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Vol. 1.

THURSDAY, APRIL 30, 1885.

Number 18.

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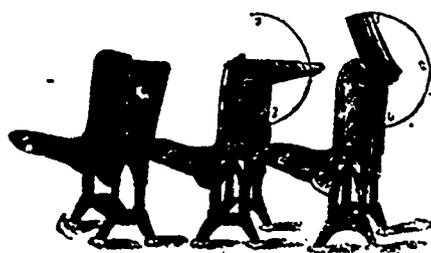
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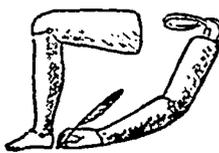
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Please mention this paper.

The Educational Weekly.

TORONTO, APRIL 30, 1885.

THE Honorable the Minister of Education has, by an official regulation, set apart the 8th day of May next to be an "Arbor Day," to be held as a holiday by all rural and village schools in Ontario, for the purpose of "improving the school premises, and planting suitable shade and ornamental trees and shrubbery."

The grounds for thus instituting an Arbor Day upon which the Minister of Education has more particularly laid stress, are, that the education to be gained from an ordered, neat, clean, and systematically arranged school yard is in many respects quite as important as the education to be gained from the school room. In this we entirely concur with Mr. Ross. In a short editorial in our last number we pointed out the want in our school system of any attention being paid to the artistic sensibilities of our pupils. No better plan could be chosen by which to fill up this deficiency than the school yard and perhaps no better way could be discovered of doing so than that proposed by the Minister of Education.

But there are other and highly important reasons for setting apart one day in the year for the planting of trees by the youth of the country. The nation is becoming aware of the necessity of conserving its forests, and also of the necessity of engaging men skilled in scientific and practical arboriculture for the purpose of promoting this conservation. Until very lately Canada took no step in this direction. Other nations, less abundantly provided with wooded land, have altogether outstripped us, as well in recognizing the importance of forestry as a science worthy to be fostered by the State, as in providing means and opportunity for practically applying its principles to the preservation of its timber, with all the attendant economic and climatic advantages to be therefrom derived. Germany has perhaps taken the lead in both the theoretical and practical advance made in the science of forestry; but other countries are not far behind. Our neighbor, the United States, has for many years studied the subject: to say nothing of Russia, India, Norway, Sweden, etc.

The chief difficulty in the promotion of forestry is in obtaining a sufficient number of properly trained men to whom to entrust the task of carrying out experiments and laying down rules for the protection of trees. Forestry, to be rightly studied, requires large tracts of wooded land, a large body of men with scientific knowledge and practical skill, and many years of research and experiment. The first of these Canada possesses to the full; the second can only be obtained by

rousing the people and the government to an appreciation of the importance of the subject; the third will naturally follow on the attainment of the second.

We can conceive of no measure more likely in years to come to benefit the promotion of forest conservation in this country than the official regulation now promulgated by the Minister of Education, provided it is yearly repeated and thoroughly carried out. To instil into the minds of our youth a love of trees, and a knowledge of their structure and growth; to acquaint them with the proper mode of preserving and caring for them, to cause them to regard all trees not as things requiring no care or notice, but as objects of beauty and value—as useful or more useful to the country than are to them the flowers and shrubs which adorn their own gardens, this, if carried out with patience and care year by year throughout our land must draw in its train benefits which it is impossible now fully to gauge or foretell.

This is one of the many advantages to be gained by the institution of an Arbor Day. There are many others not unimportant or unimportant. "Gardening," said the great Bacon, "is the purest of human pleasures." That this pleasure should be made the occasion of instruction, and in so inviting a way as described in the official regulations, is truly a legitimate source of gratification. It should have, indeed we may say it will have, a powerful influence for good upon the children. Accustomed only to learning from books and blackboards, within four walls, seated on hard seats, to accompany the teacher to the woods, to combine instruction of a novel and interesting kind with true and innocent enjoyment, and practically to notice and put in force the various maxims learned under an open sky, while surrounded by all that tends to impress upon the mind the lessons drawn from Nature itself,—all this must tend to elevate the tastes of the pupils, and to teach them that the search of knowledge need not be uninteresting or useless.

It will, too, have a lasting influence. The anticipations of delight with which they will look forward to the coming Arbor Day will enhance the pleasure of its duties when it comes round, and impress its lessons upon the mind. The novelty of the surroundings will aid in fixing in the memory all that has been taught under the leafy boughs and upon the green sward of the preciousness of all the vegetable and animal life which is now spread before them, and which is looked upon as something to be studied and reverently admired, and not as something altogether without the sphere of their notice or comprehension.

The subjects upon which the teacher can interestingly speak to the pupils in connexion with trees and tree-planting are multiplex. Fortunately, too, many of these subjects can be taught to the youngest without fear of their being unable to comprehend them. Indeed the opportunities which an Arbor Day presents for awakening new interests it is difficult to compute. Historical, geographical, botanical, and palaeobotanical subjects might be introduced which would never be forgotten. There is a large and varied field from which to cull, and it is one as yet untrodden. The actual work of planting and preparing will, of course, be looked upon by the children as the most enjoyable, but even in this many practical lessons may be learned. And our teachers must not lose sight of the fact that Arbor Day is instituted for educating purposes. It is a holiday, but a holiday upon which perhaps more may be learned than upon any other day. To make this the case teachers should prepare thoroughly what and how they shall teach.

We have touched only upon a few of the advantages of an Arbor Day, and only upon a few of the methods by which it may be made profitable. It is no unimportant event, and teachers will find it no loss of time to spend some hours in arranging the details both of its theoretical and practical side. It may be made a most powerful influence for good; it may also be unproductive of any beneficial results. All depends on the teacher. Let him look to it that he does not fail.

We can but hope that all masters will make full use of the opportunities now presented to them by the inauguration of an Arbor Day. It is the first experiment in this direction to be made by the rural and village schools of Ontario, and ought consequently to be carried out with careful thought. On the success of this our first Arbor Day may perhaps depend that of succeeding ones. There may be those who may depreciate or minimize its results, and it should be the duty of each teacher individually to see that there shall be no grounds for such depreciation and minimization. There is great scope for personal tastes; the official regulations leave a large margin for the enterprise and thought of teachers, and full use should be made of this judiciously allowed freedom. They should make themselves thoroughly acquainted beforehand of all they intend to teach their pupils on the day itself and on the following Friday, a part of which the Minister of Education recommends should be devoted to the teaching of "Canadian forestry and the different species of trees and shrubs to be found in Ontario, their uses, commercial value, characteristics, etc."

Our Arbor Day.

ONTARIO'S FIRST SCHOOL ARBOR DAY.

It will be a subject of consideration and perhaps of some little anxiety with many teachers to know how best to conduct the Arbor Day appointed by the Minister of Education. A few hints upon the subject may not be out of place.

We should recommend that a part of the previous day be devoted to teaching some of the more general facts regarding both the beauty and use of trees; their climatic influences; their economic value; their distribution in space and time; the various uses to which they have been put; their mode of propagation; their characteristic features in different latitudes and at different altitudes; the various aspects in which different plants have been regarded at different times, as, for example, the palm, cedar, laurel, myrtle, parsley, olive, ivy, cypress, and others; and many other such information as will arise in the minds of teachers.

A complete programme should be drawn up of the way in which it is intended to conduct the proceedings of the 8th of May. Every pupil should take part in them, even if it be merely the carrying of a few flowers, or the holding of the tree while this is being planted. The aim should be to excite interest amongst all the pupils.

The trustees might perhaps be asked to be present at some of the proceedings, to show that what was being done was being done in earnest, and was looked upon as no unimportant part of the year's duties. Even the parents might by their presence aid in promoting the success of this our first Arbor Day.

By all means let the girls join in the work. There are many little things they can do, such as writing out or preparing labels with the name of the tree, date of planting, etc.

We might suggest, too, that to increase the interest in each tree planted, as well as to help in assuring its preservation, some associations be connected with it: each class might have its own tree for example. This would create a healthy spirit of rivalry.

We append here some selections from well known writers on the subject of trees and tree planting.

THE wealth, beauty, fertility, and healthfulness of the country largely depend upon the conservation of our forests and the planting of trees.—*John Greenleaf Whittier.*

A TREE, to the thoughtful and loving student of nature, suggests ideas of beauty and perfection to which the mind cannot be lifted, save by a process of wondering admiration. *Francis George Heath.*

THE project of connecting the planting of trees with the names of authors is a beautiful one, and one certain to exert a beneficial influence upon the children who participate in these exercises. The institution of an "Arbor Day" is highly commendable from its artistic consequences, and cannot fail to result in great benefit to the climate and

to the commercial interests of the country when it becomes an institution of general adoption.—*B. P. Mann.*

THOSE who are striving to devise means for the preservation of American forests are being well abetted by the school authorities in many localities. The "arbor-days" of the schools and colleges are bringing the youth of the land to an appreciation of the value of trees, and are awakening strong public sentiment in favor of energetic means to check the processes of wasteful denudation. It will probably be much easier in the time of the next generation to get legislation in the matter.—*The Current.*

THERE is something nobly simple and pure in a taste for the cultivation of forest trees. It argues, I think, a sweet and generous nature to have this strong relish for the beauties of vegetation, and this friendship for the hardy and glorious sons of the forest. There is a grandeur of thought connected with this part of rural economy. It is, if I may be allowed the figure, the heroic line of husbandry. It is worthy of liberal, and free-born, and aspiring men. He who plants an oak, looks forward to future ages, and plants for posterity. Nothing can be less selfish than this.—*Washington Irving.*

The tremendous unity of the pine absorbs and moulds the life of a race. The pine shadows rest upon a nation. The northern peoples, century after century, lived under one or other of the two great powers of the pine and the sea, both infinite. They dwelt amidst the forests as they wandered on the waves, and saw no end nor any other horizon. Still the dark, green trees, or the dark, green waters, jagged the dawn with their fringe or their foam. And whatever elements of imagination, or of warrior strength, or of domestic justice, were brought down by the Norwegian or the Goth against the dissoluteness or degradation of the south of Europe, were taught them under the green roofs and wild penetralia of the pine.—*John Ruskin.*

WHEN we plant a tree, we are doing what we can to make our planet a more wholesome and happier dwelling-place for those who come after us, if not for ourselves. As you drop the seed, as you plant the sapling, your left hand hardly knows what your right hand is doing. But Nature knows, and in due time the Power that sees and works in secret will reward you openly. You have been warned against hiding your talent in a napkin; but if your talent takes the form of a maple-key or an acorn, and your napkin is a shred of the apron that covers "the lap of the earth," you may hide it there, unblamed; and when you render in your account, you will find that your deposit has been drawing compound interest all the time.—*Oliver Wendell Holmes.*

THE objects of the restoration of the forests are as multifarious as the motives which have led to their destruction, and as the evils which that destruction has occasioned. The planting of the mountains will diminish the frequency and violence of river inundations, prevent the formation of tor-

rents; mitigate the extremes of atmospheric temperature, humidity, and precipitation; restore dried-up springs, rivulets, and sources of irrigation; shelter the fields from chilling and from parching winds; prevent the spread of miasmatic effluvia; and, finally, furnish an inexhaustible and self-renewing supply of material indispensable to so many purposes of domestic comfort, to the successful exercise of every art of peace, every destructive energy of war.—*Geo. P. Marsh.*

LET the sentiment of trees be duly cultivated, first among our youth, and then among the people, and they will be regarded as our friends, as is the case in Germany. The public need to learn that the interests of all classes are concerned in the conservation of forests. Through the teaching of their schools this result was long since accomplished in Germany, Switzerland, Sweden, and other European countries. The people everywhere realize the need of protecting trees. An enlightened public sentiment has proved a better guardian of their forests than the national police. A person wantonly setting fire to a forest would there be looked upon as an outlaw, like the miscreant who should poison a public drinking fountain.—*The Hon. B. G. Northrop in "The Chautauquan."*

OUR forests are fast disappearing. In their sheltering shade and the rich mould of their annually decaying leaves, the greater number of our loveliest plants are found; and when the axe comes, that cruel weapon that wars upon nature's freshness, and the noble oak, the elm, the beech, the maple, and the tulip-tree fall with a loud crash in the peaceful solitude, even the very birds can understand that a floral death-knell sounds through the melodious wilderness.

A number of our choicest plants are threatened with extinction; for as the woods are cleared away these tender offsprings, the pretty flowers, which we so dearly cherish, will perish utterly. It is, therefore, well to prevent as far as possible the destruction of our native forests, as well as to plant forest trees, if for no other purpose than the preservation of the little helpless, blooming beauties that adorn our woodland shades.—*Gustavus Frankenstein.*

THE trees may outlive the memory of more than one of those in whose honor they were planted. But if it is something to make two blades of grass grow where only one was growing, it is much more to have been the occasion of the planting of an oak which shall defy twenty scores of winters, or of an elm which shall canopy with its green cloud of foliage half as many generations of mortal mortalities. I have written many verses, but the best poems I have produced are the trees I planted on the hillside which overlooks the broad meadows, scalloped and rounded at their edges by loops of the sinuous Housatonic. Nature finds rhymes for them in the recurring measures of the seasons. Winter strips them of their ornaments, and gives them, as it were, in prose translation, and summer reclothes them in all the splendid phrases of their leafy language. What are these maples and beeches and birches but odes and idylls and madrigals? What are these pines and firs and spruces but holy hymns, too solemn for the many-hued raiment of their gay deciduous neighbors?—*Oliver Wendell Holmes.*

Notes and Comments.

WE regret to say that owing to an accident in the process of electrotyping the cuts for Mr. Reading's first article on Elementary Drawing, we are unable to insert this in our present issue. It will appear next week without fail.

MR. ARTHUR J. READING writes to us as follows:—"I notice a couple of errors that have crept into my last article. On page 269, first column, twelfth line, LG should read LD; and in the thirtieth line, in the same column, 10' should read 6'.

WE have this week placed under the head of Public School matters a selection from the New York Nation on "Shall and Will." Though perhaps properly belonging to public school work, we can recommend it to all who are in any way doubtful of the proper use of these auxiliaries, or who take an interest in the rules which govern them.

PROF. FAY, of Tuft's College, recently asked three hundred and fifty college professors their opinion as to the proper modern language equivalent for the Greek required for admission to college. Sixty-seven per cent as between German and French, advocated German, on account of its superior disciplinary value.—*The Current*.

The Atlantic Monthly for May does not differ materially from its predecessors. "The Prophet of the Great Smoky Mountains," by Charles Egbert Craddock is continued, as also is Oliver Wendell Holmes' "The New Portfolio." Richard A. Proctor contributes an article on "The Misused H of England," and Henry James offers some remarks on "George Eliot's Life."

It may perhaps seem strange to our readers that we should cull from the pages of a blue-book for our Literature and Science columns. Mr. Phipps, however, the writer of the Report of Forestry for 1884 which is now in the hands of all interested in that science, is not merely a compiler of blue-books. Added to this is the fact that many will, we doubt not, be glad to receive hints from a competent authority as to the selection of trees with which to adorn the school grounds on the 8th of May next.

WE have received from Messrs. Selby & Company, of Yonge-street, Toronto, two tracts, of a series which they have had prepared for gratuitous distribution, descriptive of the Kindergarten methods and movement. They are well worth reading, and will be useful to those who desire to obtain Kindergarten information. Messrs. Selby will send them to any address on application. We are pleased to learn that the business of the Messrs. Selby has so much improved that they are about to remove to new premises on

Wellington-street, where they will devote themselves entirely to the wholesale trade.

THE last Johns Hopkins Circular contains President Gilman's anniversary address (Feb. 22nd). His subject this year is "The Benefit which Society Derives from Universities," and richly does it deserve the large and clear print in which it appears. Such a theme indeed cannot be "writ" too large and clear, though few are capable of presenting it so suggestively as the accomplished head of the new University. No matter what President Gilman's subject may be, he always contrives ingeniously to touch on every discipline taught in the University, and thus harmonize the "sweet bells" which are apt to be "jangled" by this or that over-ambitious professor. He writes in the interest of a true cosmopolitan culture, and tries to give every Cæsar his due.—*The Critic*.

THE people of Toronto on Tuesday last undertook a most laudable and philanthropic project. Subscriptions were solicited and a committee of ladies formed for the purpose of sending to the North-West parcels for the comfort of our troops there employed. Merchants supplied goods for the volunteers generally, and private individuals prepared packages to be sent by the committee to the scene of action. A most liberal donation was forthcoming, and parcels were carried to the premises chosen for their deposition from 9 a. m. till 2 p. m. without cessation. A goodly pile of goods, both of necessities and comforts, was accumulated, and no doubt the donors are thinking with pleasure of the glee with which they will be welcomed by those who have undergone so many hardships so far from home.

THE teachers, in some of the educational journals, are pleading earnestly for permanent tenure of office. Miss Mary A. Livermore advocates it in the *Journal of Education*, on the ground that the system of annual elections frequently compromises the integrity and justice of the school committees, and also because it prevents the teachers from taking that stand in public and social affairs which they have the right to take and could take with honor to themselves and benefit to society. President Eliot, of Harvard University, in the same journal also favors it, and, logically, the retirement of superannuated teachers upon pensions or annuities. The States of California and Maryland, and the City of New York already appoint their teachers without limitation of time.—*The Current*.

Nos. 19 and 20 of the *American Journal of Philology* (Baltimore) show unabated ability in the scope, variety, and importance of the articles. In the former there is a delightful and affectionate memorial sketch of the great Humanist, Friedrich Ritschl, from the pen of Prof. Gildersleeve (the editor),

who was one of his pupils. Prof. Whitney writes learnedly on the study of Hindu Grammar and of Sanskrit. In No. 20, perhaps the most interesting article is Mr. T. Davidson's review of Prof. Child's book of ballads. Reviews in the technical field of linguistics, reports of the "big-wig" German classical and Oriental periodicals, such as the *Philologus*, *Mnemosyne*, *Rheinisches Museum*, etc., fill up the background with things new and old. This *Journal* is a most creditable exponent of American scholarship.—*The Critic*.

POLITICS and international relations seem at present to be absorbing the interest of the world. The imminence of war between Great Britain and Russia, the quarrel between France and Egypt over the affair of the *Bosphore Egyptien*, the quickly-patched-up peace between the French and Chinese, to say nothing of our North-West expedition, are matters which all talk of and which over-top all others in prominence. War between Russia and England, according to the consensus of opinion, is inevitable sooner or later. Many believe that Mr. Gladstone is doing his utmost to gain time. Russia has been preparing for many years for the contest; England has been taken somewhat unawares. The latter is now straining every nerve to put her army and navy on a thoroughly efficient footing. India, too, is perfecting all her military forces. A struggle between two such nations in this civilized age would be something terrific. The whole of Europe and the greater part of Asia would be convulsed. Commerce would probably suffer in ways at present impossible to conjecture. And if, as is said, France is seriously proposing entering the affray as England's antagonist, it is difficult to see what the effect of the meeting of such belligerents would have upon the world at large. One would think that no stone should be left unturned, both by the nations directly concerned, and by those who merely take the part of on-lookers, to prevent war. Yet, according to late telegraphic despatches, Germany decries arbitration, France, as we see, is eager to join in the tumult—in short, no power seems willing to exert herself in an endeavor to prevent bloodshed and misery. Our own troubles in the North-west are attaining serious proportions. The rebels fight well and hard. In the recent engagement our forces lost heavily. Fifteen per cent of those in action were wounded or killed, and, as far as appears, without a proportionate amount of injury being inflicted upon the enemy. Riel is said to be determined; his followers certainly are; and it will probably be some time yet before our militia set foot again in their own homes. Teachers might, by short conversations, acquaint their pupils of what is going on around them. Such things will never be forgotten, and will rouse their interest and curiosity.

Literature and Science.

DESIRABLE TREES TO PLANT.

It was the original intention to give here a full chapter on the best method of planting with a view to appearance, but want of space forbids. A few suggestions may be, however, given. We should consider to what trees our soil and climate is adapted. A tree of any variety, flourishing well, and throwing out branch and leaf in their season with strong and hardy life, looks better than another, however high its name in the catalogue, which struggling only keeps existence, and never arrives at the fulness it attains elsewhere. Then, another point, wonderfully neglected in setting out trees, is color. If you look abroad throughout the wonderful variety which nature offers here, you will see foliage of a pure cream color—of bright silver hue—of an infinite number of greens—of bright gold—of delicate brown—of rich crimson, and many more. We should notice what they are at the four seasons; we should also remember the height of the trees; that some can show well above those adjacent; and that some colors are ever most beautiful when set off by certain others. It is not as if our climate were unpropitious; on the contrary, trees of endless variety of form—of infinite charms of color—flourish luxuriantly here. And we shall find that if we take advantage of the variety, and plant with a remembrance of the effect one tree has near another, that we shall soon have charming pictures; and shall also have supplied a background of foliage which, seen from another point, will itself form a picture equally charming. Our trees—whether plantation, wind-break, or clump—will consist of varieties sufficiently near for pleasing comparison and advantageous contrast, yet not in that general jumble of undistinguishable foliage which renders the eye careless, till it passes trees as pebbles in a walk. And how easily and cheaply impruvable are our surroundings. I visited lately two farm houses. Opposite each ran the same high bank—in both farms almost useless land. But in one case it was a barren hill seared with dry water gulleys. In the other it had been ten years planted, and now a beautiful growth of trees—so placed as to display in each its particular beauty—crowned the summit and came half way down the slope; the lower slope had clumps of shrubs, cared for and in luxuriant growth. The difference—the superiority of the last residence, from this little piece of forest work alone—forced itself on the least cultivated, and was indescribable. Yet the cost had been very trifling. In Ontario, nature offers us, in trees, what color, what form, we choose of a thousand kinds. Of this great choice we

have but to take advantage, to render our farms shortly as beautiful as the utter deprivation of the forest has made many of them hideous.

It may be suggested, in choosing trees with reference to beauty, either alone or in contrast, that the manner in which the different varieties reflect the light, and the kinds and lines of shadow produced, should be thought of. If we look at a Lombardy poplar we shall find that the lines of light and shade are upright and narrow. Then take a beech, the tree is in strata; the light and shade in large level flakes. The white oak is again different from either; its fewer and larger branches radiating irregularly from the great trunk give large, uneven, but more grand and picturesque masses of shadow and brightness than those of any other tree. The cedars often grow so close branched that their shadows are but one. The maple has numerous openings for shade and sun, but they are too many, too small, and too regular to do more than assist the general effect of the tree. If we examine foliage critically, we shall find a thousand differences to aid our selection, and one view of nature is worth many of books, for trees differ with localities, and the observer can soon find for himself how they appear when he desires to plant.

We generally plant that trees may be seen from a given point. If this central point be the house, the views of the house from the road, and towards the road from the house are the chief vistas to leave open, not in straight rows of trees, but that, of the curving lines of plantation edge, of grove, clump, or single tree, none shall stand in the way of the view you desire, while, as the eye glances along the opening, it shall observe trees on either side in graceful harmony or appropriate contrast.

Without attempting an extended list, it may be said that of those in reach of all, for planting in the open, the oak (white and red) should be mentioned. When in leaf, the masses of its foliage reflect the lights and shadows as do few others. Before planting, with all trees it is well to observe the effect of this, and consider which you would choose in contrast. It grows a large and handsome tree, with a peculiar appearance of solidity and strength in the trunk and branches, and will thrive on poor soil. It is said that trees influence character. One can imagine that the daily walk along an avenue of fine oaks—their firm position—their rigid branches defying the storm—the steel-like and martial flash of their unbending and hard-edged leaves—might possibly arouse thoughts which would have some such effect.

"To convey by words alone," it is said, "an idea of the grand and varied expression of full-grown oaks would be a task as difficult

as to impart the awful sense of sublimity inspired by rolling thunder."

"Jove's own tree
That holds the woods in awful sovereignty."
—Virgil.

The beech.—Some object to this, as being likely to die out. In those cases when I have known it to do so, it had been transplanted from the shade to the sun, which had beat on its bark. The forest bark is tender. (This can be shaded by a V board.) But I have generally known it to do well, and it has this peculiarity—its habit is often to branch in sections above one another, giving broad level flakes of light green foliage across the whole tree, which, swayed by the breeze, give an admirable and ever-changing effect.

Its roots run close under, and sometimes lift themselves near the trunk, above the ground.

"There at the foot of yonder nodding beech,
That wreathes its old fantastic roots so high."
—Gray.

The elm.—Nothing can exceed, in graceful appearance, the lofty urn-like form of this remarkable tree. The beautiful curves of the branches into which the trunk, near the ground, divides, and which each then seems to form an independent tree, rising high by itself, then uniting with the rest in an immense spreading head, give this peculiar form. It should be remembered that where beauty is the object, trees which naturally grow as these should be given space to follow out their habit. Some pruning, when small, will greatly assist. For avenues, these trees need eighty feet between the rows.

"Of all trees," says Beecher, "no other unites in the same degree, majesty and beauty, grace and grandeur, as the American elm. Take them away, and who would know the land? Villages that coquette with beauty through green leaves would shine white and ghostly as sepulchres." The witch elm should be mentioned. It is more square in form and massy in foliage—equals in size the large oaks, and is one of the noblest of park trees.

"Harp of the North, that mouldering long hast
hung,
On the witch elm that shades Saint Fillian's
spring."

The ash is also a very beautiful tree, and, above others, sways gracefully in the wind. Its bark, too, in its many channelings, is very handsome. In our climate, with the long winter, the appearance of trees when destitute of their leaves is an important point. Trunk and branches, for long periods, are visible here. I have been where, of a summer afternoon, too warm for exercise, too bright for sleep, the long line of waving ashen foliage, from window to park gate, seemed, in the incessant change and continuous rush and play of its heavy leaf wreaths in the breeze, to arouse such succession of thoughts as

passed the hours as pleasingly as might an agreeable book, or lively companion.

The nut trees—hickory, chestnut, walnut, and butternut—will, with care, all thrive and look well in many parts of our Provinces. The length of leaves of the two latter give them a flowing grace so unique as to demand consideration in planting. Between their and ordinary foliage is a difference, not so great as that between evergreen and deciduous, but still strongly marked. It is that each leaf is of many leaflets, of a pale, yet warm and glowing green, and that, looking at the tree, you see that they seem to back each other, and hang rank on rank into the depths.

The basswood is an excellent tree to plant. It grows rapidly—soon the smooth tall sapling will swell into the thick rough trunk, and the broad soft leaves form a wide arbor overhead, while the mass of rich white blossoms will, if you plant trees enough, feed your own and your neighbor's bees till both shall have honey for winter. If we choose to be epicures about shade, it is thought that, as a rock gives cooler shade than a forest, so a basswood gives more agreeable shade than other trees. In this case, it is said to be owing to the foliage—the numerous layers of large, thick, moist leaves.

Then there are the larches and evergreens, the growth and appearance of most of which is elsewhere described.

Of the maple, hard and soft, much less has been said elsewhere. For shade, there is no better tree, and in summer rows of maples, well-headed and thriving, form a most brilliant feature in the landscape—in fall—one almost gorgeous. A word also should be said concerning the soft maple. In most places there are some grounds which cannot well be drained, and are consequently unproductive. If soft maples be here planted, close at first, thinned out thoroughly in time and given full space, they grow to one of the finest of our many fine trees. Soft maples of which I remember the planting are now nearly four feet through at the base. Their growth, dividing, not single stemmed, and the broad branching head, renders them excellent for all ornamental purposes. Their autumn leaf, too, is of a far more rich and delicate crimson than is that of the hard maple, and if you will plant them in a northern exposure, where they will receive the full weight of the first sharp frost, you will have nearly every fall the most pleasing sight nature can afford.

If we want a rapidly growing tree, there is the silver poplar. In twenty years I have seen it cut down—a tree three feet six inches through, seventy feet high, and sixty in spread, giving four cords of firewood to the tree. It is of very fine appearance—its leaves silver on one, clear green on the other side, and partly of aspen nature, then flutter-

ing continually breaks, a white and emerald sea, over its whole surface. I have had the wood tested—as firewood it nearly equals maple—as beams it is twice as tough as pine—as panels it has a beautiful yellow grain. But, as before warned, near ploughed ground it will run and sucker.

The birch.—A very beautiful tree, whether we choose the cut-leaf or the more ordinary variety. The bright white bark, contrasting against the green leaves, shows well in many situations. In winter, if you happen to pass a large birch, stop to examine it, and it will repay the time, and prove that trees were meant to please the eye in that as in the warmer day. The great trunk below—the subdividing pillars of clear bright white above—the wonderful ramification of abounding branch, twig and bud, all arranging themselves as they grow in a careless gracefulness of forest architecture which the painter can indeed imitate, but could never imagine, is worth thought and study. The branches of the weeping birch possess even a more mournful beauty than that of the weeping willow.

"Where may the grave of that good knight be?
It lies on the slope of the mighty Helvellyn,
All underneath a young birch tree."

"Nothing," it is said, "can well be prettier, seen from the windows of the drawing-room, than a large group of trees, whose depth and distance is made up by the deep and heavy masses of the ash, oak, and maple, and the portions nearest to the eye on the lawn terminated by a few birches, with their sparkling white stems and delicate, airy, drooping foliage."

All of these make good timber; all head out in the open, or if grown in close plantations will form tall, straight trunks with small heads. But with these, as with all trees, it must ever be remembered that if care be given (as directed elsewhere) they will grow *three times as well* as without. I saw a grove of maples at Eastwood this summer, planted *fifty years ago* by the employees of an old admiral, carelessly, and afterwards left to be knocked about by cattle. They grew—even that is surprising—but they are now only three or four inches through.

It cannot be too often repeated that trees will grow without care, but much more rapidly with it. We ask the value of a plantation—what money it will bring, and whether it will yield returns as wheat and barley. But consider the many ploughings and barrowings, the manure, the labor given, while we give the trees none. But keep the ground around the trunk shallowly stirred, and notice how soon the timber will expand—how thick the rings of each year's growth—what wealth of leaf and branch will spring above. To this list many more trees might have been added; but they will, to a great extent, be found mentioned in the body of

the work by those who have made their growth the subject of actual experiment.

I have the pleasure of appending here some notes on four trees from the well-known pen of W. Saunders, Esq., London, Ont., who says:—

I submit hereto a few notes on some forest trees which I believe to be well adapted to the climate of most parts of Ontario, and which possess so many points of merit that they deserve to be better known.

The Norway Maple, *Acer platanoides*. This is well entitled to a place in the front rank among useful and ornamental trees. It is a rapid grower, making when well established, from one to two feet of growth each year, and in the course of ten years under favorable circumstances will attain a height of from twenty to twenty-five feet. The Norway Maple is a very handsome tree, with a beautiful round head, clothed with long-stalked broad leaves, not deeply notched, smooth, and of fine texture, with a rich, deep, glossy-green color. This species, in common with most other European trees, is much more thickly branched than any of our native maples, and on this account furnishes a more complete shade. It is as early in leaf in spring as any of the other species of maple, and retains its foliage a week or two later in the autumn, enduring such early frosts as wither the foliage of our native species without being materially affected, and only losing its leaves after the frosts become very severe. The bark of both the trunk and branches is neatly covered with longitudinal lines, giving it a very pretty appearance when deprived of its leaves in the winter. I regard this as one of the most beautiful maples in cultivation, unsurpassed as an ornamental tree, while its perfect hardiness suggests its suitability for more extended forest planting.

The wood is valuable for fuel, also for cabinet work or building material; it is easily worked and takes a fine polish. This tree is found native from Norway to Switzerland, and was introduced into Great Britain in 1683, since which period it has been in constant cultivation there; it grows from thirty to sixty feet in height. In Norway and Sweden sugar is made from the sap of this tree. A maple so useful and hardy as this deserves to be extensively planted in Ontario.
—R. W. Phipps in the Forestry Report.

(To be continued.)

MR. W. T. HORNADAY, the naturalist, who has for years been engaged in collecting rare animals in all parts of the world, has written a book of his experiences under the title, *Two Years in the Jungle*; his narrative, as it may be imagined, is exceedingly exciting, and his descriptions are supplemented by many illustrations. Charles Scribner's Sons have the book in press.

Educational Opinion.

REVERENCE.

IN a recent article which appeared in this journal, it was stated that the most prominent characteristic of American youth is a want of reverence. The writer of the article in question proceeded to point out the causes of this state of things, and to urge upon teachers the duty of counteracting a tendency so fraught with evil consequences to the individual and the state. These views, if well founded, are of the highest and most far-reaching importance, and we trust that a continuance of the discussion will not be considered inopportune.

It will not be asserted by those who have given much thought to the subject that the writer to whom we have referred has over-estimated the importance of reverence in its relation to the work and the aims of the teacher—it must at all events be admitted that if he errs, he does so in good company. Carlyle, for instance, in his address to the Edinburgh students, in speaking of the methods and objects of education, assigns a quite peculiar value and significance to reverence. He quotes with approval the words of Goethe who says that this is the "one thing which no child brings into the world with him, and without which all other things are of no use." Nature, according to these weighty authorities, while competent to furnish all manner of intellectual gifts and capacities, and even in many cases to develop these with but little assistance from the teacher's guiding hand, is powerless to impart the spirit of reverence, which alone can make these gifts and capacities, sources of true and lasting joy, or helpful towards the right conduct of life. That spirit it is the teacher's proper work, as it should be his highest aim, to evoke, to strengthen and to purify.

No apology can be needed for directing the attention of Canadian teachers to a subject which these great masters of thought deemed to be of such supreme importance in relation to their calling—more especially since there is reason to fear that the spiritual significance of that calling is liable to be forgotten or neglected in an age which prides itself on being practical, and which succeeds at all events in being materialistic. Many will think that there is something fanciful in the idea that it is incumbent on the teacher in any special sense to enforce the duty of reverence. There are probably not a few in whose opinion the education of the future will draw its most potent inspiration from a different fountain altogether, and that its watchwords will be—not, Honour and Obey—but, Doubt and Investigate. Be that as it may it will scarcely be denied that people in general look upon the teacher's profession as an essentially se-

cular one, concerned mainly if not altogether with the material world whose most authentic gospel is contained in the maxim that "Knowledge is Power." It is much to be questioned if there are many parents who are as anxious as they should be about the effect of the teacher's work on the temper and disposition, the heart and character of their children. It is thought essential, of course, that he should be an efficient constable, so to speak—able, that is, to maintain discipline, correct idleness, and repress outward manifestations of disorder. If in addition to this he is successful in imparting such elements of knowledge in the prescribed subjects as will secure satisfactory results in the way of prizes and percentages for his pupils at their examinations, he is considered a good teacher at all points, and nothing more is expected or desired. Now no sensible man will lightly esteem such primary essentials in the teacher's profession as the ability to govern and to instruct, even in that narrow sense which has just been indicated. But it would surely be well for all who have been called to the high task of equipping the young generation for the work that lies before them, a function which, as an author already referred to says, "transcends all others in importance," to see to it that their conception of the meaning of that function should not be confined within the limits set by custom or prejudice or popular expectation. For all such it is the better part to magnify their office. Let it include for them not merely the regulation of the outward details of conduct but also the purifying of the springs of action in the heart—let them claim for its province, not words and facts and mental processes alone, but also the culture of the spirit in the things that are honest and lovely and of good report—let them, in one word—

"Make knowledge circle with the winds;
But let her herald, Reverence, fly
Before her to whatever sky
Bear seed of men and growth of minds."

It may be urged as an objection to the view that has been advanced, that it assigns to the School, duties and responsibilities which more properly belong to the Home and the Church. Reverence, it will be said, is a part of religion, and should be taught by its ministers, and by parents who are, or should be, its household priests; if the teacher invades their province, the door is opened wide to all manner of confusions. The objection is only apparent, not real. The reverence of which we speak has nothing to do with the watchwords of theological controversy, and occupies the common ground on which all creeds worthy of the name can unite. As Goethe goes on to tell us in the passage from which we have already quoted, it has a threefold aspect, and he who would live under its power must carry its spirit with him, as he looks on what is above, what is around, and what is beneath himself. He must learn to recognize with true insight and ready obed-

ience, natures that are higher and nobler than his own—to seek the ends of life, not in selfish isolation from his equals, but in loving co-operation with them—to look upon the earth which has been put beneath his feet as sacred ground, so that he shall be merciful to its creatures, diligent in its labors, patient amid its sorrows, hopeful as to its destiny, holding fast the faith that in its very crosses and contradictions lie hidden the divine meanings of the power that "dwells not in the light alone."

It is doubtless true that the home-life is the natural soil in which the seeds of this virtue should be planted at first, and where, if afforded due care and nourishment, they will most surely and vigorously grow. It is also true that the ministers of religion should be the high priests in the temple of Reverence, and that in many instances they are not unworthy to be so called. But it is only too evident to those whose eyes and ears are open, that in this age of the world at least, the influences of the home and the church are not showing their ability to make the young generation reverent. Of juvenile precocity, sharpness, ambition, we have enough and to spare—teachers of all grades know that there is no lack of such characteristics as these in their pupils. They know, too, how often there are found flourishing side by side with these questionable fruits of modern civilization, the rank, unlovely growths of selfishness and hate. Who that has seen much of boy-life has not been shocked time and again by manifestations of frank materialism and a callous indifference to the finer feelings of the heart which one would scarcely expect to find in a full-grown worldling?

Where is a remedy to be found? The Church seems for the time to have lost the spell with which in former ages she charmed into obedience the swelling tides of human passion, and the voice that once spoke like her Master's, with authority, sounds strangely dull and "thin as voices from the grave." If we look to the homes of our people for the cure of the evil, we are constrained to admit that the writer in the WEEKLY to whom we have referred is right when he says, with regard to the un-reverent spirit, that "its cradle is the family—in the manner of treatment and general up-bringing of children by their parents does it find its birth." We may indeed gladly acknowledge that there are many Canadian homes in which "old age hath yet his honor," and childhood is sweet and wholesome as ever. But what sort of culture in reverence can be looked for in that immensely greater number of homes in which the only real worship is that paid to the idols of democracy, whose votaries spend what scanty leisure they can spare from money-grubbing and party politics in nourishing their own and their children's minds on such ideals of life and standards of conduct as are supplied by the "Tom Sawyers" and "Huckleberry Finns" of

their favorite author—or, possibly, making the easy descent to the still lower level of that innumerable multitude who chuckle approvingly over the dull and vicious inanities of the author of "Peck's Bad Boy"!

Can the teacher do anything to correct the false ideals and the low views of life which, prevalent as they are among those of riper years, cast their blighting influence so surely and so fatally on the young lives committed to his care? It is our conviction that he can do much, and that to his hands more than to another's has been given in these days the task and the responsibility of placing Reverence on her rightful throne in the heart. How he shall fulfil that task, how acquit himself of that responsibility—these indeed are momentous questions into which we cannot enter at this time. One duty, at all events, is obvious and indispensable. He who would worthily teach the lessons of Reverence, must himself be a learner in her school. He who would sow the seed and reap the harvest which she gives to her loyal husbandmen in the hearts of others, must yield her as firstfruits the homage of his own life. G. G.

MORAL EDUCATION IN THE PUBLIC SCHOOLS.

How is it to be accounted for, that some teachers so quickly secure a hold upon the consciences of their pupils and of their schools as a whole? Is it not that they have ascertained just how far they can trust the children? I think I have observed this in many cases. Instead of forbidding all wrong-doing alike on their authority as teachers, till the pupil loses sight of his own conscience and decides all duties by the standard of the school requirements, such teachers frankly recognize, and cause the pupil to understand, that there is a sphere in which his instincts may be trusted, and, beyond, a vast expanse in which he needs instruction and guidance. The attention is directed to that field, be it wide or narrow, in which the pupil's conscience reigns supreme, and the object is every day to enlarge the field in which conscience acts effectively. The process is not altogether different from other teaching. The pupil in fractions has a vague notion that there is a vast field beyond, which the teacher has explored. If he has occasion to perform an example in fractions, he performs it; an example in interest, he carries to the teacher and contentedly accepts the answer thus obtained. The analogy is very imperfect, but is true, I think, to this extent: if we acknowledge the supremacy of conscience in the realm it has already conquered, and make the pupil assume the responsibility to this extent, he will the more readily accept our authority in the regions he has not yet explored. We must daily require obedience to rules

which the pupil's conscience has not yet covered. He must be led to see that we are conscientious in these requirements, and that we are endeavoring to elevate him to our standard. To illustrate: the mere infant has no perception of the difference between *meum* and *tuum*, except to regard *tuum* as far the more attractive; the time has not come for much instruction, and we merely put *tuum* beyond his reach. The boy at school realizes that he must not take directly what belongs to another, but is not sure whether he may not keep what another has lost and he has found; we allow him to see that we trust him not to steal, but seek an opportunity to instruct him in regard to lost-found articles. Presently, he recognizes and acts upon this duty, but it is still a long climb upward to the decision that it is wrong even, to over-reach another in a bargain; and there is still a mountain summit above, to which we must conduct him; for we must teach him, also, that it is his duty to love even his enemies and do good to them.

It must be that a process of growth so regular and constant, will admit of systematic treatment. It should not be left entirely to such hap-hazard impressions as the occurrences of daily life in school may present. Says W. C. Woodbridge, of New York, in a lecture given some time ago on "The State of Public Instruction in the United States and Europe." "Public instruction in the United States differs from that of every other Christian country, in that here no definite instruction in morals is given." My colleague, Professor J. K. Newton, informs me that in the German public schools there is "definite moral instruction, recreated and regular." Duties should be dispassionately considered. It is not wise to wait till some outbreak occurs, and then discuss actions in regard to which the pupil, and perhaps the teacher, is excited and prejudiced. Prevention is better than cure; and the pupil should be forewarned and forearmed against temptation. The building of character is a science and an art, and it is the only science which we should for an instant think of employing or teaching without an orderly system from the beginning. I do not now refer to the moral science which is already taught in our high schools, but to a science which bears the same relation to that which hygiene bears to anatomy and physiology. Mr. Blaikie is able to direct his pupils to the proper physical exercise for building up certain parts of the body, with almost as much certainty and accuracy as the physician to the specific for a given disease. Should we not learn to apply such treatment to the moral powers? Is it not our chief duty to search for the means of their more definite and thorough culture?

We are living in an age of reaction against the rigid moral instruction of the New England fathers, and there is danger

that we shall go quite too far in our repugnance to direct instruction in practical ethics. Indeed it is a vice of our age not to know anything definitely. We read not a few books, but everything. We have no patience to commit the best to memory and treasure it. "Jonny," said a Sunday School teacher, "do you know the Tenth Commandment?" "Yes, ma'am." "You may say it." "I can't." "But you said you knew it." "Yes, ma'am, I know it when I see it." He knew it by sight. So do we know all things, but too often have not written them on our hearts, to be a constant standard and reminder.

The method of the Bible is to set forth a somewhat full scheme of duties; not deciding particular questions of conscience, nor settling cases in casuistry, but giving a clear general outline. The first chapter in the "sermon on the mount" contains at least twenty direct commands, besides numerous prohibitions, and covers an immense field of duties; the Old Testament contains book after book of definite directions. If it be said that the Bible scheme is not logically arranged—that it is Emersonian rather than rigidly systematic, we may reply that it is better than systematic; it is so arranged as to meet the progressive needs of men. To read the Bible from beginning to end is to be gradually lifted from a state of society in which even polygamy was tolerated, to a position in which the perfect law of love and liberty is received and appreciated.

The Jews were thus furnished with a comprehensive system; and we cannot deny that it was effective with them. They were never in all respects a model people; but no nation has been freer from immoralities; their faults have never been those of disobedience to the moral law or to conscience.—*Geo. H. White in the Ohio Educational Monthly. Read before the North-Eastern Ohio Teachers' Association.*

NATURE announces that the great collection in Central-American ornithology and entomology amassed by Messrs. Salvin and Godman, have been given to the British Museum. One collection, presented on certain conditions not specified by *Nature*, comprises the entire series of American birds brought together by those gentlemen, numbering upwards of twenty thousand specimens, and illustrating, more than any other collection in existence, the life history and geographical distribution of the birds of tropical America. No labor or expense has been spared in the formation of this splendid group of ornithological rarities. The other gift, which is unconditional, comprises a very fine collection of Central-American Coleoptera of the families of Cindelidae and Carabidae. It contains 969 species, and, moreover, 7,678 examples, of which more than four hundred are types of new species described in the work entitled "Biologia Centralia Americana," now in course of publication by Messrs. Salvin and Godman. To this collection will ultimately be added, by gift, the remaining families of Coleoptera, with other entomological specimens.

TORONTO:

THURSDAY, APRIL 30, 1885.

ORTHOGRAPHY AND ORTHOEPY.

We have received numerous enquiries as to the probable nature of the paper on Orthography and Orthoepy for the entrance and teachers' examinations. A paper on these branches is to form part of the examination, and many teachers are anxious to know how they are to prepare for it, or what part of the programme of studies it will cover. We cannot tell, of course, what view the examiners will take, nor what form the paper will assume, but we here give a few ideas of our own as to the object, the nature, and the mode of teaching these subjects. Their importance as branches of study will be admitted by all; they form the foundation of spoken and written speech respectively, the one telling us the correct form and the other the correct sound of words. The form of words is, like the form of anything else, learned by some people much more readily than by others. An eye and memory for form may enable one person to spell almost intuitively, while the absence of these may make correct spelling a most difficult attainment. This, indeed, is perhaps the case with the majority of people; the mind being occupied with the thought conveyed by the words their forms are not noticed. It is on some such ground that we can explain the inability of partially educated people to spell, although they may be extensive readers and may have seen and read thousands of times the correct form of each word they misspell.

For this reason exercises in orthography should be such as withdraw the attention from the meaning and fix it on the form of the words. The eye and the memory must be both trained in this way so that the correct form will be remembered and an incorrect form detected.

In learning to read, a child has, of course, its attention devoted almost exclusively to the form of the word, but when readiness in reading has been acquired the forms of the words are overlooked unless the spelling forms part of the lesson, and a lesson should never be considered prepared unless the spelling of every word in it is known. Writing a passage to dictation, either after or without preparation, is a useful exercise to fix the form of words

on the memory; the detection and correction of misspelled words, in sentences or separately, train both the eye and the memory, but the most useful exercise is original composition. In this exercise the mind is intent on the meaning, and the spelling is not thought of; but after having their mistakes frequently corrected pupils will gradually acquire the habit of looking carefully to the spelling of the words they use or read.

It is only by continued practice in such exercises and continual watchfulness that good spellers can be made. Nothing else can avail the pupil in mastering the difficulties of our irregular and arbitrary orthography.

Rules for spelling are almost useless, but there are a few general phonetic principles, however, that have been partially adopted in our spelling, a knowledge of which might aid the memory occasionally, such as doubling the final consonant and other modifications made in a word when affixes are added, and the assimilation of the initial consonant when a prefix is used. These rules, however, are not much more useful than a system of mnemonics. We do not spell by rule but by rote, and pupils must get the spelling of each word "off by heart."

Orthoepy is correct pronunciation. It belongs to oral speech and is learned by the ear as orthography belongs to written speech and is learned by the eye. We catch the sound of words as they are uttered by others, and in turn we use them ourselves. In this way we learn most of the words we use; we may read a word fifty times without remembering it or using it, but if it be repeated by those with whom we converse it clings to the memory. As the greater part of our ordinary intercourse with one another is conducted by oral speech, especially in childhood, the difficulty of imparting correct pronunciation by written directions is great. It is also apparent that to ensure it in children they should be brought up surrounded by a healthy orthoepy. Children imitate their parents and their companions, and if the orthoepy of these is faulty, then the only hope for improvement is in the teacher, who should establish and persistently maintain in his little community the habit of correct pronunciation. By this means the teacher can not only secure correct pronunciation on the part of the pupils but the elder members of each family become

imitators, and the teacher's influence in this respect, as indeed it should in all matters in which he is concerned, extends to every part of the school district.

Mispronunciation is so common that it is not looked upon as so glaring a want of education as misspelling, but it is certainly a defect, and is naturally much more easily shown. A man cannot write a letter without showing his education, certainly, but if he have learned his early language faultily he cannot open his mouth without showing his youth; to him, in the matter of speech, evil communications have begotten bad manners.

It is, we presume, with the object of correcting the prevalent provincialisms and dialectic pronunciation that attention is directed to orthoepy in the examinations. Orthoepy cannot be taught, like orthography, by written exercises; in the latter, defects arise from not seeing correctly or from not remembering what we see, and written exercises remedy this, but in the former, the defects arise from remembering what we hear, and what children have heard amiss can be eradicated only by making them hear what is right. If this is not done their wrong pronunciation will remain with them through life.

The requirements of good pronunciation are three—the right sounds, their division into syllables, and the proper placing of the accent.

There is a right sound for every word and each word should have that sound, and that sound only, whether it be a vowel sound or a blending of vowel sounds with consonants.

The sounds should be properly grouped into syllables; each consonant must belong to some vowel, and care should be taken to show by the pronunciation its union with the right vowel. Each word should be pronounced distinctly, and the sound of one word should not be allowed to run into the next.

The accent is the most peculiar feature of our English words; every word of more than one syllable must have an accent, and the wrong placing of the accent gives a very unnatural sound to the word. So strong is our accent that we are too much in the habit of looking upon placing it properly as the only requisite in good pronunciation, totally neglecting the vowels in the unaccented syllables. This, we imagine, being a prevailing fault even among educated people, will be one of the

chief things to be attended to by the orthoëpist. Teachers, while striving to make correct pronunciation a habit in their schools, can do something in this way by written exercises in which the sounds are indicated correctly, properly grouped and separated into syllables, and the place of the accent properly marked. Test exercises of this sort will most likely form part of the examination paper on this subject.

BOOK REVIEW.

The Three Pronunciations of Latin. By Dr. Fisher, professor of Latin in the University of the State of Missouri. New York: D. Appleton & Co., 1885. Third edition.

This book has been before the public for several years, but in its present form it is almost a new work. All classical scholars know that there are three principal methods of pronouncing Latin,—the English, the Continental, and the Roman. The last method has been variously styled the Latin method, the Restored method, the Reformed method, the Phonetic method. The fundamental principle underlying the English method is that every Latin word is pronounced as the same combination of letters would be pronounced in English. The Continental method, as employed in England and America, adopts the so-called Roman pronunciation of the vowels and diphthongs, and the English pronunciation of the consonants. The scheme of the new system of phonetics is somewhat complex and cannot be summed up in a sentence. It is against this "reformed" system that Dr. Fisher raises his polemic voice. In this practical age the arguments advanced must prove unanswerable.

No one pretends that the English method of pronouncing Latin gives the slightest indication of the way in which Pompey and Cæsar spoke, but the subject of Latin orthoëpy is wrapped in uncertainty so dense that it is an idle and harassing and time-wasting pursuit to search for vanished sounds. If the dogmatic advocates of the Reformed method were certainly orthodox there would still be a very large number of scholars who would refuse to follow the new lights. In Latin tuition less and less attention is being paid to orthoëpical canons and vocal exercise, and more and more to the life and soul of the text.

With what a strange jargon withal does this Reformed method pierce English ears. The familiar *veni, vidi, vici*, becomes (or was) *way-nee, wee-dee, wee-kee*. Tully it seems was not Cicero (sisero) but Kikero (!), and *civitates* was (oh, shades of Sulla!) *kee-wee-tah-tacc*. And what of our old-time phrases? *Viva vœ* becomes *wee-wah vœ-kay*, *per centum* becomes *pare kant-toom*, *vivat regina* becomes *wee-wait ray-gee-nah*. No wonder an indignant American professor threatened that he would drive out of his room with a whip of small cords any pupil who should insult him with this antiquarian lingo.

Dr. Fisher surprises us with carefully compiled statistics which shew that of the 237 universities and colleges in the United States only 90 use the English method, whereas 75 follow the Continental system, and no fewer than 72 the Roman.

One wonders what is the state of affairs in Canada. At least two or three of our schools have adopted the Roman method, but it will not be hazardous to surmise that the English method is all but universal in this country—the English method or a modification of that method. It is well known that many of our classical masters do not consistently follow any one method, but avowedly take an eclectic course, and adopt part of one mode and part of another.

Prof. Fisher's book will be read with great interest by every teacher of Latin who desires a fuller knowledge of all that pertains to his special work.

J. E. W.

BOOKS RECEIVED.

Northrop, B. G., LL.D.; *Forests and Floods*. Hartford, Conn.: The Case, Lockwood & Brainard Co. From the author.

Kingsley, Charles; *Madam How and Lady Why; or, First Lessons in Earth Lore for Children*. New York: Macmillan & Co., 1885. From Willing & Williamson.

Lansphere, Mrs. L. J.; *Common School Compendium. For Home Students and Teachers*. Chicago: Fairbanks & Palmer. 1885.

Whiton, James Morris, Ph.D., and Mary Bartlett, A.B., Instructor in Greek in Packer Collegiate Institute, Brooklyn; *Three Months' Preparation for Reading Xenophon. Adapted to be used in Connection with Hadley and Allen's, and Goodwin's Grammar*. New York: D. Appleton & Co. 1885.

Kruesi; *Drawing Tablets for Elementary Exercises in Drawing. Prepared especially to accompany Kruesi's Easy Drawing Lessons and the Synthetic Drawing Course*. New York: D. Appleton & Co. 1885.

Table Talk.

FREDERICK GRANT GLEASON'S three-act opera, the libretto by the composer, "Montezuma," will be complete in April. It will be first produced in Europe.

THE Minister of Education in England has recently made report that the attendance at the public schools has, within a few years, risen from 2,000,000 to 5,000,000, and that a result has been a very considerable diminution in juvenile crime. In this statement he is confirmed by the London police.

UNDER the terms of the liberal grant of money made by the German Government for the prosecution of his investigations of the cholera germ and related subjects, Dr. Koch is to admit thereto small classes of the medical men of Germany. Through the efforts of Minister Kasson and the courtesy of Prince Bismarck, Dr. George W. Lewis, of Buffalo, N.Y., has also been admitted to these interesting and important studies.

THE Works of Samuel Richardson, in twelve volumes, are soon to be published by Estes & Lauriat, whose other spring announcements are the Sterling Edition of Carlyle's Works, in twenty volumes, and the University Edition and People's Edition, each in ten; "Rimbaud's History of Russia," translated by L. B. Lang; "The Dæmon of Darwin," by Prof. Elliott Coues; and Colonel Olcott's "Buddhist Catechism," which has been edited by Prof. Coues from the fourteenth Ceylonese edition.

A JAPANESE gentleman who returned to his native country last fall, after six years of study in England and the United States, writes: "While I was in America I had been contemplating a plan for the adoption of Roman letters for our language, and saw Professor—, of Cambridge, and others. On my return I find others of education have the same view, and they have just started a society, with which I have joined as a founder, and in which I will try my best to carry forward the object."

THE author of *Trajan*, says "Lounger" in *The Critic*, cannot complain that his novel is not thoroughly advertised. His publishers have done all that is usual for publishers to do, and have even pressed the perambulating 'sandwich' into their service. At almost any hour of the day you may meet a squad of these slow but sure-footed men, strolling along Broadway with the legend *Trajan* blazoned in bold black letters on their backs and breasts. If Cassell & Co. are going to advertise their next novel in this way, the combination will be amusing. They have just announced for early publication a story by Maurice Thompson called *At Love's Extremes*. I think there would be a sensation in Broadway the day an army of 'sandwiches' thus labelled marched solemnly down that thoroughfare.

THERE is going on in the newspapers just now a very suggestive contest over the spelling of a word. Shall it be *dynamiteur* or *ter*? Both forms have reliable followings, though no reasons have been advanced for either termination. The word is a good example for several interesting features of word-making. It illustrates how each new development in history requires a vocabulary, and how the vocabulary is formed from the facts involved. Further, the difference in the termination shows how each word must have its period of instability before usage selects the form which shall be permanent. This Irish agitation has, by the way, introduced several new words into the language. — *The Chautauquan*. There is a lamentable uncertainty as to the correct formation of new words. In the case of 'dynamiter,' or 'dynamiteur,' or 'dynamitard,' perhaps no rule can be found. But where a rule is possible it should be followed. Children could be taught to make use of their knowledge of derivation in this way.

MESSRS. G. P. PUTNAM'S SONS announce a series of volumes in which the "story" of each of the great nations will be told. To quote from their prospectus: "It will be the plan of the writers of the different volumes to enter into the real life of the peoples and to bring them before the reader as they actually lived, labored and struggled—as they studied and wrote, and as they amused themselves. In carrying out this plan, the myths, with which the history of all lands begins, will not be overlooked, though these will be carefully distinguished from the actual history, so far as the labors of the accepted historical authorities have resulted in definite conclusions." It is hoped to publish this year the story of Greece, by Prof. J. A. Harrison; of Rome, by Arthur Gilman; and of the Jews, by Prof. J. K. Hosmer. Prof. Charlton T. Lewis will tell the story of Byzantium, Miss Sarah Orne Jewett of the Normans, Prof. H. H. Boyesen, of Norway, and the Rev. B. E. and Miss Susan Hale, of Spain. The series promises to be a most interesting and valuable one.

Special Papers.

ENGLISH LITERATURE FOR EN- TRANCE TO HIGH SCHOOLS.

IV.

THE SHIP-BUILDERS.

To teach this lesson successfully, considerable attention must be paid to its subject, in order that the pupils may be able to appreciate the poem. If they regard a ship as a sort of waggon and nothing more, they cannot understand the piece. A few questions like the following might be asked:—What is a ship? Is it of any use? Of much? How is it useful? If ships had never existed what people would probably be living in Canada to-day? How do we get letters and papers from England? What about our tea, etc.? After they begin to see the value of ships they might be questioned about the dangers ships encounter, to bring out the necessity of great care in the choice of wood, the mode of construction and the selection of builders. Remind them that ships carry human beings. On the ship-builder depends numerous lives. His work is therefore responsible, and consequently noble. This done, it will be well to draw attention by questions to the beauty of form and grace of motion of a ship. Some of the class have perhaps never seen a ship. Describe as best you can this beauty and grace which for ages have been the theme of poets. To aid you in this endeavor read Ruskin's "A Sea-Boat," from which the following is taken:

"Of all things, living or lifeless, upon this strange earth, there is but one which, having reached the mid-term of appointed human endurance on it, I still regard with unmitigated amazement Flowers open, and stars rise, and it seems to me they could have done no less But one object there is still, which I never pass without the renewed wonder of childhood, and that is the bow of a boat."

"I know nothing else that man does which is perfect but that. All his other doings have some sign of weakness, affectation or ignorance in them. They are over-finished or under-finished; they do not quite answer their end or they show a mean vanity in answering it too well."

"Then, also, it is wonderful on account of the greatness of the thing accomplished. No other work of human hands ever gained so much. Steam engines and telegraphs, indeed, help us to fetch and carry, and talk; they lift weights for us and bring messages with less trouble than would have been received otherwise; this saving of trouble does not constitute a new faculty, it only embraces the powers we already possess. But in that bow of the boat is the gift of

another world. Without it, what prison wall would be as strong as that white and wailing fringe of sea? What maimed creatures were we, all chained to our rocks, Andromeda-like, or wandering by the endless shores, wasting our incommunicable strength and pining in hopeless watch of unconquerable waves! The nails that fasten together the planks of the boat's bow are the rivets of the fellowship of the world. Their iron does more than draw lightning out of heaven, it leads love round the earth."

"Then, also, it is wonderful on account of the greatness of the enemy that it does battle with To war with that living fury of waters, to bare its breast, moment after moment, against the unwearied enmity of ocean; the subtle, fitful, implacable, smiting of the black waves, provoking each other on endlessly, all the infinite march of the Atlantic rolling on behind them to their help, and still to strike them back into a wreath of smoke and futile foam, and win its way against them, and keep its charge of life from them. Does any other soulless thing do as much as this?"

The class is now in a position to understand the poem to some extent. It will be useful, however, for you to know that "The Ship-Builders" is the first of a group of poems bearing the title of "Songs of Labor" and including "The Shoemakers," "The Drovers," "The Fishermen," "The Huskers," "The Corn Song," and "The Lumbermen." These poems were written *before the war between North and South*. Their object may be learned best from Whittier's own words with particular reference to them:

"So haply these, my simple lays
Of homely toil, may serve to show
The orchard's bloom and tasselled maize
That skirt and gladden duty's ways,
The unsung beauty hid life's common things below.

"Haply from them the toiler, bent
Above his forge or plough, may gain
A manlier spirit of content,
And feel that life is wisest spent
Where the strong working hand makes strong the
working brain."

Knowing the object of the poem you will from it be able to teach that "Honor and shame from no condition rise," that "It is only noble to be good," and that "All we are brethren."

STANZA I.

What is the time? Where the place? Is the East ruddy in the morning? Is the earth gray? Are mists common? What is meant by SPECTRAL? LIKE A GHOST? MEASURED STROKE? Probably in reference to the necessity of keeping time when several are using heavy mallets in driving wedges. GRATING. Does a saw grate? Do the words in vs. 3-6 correspond in harshness to this grating? Why is the AXE called BROAD? To denote that its work is to smooth and not to chop. GNARLED is a dissyllable. Why?

STANZA II.

Notice inversions in this and other stanzas. Are they forcible? Use the natural order of words. How tame! SOOTY SMITHY; SMITH SHALL STAND; FLASHING FORGE; HEAVY HAND. Anything odd in beginning letters of these? Give other examples from this poem. BLAST ON BLAST. Why not change *on* to *after*? Which denotes greater rapidity in succession of blasts? Is the smith working hard? For whom? The ship-builders. Notice how the "office is magnified" by the poet in the recurrence of "ALL DAY FOR US." What is a SMITH? A worker in any metal. How is his HAND HEAVY? What does the word mean? The *smoother*, not so much the *smiter* as Trench thinks. Does the smith have a scourge or whip in his hand? Why then is he said to SCOURGE the anvil? What makes the ANVIL GROAN? the weight of its load or the scourging it receives? How do the FIRE-SPARKS FADE WITH THE STARS? In place and in time.

STANZA III.

Notice the contrast in FAR-OFF and NEAR. Are there others in this stanza? Yes, e.g., RINGS OUT STILL; CENTURY-CIRCLED—FILLS. Let the pupils notice how busy everything is in serving the ship-builders, also that the RAFTS are large as ISLANDS, that the FORESTS are primeval and that the OAK is so old that it is considered to own the HILL on which it stands. CENTURY-CIRCLED. Having one hundred rings in its wood and simply circled by a hundred years.

STANZA IV.

UP! UP! Quite vivid. CRAFTSMAN. What does dictionary say about this word? BEARS A PART, i.e., *does his share*. NATURE'S GIANT POWERS, i.e., the wind and storm or perhaps Nature's resources in the way of river current and mighty trees. TREE-NAILS, i.e., wooden pins preferred to copper nails, because less likely to split the timbers. FREE, i.e., freely, with vigor. Notice the metaphor, almost personification in FAITHLESS, TEMPT, and SEARCHING.

STANZA V.

The workman thinks of the ship's future. SEA'S. Notice the poetical use of the Anglo-Saxon possessive. Do we generally talk of FIELDS in the ocean? Not in prose but often in poetry. THAT SHIP draws special attention to OUR GOOD SHIP. BECK? Signal.

STANZA VI.

VULTURE-BEAK. Is the epithet appropriate? What is the beak of a vulture like? What may *feel*? The ribs or the vulture-beak? In what part of the world might the CORAL-PEAK grate along the keel? PAINTED SHELL. Is the word shell appropriate to so strong a ship? The brevity of the last two verses is very effective. CITADEL, i.e., a place of safety. Notice any example of additional rhyme

in this stanza. WE GIVE TO WIND AND WAVE. Notice the repetition of same sound. CITADEL and GRAVE are the more strongly contrasted because of the repetition of SAILOR'S.

STANZA VII.

The ship is finished and is now to be launched. How is the ship the young bride of the sea? In faithfulness and apparent affection. Ho! Look! intended to enliven the stanza. Let the pupils imagine the stately ship floating so gallantly on the river.

STANZA VIII.

GOD BLESS HER, an effective use of brief but forcible expression. We feel a deep interest in this ship. SNOWY WING, *i. e.*, her white sail. The pupil will be able to appreciate the implied comparison of the ship to a bird. MART, MAIN. A contrast, in harbor or on the open sea. SILKEN CORD OF COMMERCE. Silk is strong and yet soft and pleasant to the touch.

STANZA IX.

MERCHANDISE OF SIN, explained by following verse, and referring to *slaves*. GROANING, in reference to the terrible sufferings of the negroes crowded in the slave ship. HOLD, *i. e.*, the interior part of the ship. LETHEAN DRUG. The *Lethé* was thought by the ancients to be a river of hell. Persons drinking its waters became forgetful of their past. The drug here referred to is *opium*, largely imported from India to China. POISON DRAUGHT may refer to alcoholic liquors.

STANZA X.

PRAIRIE'S GOLDEN GRAIN, *i. e.*, wheat and barley. DESERT'S GOLDEN SAND, *i. e.*, gold dust. CLUSTERED FRUITS, *i. e.*, grapes. MORNING LAND, *i. e.*, eastern countries.

Nothing has been said of the life of Whittier, simply because there seems to be no occasion for it. If any considerable portion of his writings were to be studied, a history of his life would prove useful as illustrating his work. Should any teacher be sensible or brave enough to devote an occasional Friday afternoon to "Maud Muller," "Barbara Frietchie," "The Christian Slave," "Massachusetts to Virginia," etc., it will be well to read the article on Whittier in a recent number of *Harper's Monthly*. It may perhaps be in point to draw the attention of your pupils to the fact that Whittier desires his ship to sail under a peaceful flag, to carry no slaves, and to be loaded with no opium. No religious society has done more than the comparatively small Society of Friends, of which Whittier is a member, to destroy *war*, *slavery*, and *intemperance*. Numerous beautiful and forcible selections to illustrate Whittier's teaching on this point are easily available.

W. P. Quackenbos

The High School.

TABLE OF COMMON MISUSAGES, IMPURITIES, IMPROPRIETIES, AND INELEGANCIES.

G. P. QUACKENBOS, LL.D.

WHEN two or more adjectives belong to a noun with which there is occasion to use the article also, the latter is placed before the first adjective alone if reference is made to a single object, but before each if several objects are referred to. Thus: "a white and red flag" signifies one flag, partly red and partly white; "a white and a red flag" means two flags, one red and the other white. Do not, therefore, omit the article before the last adjective, unless it is clear that but one thing is intended.

The article *a* is preferred before a word beginning with an aspirate *h*, when the accent is on the first syllable: *an*, when it is on the second; as, "A history", but "An historian".

Aggravate means "to make heavy", "to make worse"; as, "to aggravate an offence". The propriety of its use in the sense of *irritate* is questioned.

All of them and *Both of them* are incorrect expressions. "Did you ask for all of them?" To ask for some of them would be possible; but not all of, out of, or from all. Say *them all*.

Alternative is a choice between two things. Hence the sentence, "We were left to the choice of two alternatives", involves a contradiction. Instead of "Choose between two alternatives", we should say, "Take, or accept, the alternative". When one thing is offered, and there is no choice, we correctly say, "There is no alternative".

Anticipate means to be before in doing, or to take beforehand; not to expect. "He anticipated his brother in securing the position". We anticipate (take before in imagination) the pleasures of a visit; but we do not *anticipate going* to Saratoga.

Any is an adjective; to use it as an adverb is a colloquial solecism; as, "He was not injured *any*", "Are you *any* better?"

Anyhow is inelegant; say *in any manner*.

When several auxiliaries belonging to different tenses are used with the same participle or verbal form, care must be taken to have them consistent. "I can make as much money as he has." As he has what? Evidently *has made*, which would be ungrammatical. The sentence should read, "I can make as much money as he has *made*." So, "The book has, is, or shall be published".

The use of *balance* in the sense of *remainder* is a common violation of propriety; as, "I cut part of my hay yesterday, and shall cut the balance tomorrow if it does not rain".

Been to, in the following sentence, is erroneous: "Where have you been to?" *To* is superfluous.

Beside, signifying *by the side of*, must not be confounded with *besides*, meaning *in addition to*.

Between is applicable to two objects only; *among* to three or more. "A father divided a portion of his property *between* his two sons; the rest he distributed *among* the poor. *Between you and I* for *between you and me* is a common solecism.

But that is incorrectly used by many for *that*; as, "It cannot be denied *but that*, &c."; one conjunction, *that*, is all that is necessary.

Calculated does not mean *able, fit, apt, or liable*. A store is not *calculated* to burn unless built for that purpose.

Couple implies two things of the same kind connected or taken together; a betrothed or married pair is a couple. It is improperly used as a synonym of *two*; as, "A couple of oysters", "A couple of dollars", &c.

Decimate means to take one tenth part of; it is incorrectly used in the following: "Next morning a severe frost set in, and my field of turnips was absolutely *decimated*; scarce a root was left untouched".

Description means *account*, and is not a synonym of *kind* or *sort*, as in the sentence, "We keep no goods of that description".

Directly and *immediately* are adverbs of time, and cannot properly be used as conjunctive adverbs equivalent to *as soon as*; "Directly Mr. Disraeli ceased speaking, Mr. Low rose to oppose him", is incorrect.

Each is singular; and a pronoun or verb agreeing with it must also be singular; as, "Let them depend each on *his* own exertions", not *their* own.

So, several nouns preceded respectively by *each*, *every*, or *no*, whether connected by *and* or not, require a singular verb and pronoun; as, "Every lancer and every rifleman *was* at his post".

Each other supposes *two*; *one another*, *three or more*. "The disciples were commanded to love *one another*", not *each other*.

Either always implies *two*; *any one* should be substituted for it in sentences like the following: "There have been three famous talkers in Great Britain, *either* of whom would illustrate what I say".

Empty should not be applied to a river, which cannot be empty while water continues to run in its channel. The Mississippi does not *empty*, but it *flows*, into the Gulf of Mexico.

Equally as well is a solecism; say *equally well*.

Every in such expressions as, "The man deserves *every* praise", is improper. *Every* means all the parts which compose a whole considered one by one, and should not be applied as above. So "every pains", "every confidence", "every assistance", are alike erroneous; say "the greatest pains, perfect confidence, all possible assistance."

Existing truths should be stated in the present tense; "Columbus discovered that the earth *is* round", not *was*, for it is as much a fact to-day as at the time spoken of.

Avoid the use of newly-coined feminines in *ess*, like *embroideress, editress, millionairess*, &c.

Firstly (in the first place) is often erroneously used for *first*, which is an adverb as well as an adjective.

Food is *wholesome* or *unwholesome*, not *healthy* or *unhealthy*.

Get is greatly abused by careless speakers and writers. The verb literally means to *acquire*, and is inelegant in such forms as, *to get a disease, to get one's pocket picked, to get the train, to get left, to get into a carriage*, &c. *Got* is superfluous in sentences like the following: "Have you *got* any peaches?" "I haven't *got* my pocket-book with me".—From the latest edition of "Composition and Rhetoric," by G. P. Quackenbos, LL.D.

(To be continued.)

The Public School.

TALK ON THE USE OF THE BLACKBOARD.

MISS IRLIN STRAUBER

(Concluded from last issue.)

AGAIN, make use of a surplus board, a part of which should be used for a time-table. The remainder should be used for rolls of honor for punctuality and attendance, and for texts and quotations from our best authors, the pupils being required to learn them, thus storing their mind with valuable information fit for the future.

In all this work observe accuracy and neatness. Never attempt to make plain to another a thing which is not perfectly clear to yourself. Neither present to your pupils work that you would not willingly receive from them. No class of persons detect shams more readily than children, and while carelessness may be second nature with them they admire the power to do things well, and it is surprising to see how quickly pupils fall into the habit of doing things like the teacher.

We will next consider the work done by the pupil.

In sending pupils to the board have an object in view. Work done merely for the sake of the thing done and simply that the fingers may be employed, is an evil and perhaps more prevalent than most of us are aware. Give enough board work, but let it not be made the chief thing in a recitation. It is particularly apt to be so in the lower grades' concert work; and to it we offer the same objection we would offer in too much concert reading, viz., we cannot reach the individual pupil.

Next in importance is system. Permit only such a number of pupils at the board as can work without inconvenience to each other. Better divide the class and let a part work on slates, than that there should be too many at work at the board at once. What was said in regard to neatness and accuracy on the part of the teacher's work applies equally to pupils. Demand the best and you shall have it. A pupil soon learns what kind of work he may presume to present to his teacher. Much depends on the nature of the work given. Difficulties should never be presented to a class at the board; distraction and confusion invariably follow. Give short examples and short sentences upon subjects with which the class is supposed to be familiar—not necessarily upon the regular lesson work, but upon the same subject. If the class has had ten problems in arithmetic or ten sentences for analysis, give other similar ones for board-work. You thus get more work and can form a better opinion as to whether the subject on hand is clear to the pupils.

Again, promptness is necessary to the success in good board-work. This may be se-

cured by limiting the time to the majority of the class. It is not expedient to wait until all have completed the work. True the slow pupil may become discouraged in always coming out last, but a little extra work on his part, aided by the teacher's explanation, together with a half hour's rapid work when they two are alone, will eventually bring him to time, provided there is any outcome in him. At the expiration of the time given, see that all work is suspended, each pupil expecting to be called upon for some part of the explanation. In this manner you carry the class with you in thought and there is no time for indifference or flagging in attention. You are now ready for work to be erased; and here, let me say, a lesson is needed. Did you never observe the cloud of dust arising where Johnnie stands? Why! first too much crayon was used, and second, he has not learned the art of using a rubber. A child should be taught from the first that all board-work should be executed with the whole arm movement, and that there is a right and wrong way to use his eraser. We sometimes take too much for granted and lay the blame where it does not properly belong. One other thought just here. There are days when there appears to be no affinity between the crayon and board, and each particle of dust seems to find its way into the eyes and lungs. At such times abandon the board and use slates. Eyes and lungs are more important to the child than board-work under such circumstances. We trust the day is not far distant when slating shall take the place of the rough board, and crayon dust be a thing of the past. A school is none the less orderly because a teacher sometimes deviates from his regular programme. Judgment in regard to such matters is a teacher's best qualification. In fact all methods of teaching are practicable only to those who exercise judgment in their use. Do I hear some one say, "But so much board-work on the part of the teacher and pupil is laborious and requires much time?" True, but all good teaching demands work, and he who enters the profession expecting ease has missed his calling. The question should be, not what plan is most convenient, but how shall I best present the subject to the pupils. Our mission is to teach, and our duty is to use the time given us to the best advantage of the pupil regardless of self.—*Indiana Educational Weekly.*

SHALL AND WILL.

We employ two auxiliary verbs to express the future, using "shall" for the first person, "will" for the second and third persons. Of these verbs the one implies, more or less obscurely, an obligation, the other a volition, and when using them we do not always have in the mind a perfectly simple notion of future; associated ideas are often connected

with it which induce shades of meaning in our expressions.

The most closely connected of these associated ideas are those involving the conception of *intention* on the part of the person speaking; and when this conception, and not merely a simple future, is to be expressed, we immediately exchange one auxiliary for the other; that is, "I (or we) shall die," is the expression of a simple future contingency, perfectly paralleled by "he, you, or they, will die"; but "I (or we) will die," conveys a meaning of intention, paralleled again by "he, you or they, shall die." Can anything be clearer than this? Yet how often we hear, "I am afraid I will be late"; "They say I will find the place very dull"; "He tells me we will have leave to do it"; or "We have decided the baby will go to-morrow." And frequently also, though not so frequently, such expressions as "I swear I shall repay you"; or "I doubt whether he shall succeed."

In these cases the meaning is made evident by the text, and the mistake of grammar is patent; but in other cases the whole weight of the meaning rests on the verb, and demands the strictest accuracy—a demand frequently unanswered. Yet it is not till the difference, the immense difference, is felt between "I shall be at home to-morrow" and "I will be at home to-morrow"—not till it is *involuntarily* perceived that the one phrase is only a prophecy and the other a promise, and that "he shall be at home to-morrow" is, on the contrary, the promise, and "he will be," etc., the prophecy—that a man or woman has any right to use the words at all.

The past tenses "should" and "would" follow with regard to the persons a rule precisely analogous to that which governs "shall" and "will." They are sometimes, in fact, as Sir Edmund Head (the great "Shall and Will" censor) points out, "only hypothetical futures." When one says, "I should have caught the fever if," etc., one speaks of what would have been a future event; and "should" is here used with the first person because "shall" would be. And we say, "He would have gone to Europe if," etc., because in the future it is "He will go to Europe if," etc. There are cases, however, where "should" and "would" are not "hypothetical futures," but completely express a past condition; and when, as we have seen with "will" and "shall," the choice of the verb depends on the thing meant; and a person who is thinking one thing has no right to say another. For instance, "I should have seen him there" is a simple statement of what might have been; "I would have seen him there" means "I would by my own consent have seen him there." "We should not have done that" means only (setting aside the possible meaning "We ought not to have done that") "It

would not have been done." "We would not have done that" means "We should have been unwilling to do so." (Observe in this last phrase the recurrence to *we should* to indicate the simple past, as *we shall*, the simple future.)

Sir Edmund Head gives a wonderful quotation from Chalmers, which affords the best possible illustration of carelessness with regard to this usage: "Compel me to retire and I shall be fallen indeed; I *would* feel myself blighted in the eyes of all my acquaintance; I would nevermore lift up my face in society; I would bury myself in the oblivion of shame and solitude; I would hide me from the world; I *would* be overpowered by the feelings of my own disgrace; the torments of self-reflection would pursue me." The two "woulds" in italics are unquestionably ungrammatical, because, to use Sir Edmund's words, "in these two cases the context excludes all notion of will or intention, and therefore we know they must be meant to express the simple future, which they ought not to do with the first person." The other preceding "woulds" cannot be called *manifestly* wrong, "because they are connected with acts which are voluntary at the moment, and the writer might perhaps be entitled to the benefit of the doubt, if he had not shown by the other portions of the sentence his ignorance of the English idiom."

Some few apparent anomalies in the use of these verbs are inexplicable by principles which it is not possible to go into fully in so short an exposition as this, but which may be hastily referred to. In some forms of dependent sentences "shall" and "will" are used for the third person as if it were the first person—that is, in a dependent sentence of which both clauses concern a third person, "shall" is properly to be used instead of "will" to express simple futurity; so that, while it is necessary to say "He will go," it is necessary to say "He shall go." This is probably due to a dramatic impersonation, on the part of the speaker, of the person spoken of, making the usage the same as if the phrase were "He says, 'I shall go'"; and it therefore holds good in the reverse with the use of "will"—*e. g.*, "He thinks he shall go to Europe" expresses the simple future, while "He thinks he will go to Europe" would properly convey an intention. The usage is unsettled for the second person: one may say either "You say you will go" or "You say you shall go." Sir Edmund Head is of opinion "the speaker [in this case] may, as it were, look at the sentence with reference either to himself or to the person whom he is addressing." But we must repeat that for the third person the form is fixed: "He says he shall go" and "He said he should go" are the only forms which do not imply volition. Sir Edmund justly remarks, when considering the occa-

sional uncertainties: "It may be maintained that as 'will' is a sort of interloper, 'shall' ought always to be employed unless good cause be shown against it"; and he elsewhere states his belief that "shall" was the original future auxiliary.

It may be observed here that where there is the slightest touch of hypothesis (except in the cases in which, as we have already pointed out, the past tense has the character of a hypothetical future), the weight of "shall" and "should" is changed—*e. g.*, "You should go" or "He shall feel it" expresses duty, or compulsion, or destiny; but "If you should go" or "Whenever he shall feel it" are the natural form of our contingent future. Sir Edmund considers also akin to this the fact that in interrogative sentences the form of the first person is, so to speak, preferable for the second person. Thus, "Shall you go to Europe?" is a simple question of fact. "Will you go to Europe?" implies that the person addressed has not come to a decision. While "Will I (or will we) do it?" is wholly inadmissible, except as meaning "Do you ask if I will do it?"; if used instead of "Shall I do it?" *i. e.*, "Am I expected to do it?"), it is a mistake.

It should not, in passing, be overlooked that the effect of *emphasis* on these verbs is very extraordinary. "The letters," as Sir Edmund says, "remain the same, but they are in fact different words." In the phrase "I *will* go," "He *shall* come," the verb ceases to be an auxiliary.

Few better modes of acquiring certainty and delicacy in the use of these words can be suggested than is open to the student of Shakespeare; the flexibility of his use of them, and its frequent subtlety, are astonishing, and his accuracy great. But even he stumbles sometimes—for instance, in allowing *Antipholus* to say to *Angelo*, "Perchance I will be there as soon as you" ("Comedy of Errors," iv. 1, 39). We can see here the impossibility of trusting at all to the *ear* in this matter, since *Emilia's* declaration, "Perchance, Iago, I will ne'er go home," is faultless. Other mistakes are where *Lucio* condoles with *Claudio* about his life—"who [which] I would be sorry should be thus foolishly lost" ("Measure for Measure," i. 3, 95); and *Falstaff* declares, "I will sooner have a beard grow on the palm of my hand than he [the juvenal, the Prince, your master] shall get one on his cheek" ("2 Henry IV.," i. 2, 23). *Don Pedro* says of *Beatrice*, "You amaze me; I would have thought her spirit would have been invincible against all assaults of affection" ("Much Ado," ii. 3, 119); and there are some others. But let no verbal sinner console himself with the belief that he has Shakespeare for his companion. He can only count on Chalmers, and on Scotch and English generally. And if he continues to commit mistakes, let him

at least (*not*) declare, "I 'would' feel myself blighted in the eyes of my acquaintance, I 'would' be overpowered by the feelings of my own disgrace"; but none the less may "the torments of self-reflection pursue him!"—*From "The Nation."*

FREE DRAWING CLASSES FOR TEACHERS.

THE Minister of Education has decided to have Free Drawing Classes formed during the summer vacation for teachers, similar to those conducted last year.

The session will begin on Tuesday the 7th of July, and will continue until the end of the month.

The subjects to be taught in the elementary class (Grade B), will be Freehand Drawing, Geometry, Perspective, Drawing from Models and Memory and Blackboard Drawing.

In the advanced class (Grade A), the Subjects will be Shading from the Flat, Industrial Drawing, Designing, Machine Drawing, and Drawing from Dictation.

Certificates of Proficiency will be given for each of these subjects. Those who succeed in obtaining five certificates will be awarded drawing teachers' certificate entitling them to teach elementary drawing in public schools and Mechanics' Institutes.

We are pleased to know that these drawing classes are to be resumed this year, as several teachers have received an increased income by teaching drawing in Mechanics' Institutes; and the demand for teachers of drawing is at present greater than the supply.

As the accommodation is limited and students will be received in the order of application, those teachers desirous of attending the classes should not delay communicating with the Education Department.

BELGIUM has recently been passing through a great educational crisis. From 1842 up to 1879 primary education in Belgium was vested almost entirely in the priests, who pursued methods that were well calculated to repress thought, and foster that apathetic subservience which makes a people the easy tool of priestcraft. Under the system 30 per cent of the population have become illiterates. In 1878 the Liberals came into power, and one of their first acts was the appointment of a ministry of education, and a bill was passed regulating primary education. The progress made under the new order of affairs has been wonderful. Their schools are the subject of thoughtful study in England, on the Continent, and in the United States. Of course great opposition was aroused. The clerical party spared no pains to make their schools more attractive than the State schools. This in turn stimulated the State to larger expenditures, which in some measure contributed to the financial troubles of the Government, and eventually to the overthrow of the Liberals at the June election. The clerical party has passed a bill which, in effect, destroys the new system, and places education on its old basis. This has not been done, however, without a protest from the people.

Mathematics.

QUESTIONS ON THE DEFINITIONS OF EUCLID.

The following examples serve to illustrate several kinds of questions on the definitions of Euclid:—

1. Describe the picture that presents itself to the mind when we make use of the term, right angled triangle.
2. In what respect is a rhombus similar to a square, and in what respect is it dissimilar?
3. Which is the more general term, rectangle or square, and what term includes them both? What is a still more general term?
4. What geometrical term is used to denote difference of direction?
5. What idea presents itself to the mind when mention is made of an angle?

A. J. Amer.

PAPERS IN FACTORING.
N.

Find by inspection the quotient in the following cases:

1. $(a^2 - b^2) \div (a - b)$.
2. $(p^2 - q^2) \div (p + q)$.
3. $(x^2 - 1) \div (x - 1)$.
4. $(x^2 - 9) \div (x + 3)$.
5. $(9a^2 - 25b^2) \div (3a - 5b)$.
6. $(1 - 49x^2) \div (1 + 7x)$.
7. $(4a^2b^2 - 81x^2y^2) \div (2ab - 9xy)$.
8. $(x^4 - a^4) \div (x^2 - a^2)$.
9. $(x^4 - 1) \div (x^2 + 1)$.
10. $(4x^4 - 9) \div (2x^2 + 3)$.
11. $(x^6 - y^2) \div (x^3 - y)$.
12. $(a^6 - b^6) \div (a^3 - b^3)$.
13. $(9a^8 - 4x^6) \div (3a^4 - 2x^3)$.
14. $(x^{14} - 9) \div (x^7 + 3)$.
15. $(a^2 + b^2) \div (a + b)$.
16. $(a^3 - b^3) \div (a - b)$.
17. $(a^2 + 1) \div (a^2 - a + 1)$.
18. $(x^3 - 1) \div (x^2 + x + 1)$.
19. $(8x^3 + 1) \div (2x + 1)$.
20. $(27x^3 + 8) \div (3x + 2)$.
21. $(a^2 - 27) \div (a - 3)$.
22. $(27a^3 - 8) \div (9a^2 + 6a + 4)$.
23. $(1 - 125a^3b^3) \div (1 - 5ab)$.
24. $(1 + 64x^3y^3) \div (1 + 4xy)$.

XI.

Find by inspection the quotient in the following cases:

1. $(x^4 - y^4) \div (x - y)$.
2. $(x^6 - y^6) \div (x - y)$.
3. $(x^6 - y^6) \div (x - y)$.
4. $(a^c - 1) \div (a - 1)$.
5. $(a^2 - b^2) \div (a - b)$.
6. $(a^3 - b^3) \div (a - b)$.
7. $(a^{10} - b^{10}) \div (a - b)$.
8. $(a^2 - 1) \div (a - 1)$.
9. $(x^{10} - 1) \div (x - 1)$.
10. $(x^4 - y^4) \div (x + y)$.
11. $(x^6 - y^6) \div (x + y)$.
12. $(x^4 - 1) \div (x + 1)$.
13. $(a^4 - 1) \div (a + 1)$.
14. $(a^3 - b^3) \div (a + b)$.

15. $(a^{10} - b^{10}) \div (a + b)$.
16. $(a^{12} - b^{12}) \div (a + b)$.
17. $(1 - x^{10}) \div (1 + x)$.
18. $(x^6 + y^6) \div (x + y)$.
19. $(x^2 + y^2) \div (x + y)$.
20. $(x^8 + 1) \div (x + 1)$.
21. $(x^2 + 1) \div (x + 1)$.
22. $(x^9 + a^9) \div (x + a)$.
23. $(1 + a^9) \div (1 + a)$.
24. $(x^{11} + a^{11}) \div (x + a)$.
25. $(1 + c^{11}) \div (1 + c)$.

The University.

THE closing exercises of Victoria University will begin this year on May 10th, extending to Wednesday, May 13th. On Sunday, the 10th, sermons will be preached by Revs. O. J. Hunter and John Philp, M.A., of Toronto. On Monday, Rev. John Awde, B.A., (Queen's) will deliver a lecture. In the evening, the closing entertainment of the Literary Association will be held. On Tuesday, Rev. J. W. Annis, B.A., will deliver the Presidential address of the Science Association on "Evolution." Convocation will take place, with the granting of degrees, on Wednesday, to be concluded by the annual conversation of the students in the evening.

The graduating class this year will number about twenty in Arts, including two former Albert students, one in Science, a lady, over thirty in Medicine from Montreal, and nearly as many in Medicine from Toronto.

A new office has been created by the board, that of Vice-Chancellor, the election to which will be filled this year by the alumni. The former office of President has been merged in that of Chancellor. The appointment of Geo. A. Cox, Esq., of Peterboro', as College Bursar, has met with the hearty approval of all graduates, and they feel confident that now some definite movement will be inaugurated for the improvement of the financial condition. All expect that success will result from Mr. Cox's efforts, his record inspiring all with confidence. We understand that he has his schemes already under way. The absorbing topic in college circles now is Federation and the approaching alumni meeting will give the first expression to their feelings on this subject. Opposition to the scheme seems to be growing in vigor, as many are opposed to the terms, though strongly opposed to remaining in Cobourg. The intention is to feel the pulse of the ministry at the annual conference this summer and if a favorable opinion be there obtained to push the scheme to its completion. Whatever is done, a new era is evidently dawning on Victoria—either confederation in Toronto, removal as an independent university to Toronto or Hamilton, or the improvement of affairs in Cobourg, by new buildings, increased staff and full appliances. At present the whole question is involved and the result impossible to be predicted.

MR. CARLYLE paid his visit to the Newark school recently, complimenting Mr. Moore, the teacher, and his pupils by saying that he was well pleased with the school, that the scholars had begun to think more for themselves than they had been accustomed to do of late, that they spoke more frankly, and that their order was first class, which are no small points to gain in a school.

Educational Intelligence.

THE Whitby Collegiate Institute entertainment took place in the Town Hall on Friday, April 24th.

A DEBATING society has been organized in Separate School, Section No. 12, Peel, which meets every Friday night.

THERE are at present 120 pupils attending the Oshawa High School. This is the largest number that ever attended at one time.

MR. JOHN SEATH, Provincial High School Inspector, inspected the Guelph High School on Tuesday and Wednesday of last week.

THE Clinton High School has put shorthand on their list of optional subjects for the year, and it may be that Goderich will follow suit.

OWING to the illness of the teacher, Miss Depew, the school in Section No. 1, two miles north of Hawtrey, has been closed since Easter.

THE lecture "Talking as a Fine Art" by Mr. W. H. C. Kerr, barrister, Toronto, in the chapel at Ontario Ladies' College on Friday night was much appreciated.

THE Rev. J. J. Hare, M.A., President of the Ontario Ladies' College, Whitby, delivered educational sermons in the Methodist church, Markham, on Sunday morning and evening, April 19th.

MISS N. REYNOLDS, daughter of Mr. John Reynolds, of Mount Forest, has been successful in passing her examination as an M.D., and won a \$60 scholarship the highest honor given in the College.

THE office of Public School Inspector for Halton having been rendered vacant by the death of Mr. R. Little, the Acton *Free Press* recommends the appointment of Dr. C. H. Lusk, of Orangeville High School, to the position.

LINEAR drawing has been introduced, by recent enactment, into all the elementary schools of England. The theory is that a knowledge of this kind of drawing is useful in almost every kind of trade or handicraft.—*The Current.*

AN entertainment consisting of vocal and instrumental music, recitations, etc., was given in the Town Hall, Bomanville, Friday night, April 24th, by the pupils of the Union School. The proceeds were devoted to the purchase of books, etc., for school library.

NOTWITHSTANDING the desire of the Harvard faculty that applicants for admission to the University should be allowed to show knowledge of some other language than Greek as a qualification, they have been overruled by the overseers of the institution.

THE California millionaires appear to be doing their best to build up the educational and artistic interests of the coast. The latest benefactor is Mrs. E. B. Crocker, who proposes to deed her art gallery to San Francisco, provided the people raise one hundred thousand dollars to maintain the collection.

THE overseers of Harvard College have declared it expedient to grant the petition of the undergraduates for the repeal of the rules now requiring attendance on daily prayers. "Probably," adds *The Current*, "the parents of the petitioners have been heard from."

THE people of Washington congratulate themselves on the fact that it costs only \$18 a year to educate each pupil in the District of Columbia. This is less than the rate in many other cities. In Boston, for instance, it is \$28.42 a head.

THE free text-book system is commended in the annual report of the Massachusetts Board of Education for the reasons that it perceptibly increases the attendance of the poorer classes; it enables the work of the school to be promptly taken up and carried forward without delay, and it puts all the pupils on a common level.

WE understand that the teacher who teaches in the section to the east of Salford is going to try the First A examination in midsummer. James Hogg is the gentleman's name, and we hope he will be successful. He is an industrious and an apt student and deserves success.—*Woodstock Sentinel-Review*.

FULL preparations are made for the coming meeting of the American Institute of Instruction next July at Newport, R.I. Among the outside attractions, a free ocean voyage to Block island is expected. Round trip tickets can be obtained from all points in the East at reduced rates. Board at the Ocean House will be \$2.25, and at private boarding houses at from \$1.00 a day to \$2.00.

THE New York Board of Education wants an appropriation of \$991,000 for new school houses. The sum asked for is large, but the children of New York must not be left to find their education in the streets, as many of them are doing at present. Ten new school houses are imperatively demanded just now, and it would be doubtful economy to delay building them.

THE annual meeting of the Mechanics Institute, Norwich, will be held the first Wednesday in May, at the rooms, when the Treasurer will be able to present a report showing the society to be out of debt, which is the first time since its organization. The society has a fine library now, and well deserves double the support it gets. We hope citizens and farmers will show a deeper interest in the affairs of the institute than ever they have yet and make this annual meeting a large and enthusiastic gathering.

"THERE is no more encouraging sign of the times," says the *Ann Arbor Index*, "for the cause of popular education than the change that has taken place during the last ten years in the attitude of the Western States toward the State universities." It points to the University of Wisconsin as an example. Less than twenty years ago its total income was only \$5,646.40, while it now has \$225,000 available, through legislative appropriation, for the erection and equipment of needed buildings, and for the current expenses of 1882-4 its income was \$201,331.77.

AT a meeting of the Literary Society of the Woodstock High School on Friday evening the following officers were elected for the ensuing term: Mr. A. D. Griffin, Pres.; Mr. Wm. Higgins, Vice-do.; Miss Whitelaw, Secretary; Miss Alice Stuart, Assistant-Secretary; Mr. Chas. Lyster, Treas.; Councillors—Mr. T. J. Parr, Miss E. Campbell, Miss N. Withrow, Mr. J. A. McDonald. After the elections were over a very pleasant hour was spent in speechifying by retiring and newly elected officers. For the next meeting a very attractive programme has been

arranged, consisting of a debate, musical selections, vocal and instrumental, and readings.

THE artists of the country are doing a sensible thing in attempting to establish a National Society of Arts. The proposed constitution declares the Society "will seek to check fraud and deceit in the traffic in works of art; to oppose, by every legitimate means, bad art in public places; to advance sound art education; to encourage public exhibitions both temporary and permanent; to secure legislation in behalf of the true interests of American arts and artists; and to establish friendly relations between artists and collectors at home and abroad." This is better than striving to induce the Government to establish an art commission.—*The Current*.

THE Petrolia high school seems in a state of great prosperity and progress. It now has 107 pupils, 30 from the county and 77 from the town; the average attendance of these being, for January 94, for February 94, and for March 91. Three masters conduct the school. On April the 2nd a successful entertainment was given in the Oil Exchange Hall by the Literary Society, for the purpose of obtaining funds wherewith to purchase a piano for the school. The receipts amounted to \$101.

THROUGH the liberality and co-operation of the Woman's Education Association, the Boston Society of Natural History will again open the Seaside Laboratory at Annisquam, Massachusetts, from July 1 to September 1. The purpose of the Laboratory is to afford opportunities for the study of the development, anatomy, and habits of common types of marine animals, under suitable direction and advice. There will therefore be no attempt to give lectures or any stated courses of instruction. The instruction and work of the Laboratory will be under the immediate care of Mr. B. H. Van Vleck, assistant in the Laboratory of the Boston Society of Natural History.

MR. J. H. SMITH, Public School Inspector, before the promulgation of the Minister of Education's regulation instituting an Arbor Day, himself circulated a notice in the County of Wentworth requesting that the first of May should be spent in cleansing and beautifying the school grounds. His circular contains so many valuable hints that we reprint it at length.

PUBLIC SCHOOL INSPECTOR'S OFFICE,
ANCASTER, April 18th, 1885.

To the Trustees, Teachers, and Pupils of the Public Schools of Wentworth:

Last year I ventured to suggest that the first day of May should be set apart and celebrated in our public schools as "Arbor Day." The very hearty manner in which that suggestion was acted upon convinced me that this was a step in the right direction, and that the people were both ready and willing to improve and adorn the school grounds. From the most reliable information that I can obtain there were planted on that day over 1,500 shade and ornamental trees, besides the equally important work of removing the rubbish that had accumulated during the winter. This is a noble work and worthy of all encouragement.

To secure united action among trustees, teachers and pupils, I would recommend trustee boards to set apart Friday, the 1st day of May, as "Arbor Day," and join with the teachers and pupils, not only in planting suitable shade trees, but in seeing that the grounds are properly cleaned up, and that ashes, sticks of wood, and other uncomely objects which have accumulated during the winter,

be removed from the premises. If the fences or gates, or outhouses need repairing let it be promptly attended to, for I am fully persuaded that every effort in the direction of improving the appearance of the school premises will have a beneficial influence upon the pupils.

It is perhaps unnecessary to refer to the healthfulness of clean premises, as I presume every person is aware that filth of every kind is not only unsightly and repulsive, but positively injurious. I therefore trust that the suggestions I have made will be acted upon in every section, and that May-day will be spent in making our school grounds more attractive.

I have a few words to say to the boys and girls attending our schools, for I am very anxious to have them take a part in this good work. In a few years you will bid farewell to schools, and enter upon the active duties of life. When at some future day you re-visit the "Old Schoolhouse," nothing will call up more pleasant memories than to know that you assisted in planting some of the beautiful shade trees under which another generation of school children will be enjoying themselves. You will look back to the time when you played upon these grounds, and will live over again in memory those pleasant days of childhood.

Let every boy and girl then do something to beautify the school ground and make school life attractive, and you will never regret the time and labor spent in this way. Lay your books aside for that day and enter heartily, as I believe you will, into the spirit of the occasion.

With united effort much can be done, and I look forward with pleasure to the time when every school ground will have its quota of shade trees; and flower beds carefully attended will be the rule and not the exception.

In conclusion permit me to say to the teachers that your position in the section calls for your active co-operation, and I trust each one will be found a leader in this good work. Yours faithfully,

J. H. SMITH,
P. S. Inspector.

Correspondence.

THE NORFOLK TEACHERS' CONVENTION.

To the Editor of the EDUCATIONAL WEEKLY.

DEAR SIR,—Your reporter in his account of some of the proceedings of the late Norfolk Teachers' Convention, has (unintentionally, of course) misrepresented my views on an important matter in class-room discipline. I did not, in the few impromptu remarks I made, mean to contrast "total silence" with "the active hum of study," i. e., "silence" with "noise;" but rather, the silence of listless indifference or mental somnolence, which often creeps over a pupil, and sometimes over a whole school, with the busy but silent hum of study (a bold catchesis!).

Absolute silence between pupil and pupil during school hours is, in the experience of most teachers, the only safe rule. The practice rigidly enforced soon becomes a habit; economy of time, independent work, and concentration of thought, are the happy results for the pupil, while the teacher benefits by having a quiet room in which to conduct his class recitations.

It cannot be forgotten, however, that this "absolute silence rule" prevents the pupils from benefiting from the stimulus and friction which two minds engaged on the same task may give each other. This led me to say, on the occasion referred to above, that a teacher might with profit allow reliable pupils to study together, at least occasionally, and especially for review purposes.

Yours fraternally,
D. S. PATERSON.
Simcoe Union School.

Examination Papers.

ADMISSION TO HIGH SCHOOLS.

[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.]

ARITHMETIC.

JUNE, 1880.

1. Multiply one hundred and seventy-four million five hundred and fifty thousand six hundred and thirteen by six hundred thousand four hundred and seventeen. Explain why each partial product is removed one place to the left.

2. Define *measure*, *common measure*, and *greatest common measure*.

Find the G.C.M. of 153517 and 7389501522.

3. Shew that $\frac{2}{3} = \frac{4}{6}$.

Simplify $\frac{4\frac{1}{2} \text{ of } \frac{1}{2} \text{ of } 7\frac{2}{3} + 2\frac{1}{2} + 1\frac{1}{2}}{12\frac{2}{3} - 2\frac{2}{3}} + \frac{9\frac{2}{3} - 3\frac{1}{2}}{12355} = \frac{12354}{12355}$.

4. A brick wall is to be built 90 feet long, 17 feet high, and 4 feet thick; each brick is 9 inches long, 4½ inches wide and 2½ inches thick. How many bricks will be required?

5. A merchant received a case of goods invoiced as follows:—

- 12 pieces of silk, each 48 yds., at 5s. 3d. per yd.
- 15 " cotton, each 60 yds., at 6½d. "
- 20 " " each 56 yds., at 4¾d. "
- 14 " Irish linen, each 40 yds., at 1s. 3¾d. per yd.

Supposing the shilling to be worth 24½ cents, find the amount of the above bill of goods.

6. Divide 76.391955 by nine hundred and twenty thousand three hundred and eighty-five *ten-billionths*.

7. D. D. Wilson, of Seaforth, exported last year 8,360 barrels of eggs, each containing the same number. He received an average price of 14.85 cents per doz. Allowing the cost (including packing, etc.) to have been 13.5 cents per dozen, and the entire profit to have been \$7,900.20, find the number of eggs packed in each barrel.

8. The dimensions of the *Globe* newspaper are 50 inches by 32 inches, and the daily issue is about 24,000 copies; how many miles of Yonge-street, which is about 70 feet wide, might be covered with ten weeks' issue?

9. A flag-staff 120 feet high was broken off by the wind, and it was found that .76 of the longer part was $\frac{2}{3}$ of $9\frac{1}{2}$ times the shorter part. Find the length of each part.

10. A and B together can do a piece of work in $\frac{7}{8}$ of a day, B and C in $\frac{1}{8}$ of a day, and C and A in $\frac{3}{8}$ of a day. In what time could all working together do the work?

DECEMBER, 1880.

1. Define *Number*, *Numeration*, *Notation*, *Addend*, *Minuend*.

2. Find the G. C. M. of sixty-eight million five hundred and ninety thousand one hundred and forty-two, and eighty-five million forty-four thousand and fifty-nine

3. For a voyage of 17 weeks a ship takes provisions to the amount of 48 tons 4 cwt. 2 qrs. 20 lbs. 9 oz. Supposing that there are 73 men aboard, how much may be allowed each man per day?

4. Find the amount of the following bill:—14½ lbs. beef at 10c., 12½ lbs. pork at 9½c., 3 turkeys,

weighing in all 35½ lbs., at 12½c. per lb., 12 lb. 10 oz. lard, at 15c. per lb., 5 geese, weighing in all 145 lb. 12 oz., at 10c. per lb.

5. Simplify:—

$$\frac{5\frac{1}{2} \text{ of } \frac{2}{3} + 3.3 \text{ of } 2 - 1\frac{1}{2}}{\frac{1}{7} \text{ of } (2.045 - .5)} \text{ of } \frac{\text{£}19 \text{ 16s. } 7\frac{1}{2}\text{d.}}{\text{£}20 \text{ 16s. } 8\frac{1}{2}\text{d.}}$$

6. What is the weight of a block of stone 12 ft. 6 in. long, 6 ft. 6 in. broad, and 4 ft. 1½ in. thick, when a block of the same kind of stone 2 ft. 6 in. long, 3 ft. 9 in. broad, and 1 ft. 3 in. thick, weighs 1,875 lbs.?

7. A man, after paying an income tax of 15½ mills in the dollar, and spending \$3.37½ a day, is able to save \$1,230.87½ a year (365 days). Find his gross income.

JULY, 1881.

1. Define *Subtrahend*, *Multiplicand*, *Quotient*. Explain the statement—"The multiplier must always be regarded as an abstract number."

Divide 200000018760681 by sixty-three million two hundred and forty-five thousand five hundred and fifty-three.

2. Define *Prime Number*, *Prime Factors*. How do you resolve a number into its prime factors? Resolve 132288, and 107328 into their prime factors, and find the least common multiple of these numbers.

3. How many minutes are there in $\frac{1}{2}$ of a year (365 days) + $\frac{2}{3}$ of a week + $\frac{1}{4}$ of $3\frac{1}{2}$ days?

4. Simplify:—

$$\frac{\frac{1}{2} + \frac{1}{3}}{\frac{1}{4} - \frac{1}{5}} - \frac{9 + \frac{1}{2}}{2 + 2\frac{1}{2}} + 176\frac{1}{8} - 1650\frac{1}{3}\frac{1}{4}$$

5. A grain dealer buys 5,225 bushels of wheat at \$1.05 per bushel, and paid \$125 for insurance, storage, etc.; he sold .4 of the quantity at 97 cents per bushel. At what price per bushel must he sell the remainder in order to gain \$522.50 on the whole?

6. Find the quotient of .9840018 ÷ .00159982 to seven decimal places; and reduce .7002457 to a vulgar fraction.

7. Water, in freezing, expands about *one-ninth* in volume. How many cubic feet of water are there in an iceberg 445 feet long, 100 feet broad, and 175 feet high?

DECEMBER, 1881.

1. Divide three hundred and fourteen and *one hundred and fifty-nine thousandths* by eight thousand nine hundred and thirty-seven *ten-billionths*.

2. Divide the difference of

$$13\frac{1}{2} \div [(2\frac{2}{3} - 2\frac{1}{4}) \times 1\frac{1}{2}] \text{ and } [13\frac{1}{2} \div (2\frac{2}{3} - 2\frac{1}{4})] \times 1\frac{1}{2}$$

$$\text{by } 13\frac{1}{2} \div 2\frac{2}{3} - 2\frac{1}{4} \times 1\frac{1}{2}$$

3. Find the amount of the following bill in dollars and cents, the shilling being worth 24½ cents: 115 yards Brussels carpet, at 5s. 10d.; 95 yards Dutch stair, at 2s. 7d.; 84 yards Kidderminster, at 3s. 6d.; 72 yards druggat, at 2s. 8d.; 10 dozen stair rods, at 5s. 6d.

4. Lead weighs 11.4 times as much as water, and platinum weighs 21 times as much as water. What weight of platinum will be equal in bulk to 56 lbs. lead?

5. Find the difference in cost between 200 feet of chain cable, 76 lbs. to the foot, and 600 feet of

wire rope, 18 lbs. to the foot, the chain costing 15s. 6d., and the rope costing 23s. 6d. per cwt.

6. By selling tweed at \$2.60 a yard it was found that $\frac{1}{5}$ of the cost was gained; what selling price would have gained .7 of the cost?

7. A plate of copper 5 ft. 6 in. long, 3 ft. wide and $\frac{3}{8}$ inch thick, is rolled into a sheet 4 ft. 6 in. wide and 6 ft. long. Find its thickness.

8. How many bricks, 9 in. long, 4½ in. wide, and 4 in. thick, will be required for a wall 60 ft. long, 17 ft. high, and 4 ft. thick, allowing that the mortar increases the bulk of each brick one-sixteenth?

9. A grocer gained 20 per cent by selling 10 lbs. sugar for a dollar; afterwards he increased his price, giving only 9 lbs. for a dollar. How much per cent did he make at the increased price? Value, 1-8, eleven marks each; 12 for No. 9.

JUNE, 1882.

1. Define *greatest common measure*. State the principle on which the rule for finding the G.C.M. of two numbers depends.

Find the G.C.M. of *sixty-eight million five hundred and ninety thousand one hundred and forty-two*, and *eighty-five million fifty-four thousand and fifty-nine*.

2. A dealer bought eight carloads of lumber, each containing 9,870 feet, at \$13.50 per M. He retailed it at \$1.43 per 100 feet. Find his gain on the whole lot.

3. Shew that $\frac{2}{3} = \frac{4}{6}$, and that $\frac{2}{3} \div \frac{4}{6} = \frac{1}{2}$.

Simplify the following:—

$$\frac{26\frac{2}{3} - 1\frac{1}{2}}{\frac{1}{2} + 1\frac{1}{2} - \frac{2}{3} \text{ of } \frac{17\frac{1}{2}}{12}} \text{ of } \frac{5\frac{1}{2}}{521}$$

4. Prove that $2.3 \times .04 = .092$.

Add together 154.2125, .5421, .0001235, 741.206, .03, and 4567.0004.

Reduce 75.0125 cwt. to ounces.

5. A steamer makes a nautical mile (6,072 feet) in 3 minutes and 50 sec. Find her rate per hour in statute (common) miles.

6. There is a solid pile of bricks which is 36 feet long, 16 feet 6 in. wide, and 14 feet 6 in. high, and contains 122,496 bricks of uniform size; each brick is 9 in. long and 4½ in. wide; find its thickness.

7. A London merchant transmits £250 10s. through Paris to New York; if £1 = 24 francs, and 6 francs = \$1.14 American currency, what sum in American currency will the merchant realize?

8. In a map of a country the scale is $\frac{1}{8}$ of an inch to a mile (*i.e.*, $\frac{1}{8}$ of an inch represents a mile), and a township is represented on this map by a square whose side is half an inch. How many acres in a township?

9. If 4 men or 6 boys can do a work in 8 days, how long will it take 8 men and 4 boys to do such a piece of work?

10. A and B. were candidates for election in a constituency of 2,700 voters. The votes polled by A. were, to those polled by B., as 23 to 25, and B. was elected by a majority of 100. How many persons did not vote?

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