, and my object now is to use up the oxygen out of this air and leave only nitrogen behind. To do this I must light the piece of phosphorus, for you will remember it is in burning that oxygen is used up. I will take the cork out, light the phosphorus, and cork up the jar again. See! as the phosphorus burns, white fumes fill the jar. These fumes are phosphoric acid, which is a substance made of phosphorus and oxygen. Our fairy force, chemical attraction, has been at work here, joining the phosphorus and the oxygen of the air together.

(To be continued.)



## Educational Opinion.

### THE MUTUAL OBLIGATIONS OF TEACHERS AND TRUSTEES.

WHEN we consider the importance of the interests confided to each, we feel that it is a great pity when there is not perfect cordiality between the trustees of a school and the teacher of it. Yet we fear that sometimes the elements of cordiality are entirely wanting. In many places the feeling of the community is that teachers are a necessary evil, an inevitable burden upon the treasury. In such places trustees are often appointed whose only qualification is, that they undertake to keep down the school-tax, to pay the teacher as little, and to look after him as sharply as possible, and to bind him fast by a written agreement. On the other hand, the teacher often looks upon the trustee in the light of an overseer, of doubtful friendliness, against being over-reached by whom he must be on his guard, and whose promise to pay the stipulated salary would not be worth much, if it was not rendered legally binding by "a written agreement."

We have known a trustee small-minded enough to tot up the number of hours a teacher spends in school throughout the year, and (forgetful or ignorant of the fact that the good teacher works for the school nearly as many hours out of it as in it), arrive at the wonderful conclusion that he is most liberally paid at \$400 a year. And we have known a teacher, whose heart was so little in his work, that when the 10.30 recess came on Monday morning, he would thank heaven that one tenth of the week was gone. According to the eternal fitness of things, such a trustee and such a teacher should go together.

Should there be anywhere an under-current of antagonism between trustees and teachers, the sooner it is removed the better. The interests of education, which both profess to serve, are best promoted when there is the most entire mutual respect and good feeling between the parties. When the reverse is the case, it oftentimes arises from a misunderstanding of their mutual relations. What are these mutual relations?

Before stating what they are, we will state what they are not. The fact that the board of trustees is the medium through which the section or municipality makes its bargain with, and becomes the paymaster of the teacher, by no means places the latter in the position of flunkey or "your humble servant" to the board or to any member of it. Some trustees seem to think that it does. For we have known them to speak to a teacher in a manner more hectoring and domineering than they dare use to a farm-hand, a workman, or a shop girl. The teacher who respects himself and his profession, as a matter of course, resents this treatment, and in consequence ill-feeling is engendered, which

often results in the teacher resigning, whereby the board loses a good teacher, and the teacher a good position; which position he might have occupied for years to the mutual satisfaction and benefit of both parties, had there been a right conception of their mutual relations.

The relation between the trustee-board and the teacher is one of mutual dependence and independence, because one party needs to buy that which the other has to sell, namely, teaching capacity; of independence, because a board is not obliged to purchase the teaching capacity of any particular teacher, any more than the teacher is obliged to sell his capacity to any particular board. And this brings us to see that the only basis on which there can be perfect cordiality between the parties, is the entire mutuality of their relations to each other. It must be recognized and conceded to the full, that, in making their bargain, board and teacher stand on a footing of perfect equality; that the board has no right to which the teacher has not a corresponding one, and *vice versa*.

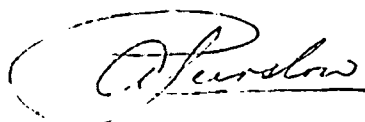
A hearty recognition of this principle of reciprocal interests and equality of rights would wonderfully clear up the misunderstandings, and sweep away the difficulties that now and then crop up between boards and teachers. For instance, it would prevent the occurrence of such events as the following, which are not at all uncommon: A board for a certain sum has engaged a teacher for a given time. The teacher for that time and for that sum has agreed to teach for that board; in other words, the proverbial "two" have made a bargain—the relation of mutual dependence spoken of above has been entered into. It may be that the formality of a written agreement binding the bargain has been forgotten or neglected. The teacher enters upon his duties; all goes well; the board being satisfied rests in peace, and does not dream of disturbing the arrangement till the time expires; but the teacher, instead of regarding his bargain, though only verbal, as something to be sacredly carried out by him, is not resting in peace, but is on the look out for a chance "to better himself," knowing that the trustees cannot legally detain him. Now a teacher's notion of bettering himself is to get some other school at a higher salary; by parity of reasoning and language, a board's notion of bettering itself would be to get some other teacher at a lower salary. But while the board remains quiescent, and makes no effort thus to better itself, the teacher, without considering the right, or consulting the convenience of the board, and without even informing it, has selfishly and secretly applied for, and has succeeded in obtaining, another school at a larger salary. A case of this kind came under the writer's own notice. A teacher was wanted; the board advertised the position and salary; a young man applied for and obtained the position at the salary named. He was

satisfied with his work, the board was satisfied with him; for a time all went merry as a marriage bell. But hark! on Monday morning, his room in the school was without its teacher. It transpired that without saying anything to his trustees, he had in the previous month sought and obtained a position in some other school at an increased salary, had drawn his month's pay on the previous Friday, left town on the Saturday, and had entered on his new position that very Monday morning. The person attempted to justify this gross breach of faith and desertion of trust, by saying that it was a duty he owed to himself to better his position if he could. The desire to better oneself is a praiseworthy one,—is in fact one of the most powerful motives to human effort, and far be it from us to condemn following out the desire when it can be done with even-handed (not one-sided) justice to all parties concerned. What could the principle of mutuality say in the matter? Remember that one party has no right that the other doesn't possess, and that what is right for the teacher is right for the board. If it is right for a teacher to be secretly seeking thus to better himself, and having done so, to leave a board without notice, it is equally right for a board to seek secretly to better itself in the way we have mentioned, and having done so, to dismiss a teacher without notice. In the case before us, by similarity of action, it would secretly have engaged a cheaper teacher, and allowed the other to find him in his room and place on the Monday morning. What an outcry the displaced teacher would then have raised against the perfidy of the board! against the meanness of having secretly worked to displace him! against the baseness of violating the moral if not legal obligation they were under, to let him stay on at least till he had another position to go to! Yet where would be the difference between this supposed conduct of the board's and that of which he was actually guilty?

For the honor of the profession, let us hope that conduct so grossly unprincipled as that of the teacher just mentioned is extremely rare. And yet it must be confessed that every board and every head master can tell of numerous cases within their experience that only differ from it in degree—that is to say, in the length of notice the teacher has wished to give—cases in which young men have gladly taken situations for a stated time, and then, long before that time has expired, have sought to leave at short notice, simply because they could obtain "something better." It is curious that such persons profess to see nothing wrong in thus studying their own convenience and advancement, without considering the rights and interests of the other party to the bargain. It is selfish conduct like this on the part of some teachers (and it must be said that those guilty of it are mostly parties who are using the profession as a stepping stone to some-

thing else) that sours trustees against teachers, kills off all kindly feelings, and gives rise to that alienation and want of cordiality that we have been deploring.

So far we have dwelt upon the dark side of the picture. Be it said, that in the course of a long experience we have known teachers who have steadfastly declined most tempting offers, because they could not in fairness to their board accept them. And we have known boards, who, when the teacher has shewn himself desirous of acting openly, fairly and squarely by them, have so far recognized the naturalness of the teacher's desire "to get on," that they have, when they could do so without their school materially suffering, released him, and even helped him to the better position. This is conducive to mutual respect and good feeling, and is as it should be. There is no doubt, too, that it is highly important, when the conduct of both parties must needs come within the cognizance of the young people of the school, that the most scrupulous fair dealing should at all times characterize it.



UNIVERSITY MANAGEMENT.

THE interest taken in University Federation, has, for some time, had the effect of lessening the attention that should be given to the affairs of University College and Toronto University. The present condition of the federation movement is not so highly encouraging as to warrant an early solution of the university problem.

It will be admitted by all interested in a broad secular education, that a non-denominational college and university are prime necessities. Such a college and university can be supported only by the people as a whole, acting through the government. We are not sufficiently wealthy to endow large and prosperous institutions out of the proceeds of private beneficence. State-supported universities, however, labor under some serious drawbacks, and Toronto University is no exception to the rule. It is found difficult to enlist an active interest and co-operation in the working of such an institution—what is everybody's business soon become nobody's; or the control and management pass into the hands of a few, who by inclination or peculiar facilities give much attention and time to university matters. Toronto University in some respects affords room for the energy and efforts of its graduates in its behalf. There is a large representation of graduates on the senate—and lately the government has recognized the importance of having practical educationists represented, by giving an additional representative to the high school masters.

So far there is room for gratitude and

praise. Along with others, I have to regret that a remarkable apathy exists among the mass of graduates as to the character of their representatives on the senate, and as to the proceedings of the senate itself. A few centres outside of Toronto take a mild interest in the elections, and in the doings of the senate, so far as these doings can be scanned, through the meagre official reports furnished to the daily press. What is worse, and yet is quite natural, is the gross neglect of duty on the part of many of the senators, especially those senators who reside out of Toronto. Some excuse must be made for these gentlemen, as the meetings of the senate are held at such inopportune times, that much expense and loss of valuable time must be incurred by those who have to travel to Toronto to attend a meeting of an hour or two's duration. No man is compelled to be a senator: when he is honored by an election of his fellow-graduates, he should show that he appreciates that honor by attending to his duties. This apathy is maintained by the conservative action of the senate in refusing reporters access to their deliberations. The play of thought and feeling that should be found in any intelligent deliberative body, finds no expression in the reports furnished to the public. The result is to benumb the energies of such senators as feel desirous of pushing through reforms and necessary changes. The support of public opinion is cut off—and we often find a candidate for senatorial honors full of zeal and promises of innovation, lose his fire and sink into a condition of more or less complacent contentment with the jog-trot management he finds in vogue.

This indifference on the part of graduates and non-resident senators has the inevitable effect of throwing the whole management into the hands of a few. So many graduates live in Toronto, that concerted action on their part is quite sufficient to give them control of the election of representatives; and this power is pretty well utilized. The senate, for all practical purposes, reflects the views of Toronto graduates—and it is not a rash assertion to say that Toronto University, in so far as its control is concerned, is a Toronto institution—and well deserves its name. Not much blame can attach to Toronto graduates for exercising the power placed in their hands by the neglect and indifference of the bulk of the graduates; but the effects produced by this sectional control are not wholly in the best interests of education. To say nothing about the great loss the University suffers in not obtaining a wide and patriotic support—the effect of viewing everything from a more or less sectional stand-point, is to beget narrowness, intolerance, and educational inertia.

It will not be denied by any one who has watched as best he can, the proceedings of the senate, that a strong conservative element is in the ascendancy. Conservatism has its uses—it has also its abuses. In this instance conservatism has the effect of de-

laying the introduction of many much needed reforms and improvements. There has of late been some progress, but it has been secured by the strenuous and unwearied efforts of a few, like the present librarian of the Legislative Assembly.

Another evil is the lack of care in the selection of examiners. Examinations are not the end-all and be-all of education: but properly conducted they do much to guide the student into proper channels of study, as well as test his knowledge. The complaint now made is that young and inexperienced men are chosen for these responsible positions—and the outcome is often disastrous and disheartening. Teachers will endorse this statement—we know whereof we affirm. The thoughts of almost every mathematical teacher will irresistibly wander back to the last matriculation examination. Every graduate who reads these lines will recall to mind instances of permanent injustice being meted out to bright and prominent students by incompetent examiners. If the examiners would bear in mind that *their* knowledge is not being tested, some improvement might take place: but it is to expect figs from thistles to expect good papers from men either inexperienced or incompetent.

There is another evil that scarcely admits of being reduced to specific shape: it is the natural tendency of the dominant section in the senate to favor their friends and supporters at the expense of the interests of higher education. In the light of some recent appointments of an honorary character, can we say that the dignity and reputation of our national university has been consulted?

Another source of weakness is the absence from the senate of a numerous body of men familiar with education, both in its theoretical and practical aspects. We sadly need practical educationists on the senate—men who know what difficulties impede the progress of culture, and who also know how to remove these difficulties. We have a superabundance of lawyers and doctors—intelligent men most of them—but without the necessary experience, and some without the necessary zeal. Of men, who have a *practical* knowledge of the best methods of teaching, and have studied the educational problem from many stand-points, there is scarcely a "remnant."

It may be that confederation would sweep away many of these impediments to progress, and have the much-needed effect of enlarging our mental horizon, and broadening our sympathies—in other words, give us a truly provincial university. Failing that, nothing is left but the almost hopeless task of endeavoring to arouse the graduates to a healthy interest in the management of an institution which, I am sure, we all hold in no small regard.



TORONTO:

THURSDAY, FEBRUARY 19, 1885.

## PHYSICAL RECREATION IN SCHOOLS.

In the excellent report of Mr. Hodgson, Senior Inspector of High Schools and Collegiate Institutes, just published—a report, by the way, of such a definite and practical character that it cannot fail to do good—a strong plea is made for the provision of suitable facilities in high schools for physical recreation. His remarks have equal pertinence to public school boards. We purpose to supplement what he has said on out-door sports by a few words:—

We shall not now discuss the question of the duty of school boards to supply a play-ground for every school. That duty is imposed upon them by law; and the play-ground is attached to every school;—but, in nine cases out of ten, it is thoroughly spoiled for play by the position of the school house and outbuildings, which so subdivide the ground that few boys' games can be played upon it.

But assuming the play-grounds to be provided, we wish to point out the responsibilities of teachers in regard to the proper use of them. Every one who has studied education, every one who has studied the development of character under school influences, has recognized the fact that the character of children is developed with more rapidity, and fixed with more definiteness, in the play-ground than in the school-room. In the school the regularity of the routine, the fixed procession of duties, and, above all, the disciplinary state therein established, all tend to keep the pupils in a condition of involuntary restraint. But in the play-ground this restraint is removed, and the pupils act at will. Assuming, again, that the work of character-building has been well done within, its effect on each pupil is now put to the test. Vanity, desire of dominion, selfishness, vulgarity, profaneness, and all the evils to which young hearts are exposed, now exercise their sway.

If we reflect that a large portion of the conduct, even of grown people, is determined by the opinions and practices of companions, we can readily see how largely the conduct of all the pupils of a school is determined by the conduct of the few strong-willed and clever boys that are the leaders in every school com-

pany. Now what is wanted is some means of producing a school public opinion to which even the conduct of these bigger, more active, and more resolute boys, who are the natural leaders of the school, can be answerable. There is no way of establishing such a public opinion, except through the general adoption of some game in which all can join, and whose laws all can understand. Participation in such a game gives each boy a right to express an opinion, and the wrongness of selfishness, domineering, brutality, is as apparent to boys, when these are displayed in a game which they understand, and in which they are interested, as the wrongness of these same vices is apparent to men when displayed in business. Thus, a game in which all take part brings into play a voluntarily-formed public opinion in reference to the wrongness of evil conduct and the rightness of good conduct, which supplements the opinion which has been derived from the school-room.

To our mind there is no question of the potency of this public opinion, formed naturally by the whole school, in determining character. But this opinion cannot be of any worth unless it be just, and it is likely never to be just unless whatever game is adopted is encouraged by the masters of the school, played by them, and to some—but, if possible, never observable—extent, directed by them. All that the masters should do is to see that no bullying, no unfair advantage of weakness or innocence, is taken, and that cruelty, profanity and vulgarity, are prohibited. If the master be one whose character is esteemed; if he is one whose self-control, unselfishness, generosity, and fair-mindedness are recognized by his pupils, his pupils will instinctively pattern after his conduct; and if he is known to be pure-minded and clean-speeched, then his mere presence on the play-ground will make profanity and vulgarity impossible. The public opinion of the school will set strongly against these vices, and so will be powerful to repress them, even when the master is absent.

This point would we especially desire to impress upon all teachers: that mere occupancy of the play-ground by the pupils is not recreation. Nor can it have that moral effect which we have above described. The latter can be secured only by some game, in which success and fail-

ure, law and penalty, fair dealing and deceit, are possibilities. And for physical recreation, for the recuperation of tired faculties, and wasted brain tissue, there must be genuine hilarity, a complete abstraction from the pursuits of the school-room, a forgetting of one's self in the joyance of the sport.

There are excellences of a good school game, other than the opportunity it affords of determining character. Of these we shall speak again. But no master can be excused from encouraging school sport, or from sanctioning it with his presence.

What has been said about boys' sports applies equally well, *mutatis mutandis*, to girls' recreations. A master should quietly direct the one, a mistress the other.

In schools for both sexes, where but one teacher is employed, there is a difficulty. A woman cannot properly appreciate the sports of boys. Girls will not play with freedom in the presence of a man. In such schools, the teacher in charge should see that as little benefit as possible is lost, by reason of insufficient encouragement and supervision of the sports of both boys and girls. The neglect of duty here is just as reprehensible as it is in any other department of school work.

## BOOK REVIEW.

*A Reader of German Literature for High Schools, Colleges, and German-American Schools*, with notes, by W. H. Rosentengel, University of Wisconsin. New York and London: G. Putnam's Sons; Toronto: Hart & Co \$1.50.

THE preface states that the work differs from other German readers in confining its selection to masterpieces, in fully representing modern literature, even the very latest, in history, fiction, etc., and in giving accurate texts. The selections are strictly classic, and are intended to cover the whole ground of German literature—upwards of two hundred selections and articles within a compass of four hundred pages. Books of this class certainly have their uses, among which, however can hardly be reckoned that of inspiring a love for literature, except in so far as the selections given are complete within themselves. You cannot get a good idea of *Faust* by reading two pages, but you can understand and appreciate Schiller's ballads by reading three or four of them in full. Apart from this tendency to the serap-book type, the compilation has much merit. Its copiousness, its articles on the history of literature, its biographical and bibliographical sketches, outlines of works from which extracts are given, its articles on prosody, etc., are all points in its favor, and tend to make up a very complete book, and one which could doubtless be profitably used by students as a review book of German literature.

W. H. F.

*On Teaching; Its Ends and Means.*—By Henry Calderwood, LL.D., F.R.S.E. London and New York: MacMillan & Co. New and cheaper edition, 1885.

To review a book with which one is in entire sympathy is simply to make a series of laudatory statements. It may be said that in so dealing with it there will be no discrimination. If we lay ourselves open to this charge, in respect to Dr. Calderwood's book, we shall submit to it willingly. We unhesitatingly say that we know of no one book on education that we can so highly recommend to teachers and parents as this one, not excepting even Herbert Spencer's famous monograph. It is the product of wise judgment, of a most sympathetic heart, of profound insight into human character, of long experience in teaching, and of a thorough acquaintance with the principles by which instruction and training should proceed. Its most praiseworthy characteristic is its downright practicalness. No teacher, whether in the humblest or the highest sphere, can read it without finding in almost every page instruction and inspiration.

Throughout the book Dr. Calderwood insists upon the position that the teacher should be not merely an instructor,—that his greater mission is to assist in the development and promotion of character; that he cannot set to himself a lower aim without falling below a true professional level. "No true teacher," he says, "can make salary the end of effort." "Toil and remuneration are naturally associated, but money is a poor reward for a lifelong effort in any sphere." "To have an ideal of work, and to come as near to it as possible, should be the great aim with us all." Dr. Calderwood then proceeds to define what the true aim of the teacher should be. "It is to have his scholars so habituated to self-control that they shall be prepared for a wise direction of their own conduct when all the checks and helps of home and school are completely withdrawn. In such a case the after-life of the scholars will reflect honor on his labors as discovering, though at a great distance of time, the fruits of the discipline of school life. This is the highest result of educational effort. It is the full reward of anxious thought and toil. In such a case the teacher sees his own better life reproduced in those who caught from him many of their early impulses toward the life of moral elevation.

High as is the ideal aim of the teacher, correspondingly high and important are the functions of the school. The school is not a mere workshop for the turning out every year of so many successful candidates for examination. In the administration of a school system it may be thought necessary to determine the relative standing of schools by the result of examinations. "But such a method leaves the highest things unacknowledged, and is apt to turn attention from them. It can be easily squared with a vulgarized type of school management, but it takes the finer and nobler qualities of influence entirely out of school life. It is a sound principle within its own field of application, but applied beyond its own appropriate and narrow sphere it becomes actually pernicious."

Regarding *training*, then, or the formation of character, of first importance, Dr. Calderwood shows how this is best accomplished. Not by

formal instruction in morals, not by enforced devotional exercises,—but by the character of the teacher showing itself in every detail of schoolroom work. Character-building and instruction proceed together; discipline is merely the result of the normal relation of pupil towards teacher—the pupil's respect for his teacher being based on his unconscious acknowledgment of the value and potency of the teacher's character—the teacher's treatment of his pupil being the result of a wise study of the pupil's individuality. But no words of ours can give more than a general impression of the excellence of the whole book—almost every page of it teeming with sentences which are so full of thought as to be worthily ranked as aphorisms. The impression we wish to convey is, that every teacher, no matter what his sphere may be will find in this little book, instruction suited to his needs so simply put that the least experienced can comprehend it and apply it, and so wisely deduced from the great principles of mind and character development, that the most experienced will find little in it that does not commend itself to him as worthy of the highest praise.

We regret that in the above edition are many misprints: so numerous are they, indeed, that the publishers should have the whole book reprinted.

### Table Talk.

MR. GOSSE'S lectures, recently delivered in America, are to be published by Osgood & Co.

ARTHUR MACARTHUR in *Education in its Relation to Manual Industry* advocates the establishment of schools of industry by the State.

A PARTY of boys, of ages ranging from 10 to 16, is expected to leave England during the month of March, under the auspices of Dr. Barnardo.

THE Scribners have now ready the eighteenth volume of the *Encyclopaedia Britannica*. The work has forty thousand subscribers in this country.

FRANCES HAYES has compiled a little book, about one fourth of the size of *Men of the Time* called *Women of the Day: a Biographical Dictionary of Notable Contemporaries*.

PHILADELPHIA papers are nearly all of them highly indignant over Mr. Gosse's remark on the Philadelphia City Hall—"One of the paltriest and most grotesque structures ever foisted upon a modern town."

THE Montreal *Witness* prints the following:—"Teachers are apt to become impatient over dull boys, and predict of them that they will never come to anything. Such uncalled-for prophecies ought to discourage no scholar who tries to do well. If a dull boy feels an inspiration stirring within to know something worthy in literature, science, and art, let him set his face as a flint toward his object; let him be patient, hopeful, and self-reliant, unmoved by laughter and undiscouraged by evil prophecies, and he will succeed."

A DEBATE between the Meaford and Chatsworth debating societies has been arranged to take place at Chatsworth on Friday

evening, Feb. 20th, when Messrs. J. J. Johnston, J. McMillan and H. T. Law will speak on "Resolved, that women should be placed upon a perfect equality with men as regards the voting power, eligibility to public offices, and all other franchises."

A PARTY of one hundred bicyclists from Chicago, Buffalo, and Boston, will leave Buffalo on their wheels on July 6th, going *via* Rochester, Cobourg and Kingston, arriving from the latter point by steamer upon July 11th at Round Island, where they will camp at "Shady Ledge" for three days. A parade will probably be arranged to take place in Clayton during their stay.

A DEBATE on Christianity *vs.* Secularism has been arranged to take place at Welland, Ont., on Tuesday, March 3rd, '85, between Mr. Aaron Walker, a noted disciple of Kokomo, Indiana, and Mr. C. Watts, the noted secularist lecturer. We have not heard what the propositions are, but are informed Mr. Walker is a master debater, and as many of our readers have heard Mr. Watts, there can be no doubt that the argument will be worth listening to.—*Ex.*

VIENNA telephone people have a practical way of putting up their wires, using neither poles nor house-tops, and yet not placing them underground. There are affixed to the walls of the houses, on either side of the street, small and very neat iron frames, holding from eight to sixteen porcelain insulators. The wires are then strung along the fronts of the buildings on these insulators, between the second and third storey windows. The whole presents a neat and even pretty appearance, the wires being inconspicuous on account of their smallness.

THE *Canadian Live Stock Journal* has the following advice in regard to the offer of Prof. Hare, of the Agricultural College Guelph, who stated at the Institute held in Hamilton, that he and others of the professors would go any reasonable distance to address a meeting of farmers held on a Saturday, with no other charge than that of travelling expenses:—"Farmers, do not allow so munificent an offer to go unaccepted. Profit by your opportunity. The professors, any of them, will give you a rare treat—too good by far to miss."

THE *Dominion Churchman* of the 12th inst. contains a long article on Over-Presure in Schools. It says:—

"It is a melancholy fact in Canada that the voluntary pursuit of learning after school days is almost unknown here. In the old land it is a very marked and universal feature in the social life of all classes. A graduate of University College, a man of very wide acquaintance among young men, recently said, that he did not know *one* young native Canadian who was 'reading,' in the same earnest spirit that many of his English friends were doing in mid life and even old age. The truth is their brains have been devitalized by over-pressure in early school days, hence we are getting a monotony in our life here which is unutterably wearisome to those who have enjoyed the fresh, vivacious, spontaneous, infinitely varied intellectual life of the old world. This manufacturing mental forms by wholesale, like casting bullets all in one hard, narrow mould, is the evil of a public school system. Every child is passed through the one mould, and in after life we get a population whose ways of thought and expression are as alike as the step and bearing of soldiers drilled by the same sergeant."

## Music.

THE annual conversazione of the Literary Society of University College, which took place last Friday evening, was this year as usual a not successful event, rendered especially so by its musical programme. The Queen's Own band, near the main entrance, did full justice to a rich programme, which was well appreciated. With regard to the musical programme in Convocation Hall, let us say a few words. The greatest interest centred on the first part—in itself a concert, the cantata *Frithjof* composed for male voices by Axel Bruech. This was rendered by the College Glee Club numbering some fifty voices, with the assistance of Mr. A. E. Stoddard, of New York, who took the part of *Frithjof*, and Miss Hardman, of Hamilton, who took that of *Ingeborg*, accompanied by the Philharmonic Orchestra, under the leadership of Prof. F. H. Torrington. We were reminded of the *Antigone* so successfully produced by the same club in 1881.

The *Frithjof* is of a lighter style, although passages here and there, especially the dramatic, are more massive—the changes now and then noticed from heavy to light produce a most pleasing effect. Mr. Stoddard has a clear, rich, baritone of great compass and power, enabling him to do the fullest justice to *Frithjof's* many grand passages; in the fourth, "Farewell," scene, especially he delighted the audience by his perfectly sustained and *crescendo* notes in the solemn invocation to "The Mighty North." In this scene also occurs a solo-quartet, which was taken by Messrs. W. F. Frost, B.A., (first tenor), C. W. Gordon, B.A., (second tenor), N. Kent (first bass), and J. F. Brown, B.A., (second bass). These gentlemen are to be congratulated on their success in ably assisting Mr. Stoddard in this scene. Miss Hardman has not a strong, but a very clear and sweet voice, which enabled her to render most effectively her solo, "Lament," as *Ingeborg* in Scene 5. She sings without effort in a clear compass, and is entirely unaffected. In the heroic and dramatic parts especially, the chorus excelled and pleased by the confident way in which they sang their different parts, their intonation also being good.

In the third and last scenes the chorus was at its best, the male voices being particularly adapted for this style of composition.

The second part of the programme consisted of a solo from Mr. Stoddard, *Vittoria, mio core*—Corissimi, which solicited a well earned *encore*, to which he responded with Hatton's *To Anthea*; another, *Ermani involami*—Verdi, by Miss Hardman.

Instrumental pieces were also rendered by Miss Cummings and Miss Kerr, both with taste, expression, and powers of execution. Mr. Saunders gave a flute solo, with piano accompaniment by Miss Blackwell.

Miss Churchill secured a great success in her rendition of *Hiawatha's Wooing*.

A beautiful octet, *Annie Laurie*, harmonized by Dudley Buck, was also sung by gentlemen of the university, Messrs. C. W. Gordon, B.A., and J. C. Tibb, W. H. Blake, B.A., and G. Gordon, J. D. Graham and W. C. Chisholm, and A. G. Morphy and J. F. Brown, B.A., taking the different parts. This was one of the most pleasant pieces on the programme, the bass gentlemen especially doing all credit to the melody.

## Drama.

ON the first night of *Theodora*, at the Porte Saint Martin, the crush was tremendous. Ticket speculators reaped a rich harvest. In many cases as much as \$40 was paid for a seat.

*The Blot on the Scutcheon*, as played by Lawrence Barrett, differs widely from the play as written by Mr. Browning. The changes, however, were made by Mr. Barrett in collaboration with the author.

JOHN CARBOY, the oldest critic of the New York press, says: "By common consent, Mr. Booth and Mr. Barrett are the foremost tragedians of this country, and it may be doubted whether they have their equals in Europe, when it is remembered how many great characters they have made especially their own."

A. R. WATERMAN, business manager for Henry Chanfrau, says that the young man has met with success in all the large cities he has visited, and that, though his route was made up very late in the season, he has been booked well ahead in cities where the elder Chanfrau was for years a favorite. The new star is to try a London venture with *Kiz*, in 1886.

COLERIDGE'S remarks upon stage illusion should be read by all:

"A theatre, in the widest sense of the word, is the general term for all places of amusement through the eye or ear, in which men assemble in order to be amused by some entertainment presented to all at the same time and in common. . . . The most important and dignified species of this genus is, doubtless, the stage, which, in addition to the generic definition above given, may be characterized in its idea, or according to what it does, or ought to, aim at, as a combination of several or of all the fine arts in a harmonious whole, having a distinct end of its own, to which the peculiar end of each of the component arts, taken separately, is made subordinate and subservient—that, namely, of imitating reality—whether external things, actions, or persons—under a semblance of reality. Thus, Claude imitates a landscape at sunset, but only as a picture, while a forest scene is not presented to the spectators as a picture, but as a forest; and although, in the full sense of the word, we are no more deceived by one than by the other, yet are our feelings very differently affected; and the pleasure derived from the one is not composed of the same elements as afforded by the other, even on the supposition that the *quantum* of both were equal. In the former, a picture, it is a condition of all genuine delight that we should not be deceived; in the latter, stage scenery, (inasmuch as its principal end is not in or for itself, as is the case in a picture, but to be an assistance and means to an end out of itself) its very purpose is to produce as much illusion as its nature permits. These, and all other stage presentations, are to produce a sort of temporary half-faith, which the spectator encourages in himself and supports by a voluntary contribution on his own part. . . . What pictures are to little children, stage illusion is to men. . . . The true stage illusion in this and in all other things consists, not in the mind's judging it to be a forest, but in its remission of the judgment that it is not a forest."

## Art.

EDINBURGH is to have a national portrait gallery, \$150,000 having been donated by a private gentleman, and the site for the building being furnished by the Government.

THE next exhibition of the Royal Academy will contain a portrait of Mr. Gladstone by Millais, and a picture by Mr. Linton representing the wedding of the late Duke of Albany.

GERMANY has purchased for the Berlin Museum a panel portrait painted by Albert Duerer, in 1526. It represents Jerome Holzschuher, his friend, one of the representatives of the city of Nuremberg. The price paid was £50,000. Berlin has also bought from Lord Dudley, a Fra Angelico for which it paid £10,000.

MR. RUSKIN has the following to say on modern English art. After being for at least half a century paralysed by their isolation and self-sufficiency, the British schools of painting are now in the contrary danger of losing their national character in their endeavor to become sentimentally German, dramatically Parisian, or decoratively Asiatic.

THE value of linoleum as a material for decorative painting, says the *Magazine of Art*, is well illustrated by some screens made by Messrs. Wilkinson & Son, of Old Bond street. Specially to be admired are some hunting scenes, and one panels painted with peacocks and other birds. The successful employment of stain-colors for painting on wood may also be noted here. A screen thus treated by Mr. Lewis F. Day with figures in the panels and borders in imitation of inlay, has more than all the effect of the most elaborate *marqueterie*.

ART has lost not a few of her devotees lately. Amongst those who within the last few months have died are, Henri-Felix-Emanuel Philippoteaux, the battle-painter, author of the famous panorama of the bombardment of Paris; Mlle. de Bashkirscheff, a Russian painter of great promise; William Henry Fisk, lecturer and writer on art; Frederick William Hume, landscape painter; Aug. von Nordheim, sculptor; Paul Lacroix, art-critic and archaeologist; Henry Stormont Leitch, sculptor; John Edward Freeman, John Adam Houston, M.R.I.

MR. RUSKIN has some trenchant sentences in *The Fine Art Library* on the relation of Governments to the encouragement of art. Hitherto, he says, the action of all Governments in the encouragement of national art has been resolutely wrong, in one or other of two opposite directions. Either they have endeavored to protect their own clumsy workmen from the competition of more dexterous neighbors by laying duties on foreign art—as at present the Americans, in a state of hitherto unprecedented egoism and stupidity, . . . or else they have hoped to teach their native artist foreign tricks of trade and filled—as now the universal repository at Kensington—their museum and workrooms with miscellaneous types of unexplained design, from which the incapablist of their own craftsmen might filch absurdities enough to provoke demand when trade was slack, or content a fashion when trade was rapid.

*Practical Art.*

*PERSPECTIVE.*

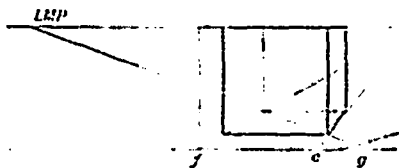
FIFTH PAPER.

IN the following rule for measuring vertical heights, which has been simplified as much as possible, the letters *x* and *y* are used to signify: one, the point on the ground a vertical line from which would pass through the point required; and the other, the vanishing point on the horizontal line (HL) selected for the purpose of measuring off, on this vertical line, the proper height; *y* had better be one of the measuring points or the CV, but if either one was specified, the general usefulness of the rule would be restricted.

**RULE.**—To measure vertical distances. First, find on the ground plane a point (*x*) directly beneath the point sought; through it draw a line from some point (*y*) on HL to GL, to attain point of contact (PC); at PC erect a perpendicular of the required height, and from its upper extremity draw a line to *y*; a perpendicular from *x*, to cut this, will give the point required.

This rule, if followed closely, will enable the student of perspective to overcome many of the difficulties that present themselves at the outset, as more trouble is usually found, in this part of the work at least, of parallel perspective, than any other.

In measuring off the distance of a point situated on the ground away from PP, it would be well, when it is to the left, to use the LMP, and when to the right, the RMP. The reason for this is, that by so doing, the angles formed by the intersection of the line to the MP with the one to the CV, are nearer to being equal than if the opposite course was pursued: and the point of intersection is therefore more easily and more accurately determined.



In the following problems the height of the eye is 5', the distance 16', and the scale 1/96.

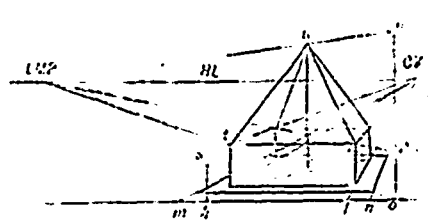
**Problem 9.**—An oblong 4' x 6' lies on the ground with its small sides parallel to PP and its nearest corner 2' to the right and 3, back,—Figure 10.

Find the point *a* by measuring on GL 2" to right of LD; draw *a* CV; to the right of *a* find *b*, 4' distant; *ab* will be near edge of oblong brought forward to touch PP; draw *b* CV; find on *a* CV the point *c*, 3' back, and draw *cd* parallel to GL; this will be the near edge of the oblong in its proper position.

Next measure off on *a* CV, or *b* CV (the measurement has been taken on *b* CV in the illustration), a point *g'* back, as this is the distance of far edge of oblong from PP, and through this draw a line parallel to CD to complete the figure.

**Problem 10.**—A cube of 5' edge stands on the ground, the near corner of base being 4' to the left and 2' back,—Figure 10.

Find in the points *e* and *f* the corners of front edge of base when brought forward to PP; on *e* CV find by means of *g* LMP a point *z'* back; it will give the near right hand corner and the far left hand corner of base;



complete the square; at *f* erect a perpendicular equal in height to the side of the cube (5'), and from its upper extremity draw a line to CV; but this line is in the HL, therefore the top of the cube is on a level with the eye, and will appear as a straight line; from the corners of the base erect perpendiculars to meet HL.

**Problem 11.**—A stone pillar 8 high, base 4' square, stands upright on the ground with two faces parallel to PP and near corner of base 4' to the right and 3' back.—Figure 11.

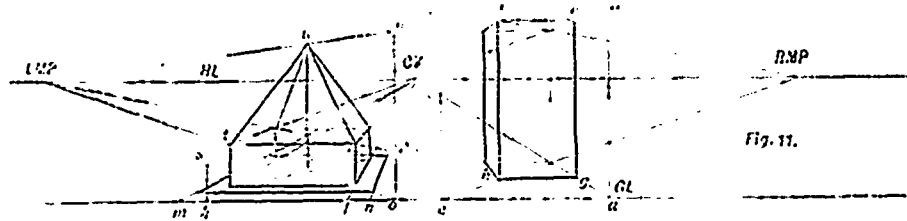
First draw the square base in its proper position; this will need no explanation. At *a* erect the perpendicular *ab*, 8 long, draw *b* CV, which will give *c* as right hand front corner of top of pillar; the corner *d* may be

found by a horizontal line from *c*, or by the perpendicular *ef* and the line *f* RMP. Notice how either of these methods follows the general rule given above. In the one case *x* is represented by *g*, *y* by CV, and PC by *a*; in the other *x* is represented by *h*, *y* by RMP, and PC by *c*. Having obtained the height of the edges *gc* and *hd*, the rest of the top can be easily found.

**Problem 12.**—A pavement 5' square has two sides parallel to PP and its near corner 2' to the left and 1' within. In the centre of this, place a slab 6' square, 2' thick, two sides

parallel to PP, and make the top of this the base of a pyramid 5' high.—Figure 11.

With regard to this, the sides of the pavement and the edges of the top and base of slab being parallel, and the centres of the three objects being in one vertical line, we know that the apex or top of the pyramid is above the centre of the pavement, and the diagonals of the base of the slab, in the diagonals of the pavement. Draw the pavement, and in the centre place the square representing the base of the slab by finding the points *k*, *l*, in the proper relative positions to *m* and *n*, when both squares are brought forward to



the PP. Where the diagonal *o* LMP cuts the sides *k* CV and *l* CV, will evidently give two corners of the smaller square. Now it will be seen that the line *o* CV passes through two corners of each square and also through the centre, over which is to be the top of the pyramid, so that all the vertical measurements required can be taken by means of a perpendicular from *o*. On this measure 2', the thickness of the slab, and draw the line *p* LMP to get the corner *r*, of top of slab, the corner *t* may be obtained by a horizontal line from *r* or a line from *s* to CV; *s* is the measurement on the perpendicular from *k* of the thickness of the slab. To find the top of the pyramid, set off OV its height from the ground and draw *v* LMP, *vw* will be its position; join it with the corners of the top of slab.

**Problem 13.**—Represent by a point the position of a bird 6' to the right, 10' back, and 8' high.

**Problem 14.**—A slab of stone 6' square, 3' thick rests on one of its small faces, with its large faces at right angles to PP, and near corner of the side on the ground, 4' to the left and 3' back.

**Problem 15.**—To the right of, and touching this, place a pyramid 4' high, base 6' square, so that the lower front edges of both objects are in a line parallel to PP.

It would be advisable for the student to work these out carefully, using height 5', distance 12', scale 1-24, or 1/4" to 1".

*Arthur J. Reading*

## The High School.

### WHY WE SPEAK ENGLISH.

BY RICHARD GRANT WHITE.

(Continued from last issue.)

WHAT Halhed and Jones put forth as strong probability was ere long found, was clearly proved, to be the truth. Persian, Greek, Latin, Gothic, Celtic, and of course all languages derived from them, were discovered to be identical in origin with Sanskrit. Now, what was this Sanskrit, this wonderful language which so suddenly and so surely unlocked the mystery of the world's speech, and revealed the source of all the languages of civilized Europe, and some of those of Asia? Sanskrit, (the name means worked together, elaborated, highly finished), is the sacred language of the Brahmans, in which was preserved the religious teachings and legends of the people of India, whom we call Hindoos. It is quite four thousand years old in its existing form. For a very long time it was unwritten, the Brahmans having no letters; and the sacred books (so we must call them) were transmitted orally, but with such veneration not only for their doctrine and their story but their phraseology in its minutest particulars, that among the Brahmans grammar became a religion, and the slightest variation from the text of the Vedas—this was the name of the sacred books—was regarded as a sin. Punctilio in this respect was carried so far that when letters were borrowed from the West, and an alphabet was formed, and the Vedas were written, it was protested against by the conservatives as a sacrilege. Common sense and convenience, however, carried the day. Sanskrit is the most elaborate, the most minutely divided, the most elaborately inflected speech known to man. The sight of a Sanskrit grammar is appalling to the common sense of our day. There are ten conjugations of verbs; and a verb has ten tenses; and each of these tenses has three numbers, singular, dual and plural; and each tense has two sets of terminations. Nouns, adjectives and pronouns are singular, dual and plural, and have eight cases. Inflections of all words are distracting for multitude and intricacy. Yet this elaborately intricate language was spoken in what we think of as the wilds of Asia long before the history of the human race is known; at least four thousand years ago.

A Frenchman named de Chésy learned Sanskrit from a British officer named Hamilton, who, on his way from India, was detained in France, and taught it, as he says, to Franz Bopp, a German philologist, who made use of it in a work on the system of conjugation, and thus became, unintentionally, a Columbus-like discoverer of the great science of Comparative Philology. For Bopp "bumbled better than he knew." His purpose was merely to work out his system of conjugation; but in doing this he revealed and established the unity of speech in all the Aryan, or Indo-European peoples. This he himself afterwards elaborated in his "Comparative Grammar" of the chief Aryan languages. Then came another great German philologist, Jacob Grimm, who discovered the law, or method, according to which words changed their forms; and the great end was accomplished. This happened in 1816-19; and since that time Comparative

Philology has worked upon the lines indicated by Bopp and Grimm. Bopp's great "Comparative Grammar," however, did not appear until 1833.

One of the most important, if not the most important of the results of the discovery of Sanskrit, and the consequent prosecution of the study of the language upon the historical and comparative method—the only safe method for the study of any subject—is the revelation of the origin, and to a certain and very remarkable degree, of the early unrecorded history of the Aryan or Indo-European peoples, that race which has received the latter name because it occupies, and for two thousand years and more has occupied, all India and Europe. Let us glance at this history as it is thus revealed, for it is very much to our present purpose.

Take a good map of Asia, one which shows the eastern confines of Europe, and turn your attention to the country now called Jookistan, lying between the Caspian Sea and the western boundary of the Chinese Empire. There, some five or six thousand years ago, (it will not do to be too particular, all the more because we cannot, if we would), about the foot of the Hindoo Kosh, and around the sources of the Oxus, there lived, we have good reason to believe, a people who called themselves Aryan. They were a white race, much fairer, at least, than the people who were then occupying Europe and the other parts of Asia. They were strong of body, intelligent and enterprising. They did not live only by hunting and herding, like the nomadic peoples, their neighbors, but cultivated the ground. The name, Aryan, means honorable, noble; and there is some reason for believing that it is connected with their agricultural pursuits and distinction. For reasons which of course we do not know, but probably from the pressure of population, more than four thousand years ago this people began to send out bodies of emigrants. They moved westward, toward the Caspian Sea, of the existence of which they were probably ignorant. They had used boats upon the Oxus, but the history of their language shows that they knew nothing of what we call navigation. Their progress seems to have been slow, but continuous, one body of emigrants being ere long followed by another. We may be sure that they had to fight their way. So late as eight hundred years ago all emigration was arrested. The strong took the land re-handed from the weak, or at least from those who were not so strong and so numerous as they were themselves. The Aryans reached the Caspian Sea, and took possession of the country lying south of it, since known as Persia. After a time, we know not how long, emigration began again from this point. But here the advancing people divided. Some of them moved in a south-westerly direction; and this stream of emigration continued until it overflowed all the vast territory now known as Afghanistan, Beloochistan and Hindostan. Another stream moved westward and northward, and passed through Turkey in Asia into Europe.

(To be continued.)

THE late Dr. Ezra Abbot's priceless library of about 4,000 volumes has been offered to the Harvard Divinity school at Cambridge, but its acceptance and proper care will involve the erection of a new fire-proof building, for which \$20,000 is asked from the friends of sound Biblical education.

## The Public School.

### PRIMARY ARITHMETIC.

BY ELLA RINSLEY, ORNEVA, O.

It has been said that a child is a walking interrogation point, and, I think we may safely add, one that represents an indirect question.

We need not flatter ourselves that we can answer him satisfactorily by a simple "yes," or "no." Fortunate are we if we have sufficient skill in the use of simple language to be able to answer him at all. We may, indeed, silence him with a very few words, but the question mark is still visible in his face until he understands the answer. It has been claimed by one of experience and authority, that much time is wasted in our primary schools, trying to make clear to the minds of children things that are beyond their comprehension, when, if we would simply give them the facts and let them retain these in their memories until their reasoning faculties were more fully developed, they would then be able to solve the mysteries for themselves, and thus much time and labor would be saved. Is it true that a child's memory is so far in advance of his reasoning faculties, that it can retain all these bare facts without a chain of reasoning with which to connect them? And if the memory has this advance, how can the reasoning faculties overtake it unless we give them careful assistance?

Let us take the child as he first enters school, and suppose that he knows absolutely nothing about numbers. The majority of children, it is true, know how to count to five or ten, and some far beyond that, before entering school; but some of them do not, and we will take one of these for an example.

Suppose we place on the blackboard a figure 1 and tell him that that means one, and to make it on his slate. He does the best he can, and then the questioning face turns to ours with a look that says as plainly as if it were spoken in words, "Well, what of it? What is one, anyway? and why is that one any more than anything else is one?" We might say to him, "Never mind, now, just remember that that always means one, and by-and-by you will understand all about it."

In the same manner we might proceed with two, and, placing a figure 2 on the board, tell him that mark means two, and that one and one make two. I imagine I can see him trying to make a figure 2 with two straight lines. If he does not succeed, and of course he cannot, he will very naturally come to the conclusion that 1 and 1 do not always make 2—they wouldn't on his slate, anyway. But if we show him how to make the figure 2, and tell him that one and one do make two, and that when he grows older he will understand it, he will probably take our word for it and go on.

But suppose we try another way. Just take a handful of chestnuts: "Johnny, do you like chestnuts?" The interrogation point changes to a very positive expression as he replies, "Yes, ma'am." "Well I will give you one. What have you now?" "A chestnut." "Yes, one chestnut. Now you may give one chestnut to Jennie, and one to each of the rest of the class." Now let me take

one chestnut in the right hand and two in the left, and say to Johnny, "Which will you take?" He chooses the left hand of course. "Why do you choose that hand?" "Because there are more in it." "Yes, and how many more?" "One more." "Right; and when we have that many chestnuts, instead of saying one chestnut and one chestnut more, we just put them together and call them two chestnuts, and so one chestnut and one chestnut are two chestnuts. Now I will put on the board something that means two (2), so that if I could not talk and wanted you to bring me two chestnuts, I could just make this mark and you would know that I wanted one chestnut and one chestnut more, or two chestnuts."

Then let the teacher change from chestnuts to beans, marbles, sticks, or anything within reach, that the child can handle, and then let the children name things they can think of, but cannot see, until it is made clear to their minds that the figures 1 and 2 represent the numbers of things taken, and not the things themselves. Then they will understand in what way one and one make two.

In the same way, by using different combinations, the child will soon be able to add all numbers whose sum is less than ten, and he knows just how and why he reaches those results. He will readily see that if he eats one of those two chestnuts he will have just one chestnut left, and, by similar exercises, he will learn the difference as well as the sum of all numbers less than ten.

Let him call the sign plus *and*, the sign minus *less*, and the sign of equality *are*, and he can easily express on his slate the results of his mental calculations. A very good way to assist the children in remembering the results of combining different groups of objects is for the teacher to place on the board in groups, pictures of different objects—flowers, birds, fruit and the like, and then, taking in her hand a newspaper, school register, or anything else that will serve as a screen, first hold it so as to obscure all but one of the groups. Now change its position so that the pupils can see two or more groups at once and combine them, giving their sum. In a short time they will become so familiar with the different combinations that they can give the results about as rapidly as she can move the screen.

Mental exercises in multiplication and division can be introduced at the same time, and the children will not recognize the fact that they are taking up two more of the fundamental rules of arithmetic, unless you tell them so by introducing their signs.

Ask Johnny how many times he will take up one chestnut to get two chestnuts, and he will tell you two times; and so he sees that two times one chestnut are two chestnuts, and also, if he can take one chestnut out of two chestnuts two times, he will readily be made to see that one chestnut is in two chestnuts two times.

*(To be continued.)*

THE year 1885 will have two eclipses of the sun and two of the moon. An annular eclipse of the sun will occur March 16th, visible in Canada as a partial eclipse. March 30th there will be a partial eclipse of the moon, but this will be invisible in Canada. September 3rd a total eclipse of the sun will take place, visible in Australia, South Pacific Ocean and Cape Horn. This will be followed, the 24th of the same month, by a partial eclipse of the moon, visible in Canada.

## The Kindergarten.

### DEEDS OF KINDNESS.

SUPPOSE the little cowslip  
Should hang its golden cup,  
And say, "I'm such a tiny flower,  
I'd better not grow up."  
How many a weary traveller  
Would miss its fragrant smell!  
How many a little child would grieve  
To lose it from the dell!

Suppose the glistening dewdrop  
Upon the grass should say,  
"What can a little dewdrop do?  
I'd better roll away."  
The blade on which it rested,  
Before the day was done,  
Without a drop to moisten it,  
Would wither in the sun.

Suppose the little breezes,  
Upon a summer's day,  
Should think themselves too small to cool  
The traveller on his way:  
Who would not miss the smallest  
And softest ones that blow,  
And think they made a great mistake,  
If they were talking so?

How many deeds of kindness  
A little child may do,  
Although it has so little strength,  
And little wisdom too!  
It wants a loving spirit,  
Much more than strength, to prove,  
How many things a child may do  
For others by its love.

### THE IMPORTANCE OF CHILDREN'S PLAY.

BARONESS VON MARENHOLTZ-BUELOW.

*(Continued from a previous issue.)*

WE cannot here say all that Nature says to the child, nor demonstrate the great, the infinite importance which lies in the fact of Nature being the first cradle of a young human spirit, nor show how a fresh, healthy life in the midst of Nature forms a counterpoise to artificial, conventional life. Look at a Kindergarten, observe the children at their gardening, or during any of their outdoor pleasures—in the garden or in their walks—to which an intelligent teacher knows how to give a thousand instructive turns, and then it will be understood how far the cultivation of a natural instinct apparently so insignificant may lead. Then it will be comprehended that the first introduction to Nature, the right use of the objects presented by the outward world is able to give the only solid and sure basis for all the development to come.

If we now continue to observe the first manifestations of a child's nature, nothing will strike us more than the desire which all children have to touch and handle things. How tightly does the infant, though but a few months old, seize the hand of the mother or any other object, and how unwilling is he to let it go. This is the beginning of his

acquaintance with materials, the first exercise of the young hand which must afterwards work with them.

The hand is the most characteristic member of a man's body, his sceptre, given to him by Nature and proclaiming him her king. Without hands a man cannot handle, he can do no work, he can produce nothing. Therefore is the child endowed with so strong an instinct to use his hands. They serve him as a means of instruction when the other senses are not yet sufficiently developed to aid the sense of touch.

With the first pressure of the infant's hand awakens the desire to form things, the instinct of work we might call it, or still better the plastic instinct. Its highest object is, to transform the products of Nature into industrial products. This plastic instinct is in the full extent of the word the instinct of civilization.

Hitherto education has troubled itself but little about developing the powers of the hand in early childhood. And yet this is the very time when it may be done with success, for the flexibility and suppleness of children's limbs fit them for the most varied exercises. Whoever will take the trouble to compare the hands of children up to about the age of twelve years, will not fail to notice how the hand develops under the care of sensible parents and teachers who early turn its activity to account, whilst in the children who run wild in the streets, and who have generally never had any material for exercising the hand, we find stiff, crooked fingers which in after years will have to strive hard and often in vain, to obtain the dexterity necessary for manual employment.

Froebel's Kindergarten not only exercises the muscles of the body in general by its gymnastic games, it has also its special gymnastic exercises for the hand, which are intended to begin already in the child's first year, upon the mother's lap. The little games—for they must be games—with the fingers not only form and develop the hand, but are also the first exercises between mother and child, the first little fulfilment of a duty, and the means of training a child to imitation. Whatever he imitates with his own hands, be it things or actions, whatever he imitates with pleasure and delight, and whatever by a bodily sensation has entered, so to say, into his flesh and blood, will leave an enduring image. Thus the exercises form a means for giving the child a practical knowledge of the things which surround him.

Since Froebel's method of education is based on activity, the personal activity which forms and produces, its first requirements is the early development of the hand.

The earliest use which our first progenitors made of their hands, was, no doubt, to provide themselves with shelter and clothing.

*(To be continued.)*



## Educational Intelligence.

### DURHAM TEACHERS' ASSOCIATION.

THE annual meeting of the above Association was held in the School buildings, Bowmanville, Feb. 12th and 13th. The President, Dr. Purslow, in the chair.

The committee on railway certificates reported that the G. T. authorities refused to grant tickets at reduced rates to teachers during the holidays, on account of their contracts with other companies. The Association received the report, but on motion the same committee were instructed to again endeavor to secure reduced rates over the Grand Trunk lines.

The Treasurer's report showed a balance of \$35.12 on hand.

The election of officers was then proceeded with and resulted as follows:—

President—W. W. Tamblin, M.A.,  
Vice-President—Mr. Wood.  
Secretary—A. Barber.  
Treasurer—C. Keith.

Committee:—

Bowmanville—J. Gilfillan.  
Port Hope—Mr. Thornhill.  
Newcastle—W. W. Jardine.  
Millbrook—D. Hampton.  
Darlington—R. J. Sangster.  
Cartwright—Mr. Wilson.  
Cavan—Mr. Glass.  
Hope—R. Davison.  
Clarke—W. C. Allio.  
Manvers—R. Preston.  
South Mon—J. Sterling.

W. W. Tamblin, the president-elect, then took the chair, and called upon Dr. Purslow, who made some very practical remarks on the Entrance Examinations.

In the afternoon G. B. Kirk, Esq., late model school master, Port Hope, exemplified his method of teaching the first steps of arithmetic.

Dr. McLellan was then introduced to the Association, and gave a lecture on "Reading in Schools."

In the evening a public meeting was held in the Church Street Methodist church, which was addressed by Dr. McLellan; subject—"Education in Ontario." The Doctor spoke with great force for about two hours, during which he contrasted the education of to-day with that of twenty years ago, also with the systems of other countries, showing clearly that we are favored with a system of education which, though not all we could wish, yet one of which we may justly feel proud. He had a strong plea for the primary work in our schools, advocating for the very best teachers during the first years of a child's life in the school-room. The address, though long, was replete with thought, and was listened to with wrapt attention broken only by frequent applause. At the conclusion, the audience, upon the motion of the Rev. Mr. Young, seconded by Rev. Mr. Walker, accorded to the speaker a hearty vote of thanks.

Friday morning the committee on periodicals presented a report favoring the EDUCATIONAL WEEKLY. The report was adopted, and the Secretary was asked to receive names and forward the subscriptions of any who might apply.

Mr. Tamblin introduced the subject of "Grammar in Schools," criticized by Messrs. Keith, Gilfillan and Inspector Tilley.

The remainder of the forenoon was oc-

cupied by Dr. McLellan, on the "Art of Questioning."

The first subject in the afternoon was "Drawing," by Mr. A. Barber, after which Dr. McLellan spoke on "Rational Analysis."

The Association decided to continue to hold semi-annual sessions, the next meeting to be in Port Hope during the Model School term, at which it is hoped one of the conductors of Institutes will be present.

The Association most cordially approved of the action of the Government in appointing a person of the ability of Dr. McLellan to assist Associations in their work, and passed a hearty vote of thanks to Dr. McLellan for his very able assistance on this occasion.

A scheme was brought before the Association recommending a course of reading for teachers while engaged in their work, leading to a certificate showing the extent of that reading. A resolution was passed expressing a hope that the Minister of Education might see his way clear to bring some such a scheme into operation.

OWING to the inefficiency of the heating arrangement of the London Collegiate Institute during the late cold snap, the room had to be dismissed.

THE University of Virginia has no prescribed course of study, no entrance examination, no vacation except the summer one, and but six holidays.

THE next meeting of the Waterloo Co. Teachers' Association will be held in New Hamburg, on Thursday and Friday, Feb. 26th and 27th, commencing each day at 9:30 a.m. Dr. McLellan will deliver a public address in the evening.

AT the last meeting of the Sarnia Board of Education, the Inspector's report was read showing the number of scholars on the roll increasing, but the attendance less, owing to the cold weather and sickness. He also complained of the time kept at the schools, and suggested that the old time be used instead of the standard.

THE Simcoe Board of Education, in common with many other Boards throughout the Province, is memorializing the Government for a change in the law relating to municipal grants for high school purposes. At present the towns pay a preponderating share of the expenses.

AN exchange gave the following statistics culled from the report of the Minister of Education:—

"The school population (comprising only children between the ages of five and sixteen years) reported by trustees was 478,791; decrease, 5,026. The number of pupils between the ages of five and sixteen years attending the schools, 452,661; decrease, 4,517. Number of pupils of other ages attending the schools, 11,708; decrease, 2,626. Total number of pupils attending the schools, 464,369; decrease, 7,143. The number of boys attending the schools, 243,671; decrease, 3,295. The number of girls attending the schools, 220,698; decrease, 3,848. The number of children between seven and thirteen years of age reported as not attending any school for 110 days during the year was 88,432. The number between seven and thirteen reported as not attending any school whatever, 7,266; or one and a half per cent of the whole school population. The average attendance, viz., the aggregate daily attendance divided by the number of legal teaching days in the year, being 220 for rural and 212 for urban schools, was 21,561; increase, 1,385. Thus, while the total school population is decreasing, the average attendance has increased.

## Personals.

### EDUCATIONAL.

THE president of Wellesley College is Miss Alice E. Freeman. She is said to be only 28 years of age.

PROFESSOR NEWTON resigned the post of director of the Yale College observatory. No new director has as yet been appointed.

AT the meeting of the Listowel High School Board, held on Wednesday evening, Mr. D. D. Campbell was appointed chairman of the board for the current year, and R. Ferguson, secretary-treasurer.

THE *Brackville Recorder* says that it is rumored that Principal Grant has been offered the position of president of the proposed provincial university, if he will consent to go to Toronto. Where this originated we cannot conceive.

AT the annual meeting of the Elora High School Board, held recently, Rev. Jas. Middlemiss was re-appointed chairman, Mr. David Foote was re-appointed secretary and treasurer, and Mr. J. M. Shaw was placed on the museum committee.

MR. D. C. MCHENRY, M.A., principal of Cobourg Collegiate Institute, has been appointed to prepare and present a paper to the Congress of Educators at New Orleans. His subject, in section B, will be "The High Schools and Collegiate Institutes of Ontario"—dealing particularly with the progress and present condition of secondary education in the Province.

THE Rev. Charles F. Thwing, just chosen president of Grinnell College, Iowa, is a descendant of Stephen Hopkin, the pilgrim, who came to Plymouth in the Mayflower in 1620. Mr. Thwing's great-great-grandfather, Prince Hopkin, was born at Harwich, Mass., in 1769, and moved to New-Sharon, Me., in 1804, driving his sheep and cattle before him through what was then almost a wilderness.

AT the last regular meeting of the Lindsay Board of Education, the salary of Mr. John Head, modern language master, was increased by \$100. Mr. Head has now filled the position for over four years, and the increase was considered by the board as being only a fitting recognition of faithful and efficient service. Mr. Head is a specialist in his department, having spent a considerable portion of his life in France, Germany, and other countries of Europe. We congratulate him on his advance.

THE *Woodstock Sentinel-Review*, having been asked what the professional standing and qualifications of Mr. Deacon, the coming principal of the model and public schools are, answers as follows: Mr. Deacon attended the Normal school in 1870, and obtained 1st class certificate, grade B; was appointed an examiner of teachers for Oxford County in 1871, and principal of Ingersoll public schools in 1872. Has held these positions continuously to the present time, except that he vacated the latter position during the year 1882. His present qualification is the highest attainable by public school teachers, viz., 1st A, provincial and inspector's certificate. He attended the London Business College in vacation (1873), and the Ontario school of art in vacation (1884), and received a first-class certificate from each institution. He is also an undergraduate in arts of Victoria University.

## GENERAL.

LORD GARMOYLE, son of Earl Cairns, is stopping at the Windsor, Ottawa.

MR. FRED. ARCHER, the well-known English jockey, intends to remain in Ottawa for some little time.

HON. JOHN B. FINCH, the famous temperance orator, is going to give a series of lectures in Nova Scotia.

MR. RICHARD A. PROCTOR, the astronomer, contributes a column on whist to the *New York Tribune* of the 10th inst.

PROFESSOR HUXLEY's health at Naples is by no means satisfactory, and he is compelled to live in absolute seclusion.

MR. GEORGE DOLBY has written a little book called "Charles Dickens as I Knew Him," which is full of pleasant and unpretentious reminiscences.

MR. STANLEY LANE-POOLE is preparing a volume of the letters of Dean Swift for the "Parchment Library," included with which will be selections from the "Journal of Stella."

It is the intention of Carlyle's niece, Mrs. Aitkin, of Dumfries, to publish a life of him on her own account, in which many of what she considers to be Mr. Froude's blunders will be corrected.

THE centenary of the birth of Jacob Grimm was duly celebrated in Berlin on the 4th of January, eminent scholars and persons of rank assembling for that purpose at noon in the hall of the university.

EDMOND ABOUT left a wife, eight children, and only a small fortune, although he was supposed to be very rich. He often used to say that he was prouder of his well-trained children than of anything else he would leave behind him.

THE venerable Professor Leopold von Ranke, is a great favorite in Berlin society. His conversation is brilliant and epigrammatic, and he is always good-natured. In religion he is an ultra-orthodox Lutheran, in politics a Conservative Royalist, and in all things an intense Prussian.

THE young aunt (aged thirty-five) of the King of Bavaria, by name Therese von Bayern, has just published a volume of 600 pages, called *Reiseeindrücke und Skizzen Aus Russland*, Impressions and Sketches of Travels in Russia. It is published under the thin disguise "Von Th. von Bayer."

MR. HAWES, the well-known London clergyman, preached an illustrated sermon the other evening on St. Paul's cathedral. After the sermon an oratorio selection was given by an enlarged surpliced choir and an orchestra. All his Sunday evening services are popular in their character, and he finds no difficulty in filling his church.

AMERICANS will be pleased to learn that Mr. Matthew Arno'd has generously taken back some unpleasant things he once said and thought about this country. In the last number of *The Nineteenth Century*, in an article entitled "A Word more about America," he acknowledges that his early estimates of us were wrong; and then he writes a great many pleasant sentences of praise for our institutions and society.—*New York Tribune*.

THE death of Bishop Jackson of London, is believed to have been hastened by an incident that occurred during the preaching of

his last sermon in St. Paul's on the evening of January 4. A lunatic in the congregation interrupted the discourse by springing to his feet and screaming out, "You worship idols while you scorn to save souls. Woe unto you!" This caused an agitation which the Bishop, then in delicate health, never recovered from.

ARCHBISHOP ALLEMANY, having resigned the See of San Francisco, has been succeeded in the archbishopric by Coadjutor Bishop Riordan. The new archbishop is a native of Chatham, N. B., and was for many years a P. P. in Chicago. He visited Halifax in 1872, with Dr. Dunn, who afterwards became Bishop of Davenport, Ill., and collected money for the sufferers by the fire that devastated that city. He is therefore known to many priests in Nova Scotia, who rejoice at his promotion. Archbishop O'Brien and Father Murphy met the archbishop at the plenary council at Baltimore a few weeks ago.—*Hx. Herald*.

The statement has been made by Prof. Tyndall, before the Royal Institution, that the purest water he was ever able to find was obtained by melting a block of pure ice, but that even this required extreme caution to insure success. The water of the chalk districts of England he pronounces remarkably pure, and but for its hardness, or the amount of carbonate of lime held in solution, would be unexcelled. In some places the water is subjected to a special preparation that causes a deposit of the lime, namely, by adding clear prepared lime-water to the chalk water, thus causing a precipitate of carbonate of lime to the bottom of the reservoir; this reduces the salt percentage from 17 to 3, leaving a water of extraordinary beauty and purity.

SIR WILLIAM MUIR, whose appointment as principal of the University of Edinburgh, in succession to the late Sir Alexander Grant, has been made by the curators, takes up the duties at the close of his term as member of the Council of India, which he joined in 1876. He has intimate relations with the university, his brother, Dr. Moore, having founded its Sanskrit chair, while both are on the list of its best-known graduates. As a member of the Bengal civil service he has had a not undistinguished career in India, where he has filled a secretaryship to Government and the Lieutenant-Governorship of the Northwest Provinces. The older school of Anglo-Indians will no doubt remember him as secretary to Mr. John Colvin, Lieutenant-Governor of the Northwest during the crisis of the mutiny.—*Whitehall Review*.

NO president of an American university, for the last five years, has shown himself more open to the claims of progressive ideas in education than President Eliot, of Harvard. It is only a few years since he was known as the most prominent opponent of the secondary education by the State. His recent excellent address on the high schools of Massachusetts presents him as their wise, broad-minded, and progressive friend. President Eliot recognizes the public necessity that has created the high school, even of inferior grade, and the reasons that operate to keep large numbers of boys in these and technical schools who once became college students. Unlike some of his colleagues, who rail at this tendency while holding the college to its old hard and fast terms of admission, he would meet the superior high school half way by a readjustment of the

entrance examination.—*Boston Journal of Education*.

THE following report anent the work of Miss McPherson, who established the boys' home here, is from the London, (Eng.) *Christian*, Jan. 15. "This season has been a more than usually happy one for us as a band of workers. Health and strength have been given to make both young and old cheery and bright. The result is that we have been quickened, and are looking forward to February, when we hope to have special services. We heartily thank all the kind friends who have sent us clothing and money; we have distributed freely, and over one thousand have been warmed and fed; their gratitude was most touching. On New Year's Day we had our annual dinner for our widows, followed by a meat tea for our adult Sunday scholars. We afterwards had the annual teas for our Sunday school children, factory girls, etc. We are now having the annual treats in the large workhouses visited by our Flower Mission workers, and are distributing the kind gifts received from flower senders. Two have been given in unions where there are respectively 700 and 1,300 sick, aged and little ones. Our newly rescued family is gradually increasing. We are thankful to report cheering accounts from Mr. and Mrs. Merry and the children in Canada."

MAJOR-GENERAL WILLIAM EARLE, whose death in the Soudan we have announced in another column, was the second son of Sir Hardman Earle, Baronet of Allerton Towers, near Liverpool, England, but was a *protège* of his uncle, the late Wm. Earle, at one time Mayor of Liverpool, who educated him and fitted him for a military career. He obtained his commission as second lieutenant in 1851, secured his lieutenantcy in 1854, and his captaincy early the following year. He served with his regiment, the 49th, throughout the Crimean war, including the battles of Alma and Inkermann, the siege of Sebastopol, sortie of the 26th October, and assault on the Redan on the 18th of June. He also served during the same campaign as aide-de-camp to Gen. Sir Wm. Codrington. In January, 1862, he came to Canada with the first battalion, Grenadier Guards, of which he was the Adjutant, holding the rank of Captain. The regiment was stationed in Montreal, and Earle remained with them until April, 1863, when he was promoted to the rank of Lieut.-Colonel. Obtaining leave of absence at this time, he went home to England, but returned in the autumn of the same year. He was in Montreal then until the autumn of 1864, when he returned home with his regiment. He came out again to Canada in 1867, when he held an appointment on the staff of Major-General Michel, who at that time assumed command of the forces in this country. He was military secretary for some years, retaining the position until Major-General Wyndham was appointed commander of the forces, when he again rejoined his regiment at home. In 1880, on the 20th of May, Earle was promoted to the rank of a full colonel, and on the 31st of October of the same year to that of major-general. In 1876 he went to India as a member of the staff of the Prince of Wales, who paid a visit to that portion of Her Majesty's possessions upon the Queen's assumption of the title of Empress of India; and on Wolseley's departure for Egypt in 1882 he was appointed to the command of one of the divisions which he headed in many of the engagements.

## Examination Papers.

[We intend for the future to insert under this heading, in chronological order, the various examination papers that have been set for admission to high schools.]

### GEOGRAPHY.

OCTOBER, 1873.

1. What is Mathematical Geography? Define Equator, Ecliptic, Latitude, Longitude.
2. Name the Provinces which form the Dominion of Canada with their Capitals.
3. Name the Cities of Ontario with the Counties on Lakes Huron, Erie, and Ontario.
4. Name the British possessions in Africa.
5. Which is the largest inland sea in Asia? Where is the Empire of Japan? Name its Capital.
6. State the position of the following —  
CITIES.—Liverpool, San Francisco, Vienna, Odessa, Calcutta.  
ISLANDS.—Corsica, Trinidad, Ceylon, Madagascar, St. Helena.  
CAPES.—Race, Mendocino, Matapan, Comorin, Guardafui.  
BAYS, GULFS, AND STRAITS.—Fundy, Lyons, Carpentaria, Bonifacio, Yenikale.

JANUARY, 1874.

1. Where and what are Boston, Beloochistan, Bombay, Borneo, Bolivia, Formosa, Vesuvius, Moscow, Malacca, the Euphrates, Ararat, Cape Clear?
2. Define Isthmus, Meridian, Tropic, Degree, Volcano, Republic.
3. Name the longest river, the largest island, the most extensive desert, the highest mountain, and the most populous country in the world.
4. Name in order the large rivers which empty into the Baltic Sea.
5. Through what countries do you pass in going from Toronto to Sarnia, on the Grand Trunk Railway?
6. Name in order the countries of Europe and their Capitals.
7. Draw an outline map of Lake Ontario.

JUNE, 1874.

1. Give the boundaries of Europe, and describe generally the courses of the Petchora, the Dwina, the Vistula, the Elbe, the Rhine, the Ebro, and the Danube.
2. State the position of the principal Islands and Straits in the Mediterranean Sea.
3. Name the principal Islands on the east coast of Asia, and the great Rivers of the Eastern Slope.
4. Name the Barbary States in order, beginning with the most westerly; name the chief gulfs and bays on the west coast of Africa, and the islands on the east coast.
5. Name the Provinces of the Dominion, and the chief cities of each. Give the position of Northumberland Strait, Bay Verte, Shediac Bay, Gut of Canso, St. Mary's Bay, Mines Basin, Chignecto Bay.
6. Describe the courses of the chief rivers in the Province of Quebec; and give the positions of Collingwood, Goderich, Sarnia, Windsor, St. Catharines, Hamilton, Toronto, Kingston.
7. Name in order (beginning with the most northerly), all the Counties bordering on Lake Huron, River St. Clair, Lake St. Clair, and Lake Erie.

DECEMBER, 1874.

1. Name and give the position of the six principal mountain chains of Europe.
2. Give the boundaries of France and Russia; name also the chief cities of each, and define their position as closely as you can.
3. Name in order the seas, gulfs, and channels of eastern and southern Asia.

4. Where and what are the Bosphorus, the Naze, Majorca, Matapan, Cyprus, the Crimea, the Laccadives, the Indus, Ceylon, Mozambique, Cairo, Cabool, Ava, Dresden, Venice, Cadiz, Copenhagen, Gibraltar, Suez, Malta, the Hebrides, the Himalayas, the Canaries?

5. Name in order the chief Canadian tributaries of the St. Lawrence, and mention the most important towns on their banks.

6. Give the position of Cape Gaspé, Sault Ste. Marie, Straits of Belle Isle, Miramichi Bay, Bras d'Or, Queen Charlotte's Sound; also of Lindsay, Cornwall, Fort Erie, Amherstburg, Sydney, Pictou, Sherbrooke, St. Hyacinthe.

7. Name in order the counties of Ontario bordering on Lake Ontario, with their chief towns.

JUNE, 1875.

1. Name and give the positions of the principal Peninsulas of Europe and North America.

2. Name the principal Cities on the Mississippi, the St. Lawrence and the Rhine.

3. Name the principal Rivers of European and Asiatic Russia, and tell into what seas they flow.

4. Where and what are Barcelona, Corsica, the Sierra Nevada, the Hague, the Azores, the Ghauts, the Colorado, the Mull of Cantire, the Victoria Nyanza, the Morea, the Oder, the Irrawaddy, the Saugeen, Drontheim, Leipzig, Funen, Helligoland, Belgrade, Elba, and Odessa.

5. Name the Inland Counties of Ontario lying to the west of the meridian of Toronto, and give their chief towns.

6. In going directly north from Calcutta to the Arctic Ocean what countries and mountain ranges would you cross?

DECEMBER, 1875.

1. Draw a map of Europe as large as your paper will permit; insert the names of the chief headlands, bays and islands, and show the direction of the chief mountain chains; trace the course of the Danube and Volga, and place Moscow, Odessa, Navarino, Athens, Florence, Lyons, Cherbourg, Ajaccio, Leipzig, Warsaw and Christiania.

2. Name the States of the American Union that border on each of the Great Lakes, those that border on the Gulf of Mexico, and those that lie west of the Mississippi; trace the course of the Mississippi, the Ohio and the Potomac.

3. Name the political divisions of South America, giving their relative positions and the names and positions of their capitals.

4. Name the Presidencies, the principal rivers and the great mountain chains of Hindostan.

5. Describe the position of the following places, and state to whom they belong: Pembina, Halifax, Saratoga, San Marino, Bagdad, Cabul, Hobart Town, Limerick.

6. Name the counties of Canada that border on Lake Erie, and those that lie on the St. Lawrence; trace the course of the Grand River, Red River, Assiniboine, Fraser River and the Saskatchewan.

7. Draw an outline map of Nova Scotia, giving the position of Halifax, Pictou, and Yarmouth.

JUNE, 1876.

1. Name the principal rivers of Europe that flow into the Baltic, the North, and the Mediterranean seas, respectively; and say what countries or districts are drained by them.

2. Name the mountain-chains of Europe, and give their position; also, the countries of Asia, with their relative position, and the capital of each.

3. Draw a map of the counties of Ontario bordering on Lake Huron; and mark on it the chief towns and rivers.

4. Where and what are the Crimea, the Skaw, Jersey, Valetta, the Hebrides, Morocco, the Ebro, the Hague, the Levant, Socotra, Hainan, Teneriffe, Sierra Leone, Corfu, Jutland?

5: State accurately the position of the following:—Anglesea, Berne, Limerick, Cairo, Madras, Odessa, Antwerp, St. Hyacinthe, Pembina, Minas Basin, Pictou, Servia.

6. Describe the course of the Saskatchewan, the Rhine, and the Richelieu, and mention the principal cities or towns on the last two.

DECEMBER, 1876.

1. Explain the terms—Aborigines, Axis, Crater, Estuary, Harbour, Reef, Sound, Steppe, Strait, Volcano, and Watershed.

2. Name the principal rivers that empty their waters into the North Sea; tell where they rise, the direction in which they flow, where they reach the sea, and what important cities or towns are situated on their banks.

3. Name in order the counties of Ontario that border on the Ottawa, and give their county towns.

4. What other European powers besides Great Britain have a foothold in India, and what places does each possess.

5. What important rivers flow into Asiatic seas that have no outlet?

6. Name the principal African rivers that flow into the ocean to the south of the equator.

7. Where and what are the Victoria Nyanza, Borneo, Nippon, Ispahan, Duluth, the Nepigon, Yucatan, Cayenne, the Wash, Ben Nevis, Vesuvius, and Roumelia?

8. Sketch a rough map exhibiting the leading physical features of the continent of Europe.

9. Tell what you know about the physical geography of British Columbia.

DECEMBER, 1877.

1. What and where are Gaspé, Boothia, Walpole, Sitka, Quinte, Shebandowan, Battleford, Acapulco, Santa Cruz, Palermo, Cape Breton, and Formosa?

2. Explain the terms zenith, ecliptic, pampas, tropic, and promontory.

3. Over what railroads, and through what towns and cities would you pass on a trip from Collingwood to Ottawa?

4. What is the general direction of the following rivers, and into what do they empty:—Ottawa, Ohio, Richelieu, Magdalena, Tornea, Ebro, Ural, and Sihan?

5. Name the principal mountain ranges of the Eastern Hemisphere, and the highest peaks in Europe and Asia.

6. Outline the map of Ontario, indicating the position of the cities and principal rivers.

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Fitch, J. E., M.A., Assistant Commissioner to the late Endowed Schools' Commission, and one of Her Majesty's Inspectors of Schools, *Lectures on Teaching delivered in the University of Cambridge during the Lent Term, 1880*. Cambridge: at the University Press. Sixth edition, 1884.

Kingsley, Charles, *The Heroes: or, Greek Fairy Tales for my Children*, illustrated. (Globe Readings from Standard Authors.) London and New York: Macmillan & Co., 1885.

Tillinghast, William H., *Epitome of Ancient, Medieval, and Modern History by Carl Ploetz*, translated with extensive additions. Second edition. Boston: Houghton, Mifflin & Co.

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