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The Canada School Journal.

VOL. XI.

TORONTO, DECEMBER 15, 1886.

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THE CANADA SCHOOL JOURNAL

An Educational Journal devoted to Literature, Science, Art, and the advancement of the teaching profession in Canada.

— T E R M S . —

THE SUBSCRIPTION price of THE CANADA SCHOOL JOURNAL is \$1.00 per annum, strictly in advance.

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PAYMENT of all bills due to the CANADA SCHOOL JOURNAL should henceforth be made to the Editor and Proprietor.

J. E. WELLS, Editor and Publisher.

OFFICE: 51 Bay Street, Toronto.

IMPORTANT ANNOUNCEMENT.

THE publisher begs leave to announce to the members of the Teaching Profession and all others interested in educational matters that he has purchased the CANADA SCHOOL JOURNAL, and that it will from this date be conducted under his sole management and control, and published from a printing office established by himself and his son for the purpose.

The subscriber has for the last two years been connected with the JOURNAL as Editor, and in that capacity has become deeply interested in the teachers of the Dominion and their great work. Being resolved to conduct the paper solely in the interests of the profession, and to spare no labor or pains in order to make it increasingly helpful to teachers of all grades in the Public and High Schools, he appeals with some confidence to members of the profession to aid him in his efforts to make the JOURNAL in every respect worthy of its high

mission, as an exponent of all that is soundest and most progressive in the science of education, and all that is wisest and best in the practical methods which are the outcome of that science, and of school-room experience, combined.

The JOURNAL will, for the present at least, be continued as a semi-monthly, published on the first and fifteenth of each month. As a rest for both readers and editor, one number will be omitted during the month of August. The yearly volume will thus be made up of twenty-five numbers. Should it be found feasible, and seem, in the interests of the profession, desirable, a return may be made to a weekly issue at a future day. That is a question, however, whose decision will rest mainly with the patrons of the JOURNAL.

The new volume commencing with next issue, January 1st, 1887, will appear in a somewhat enlarged form, in a new "dress," and with a different and, it is believed, better "make-up." As it will be printed from new types, a marked improvement in general appearance and readableness may be expected.

The first and leading aim will be, as heretofore, to make the JOURNAL an invaluable helper in the practical work of the schools. Hence still more space and attention will be given to the department of practical methods. Efforts will be made to induce able and successful teachers to give the younger members of the profession the benefit of their ripe experience. The large list of exchanges, and the best productions of eminent educational writers, will be laid under contribution to still further enrich the columns of the JOURNAL with the best fruits of educational thought and practice everywhere.

The Question Drawer will be continued as a medium of communication between teacher and editor, and between teacher and teacher, in regard to those matters of doubt and difficulty which are constantly coming to the surface. This department alone demands and shall receive much time and labor. The aim will be to secure increased promptness and efficiency.

Departmental, Promotion, and other examination questions will still be published to whatever extent may seem to the editor, according to the best light he can obtain, most acceptable and useful to the largest number of teachers.

Literary Notes and Book Reviews will be continued as hitherto. Pains will be taken to have all important educational works reviewed on their merits by competent and independent critics.

Correspondence on all live educational topics, theoretical and practical, is urgently solicited, and will, when right in style and spirit, be admitted without regard to the agreement or disagreement of the views presented with those of the editor, who is a thorough believer in freedom of thought and speech. It may be added, for the encouragement of inexperienced writers, that slight slips, or inaccuracies in expression, will be corrected.

Brevity and terseness, so far as the nature of the subject and the ability of the writer may admit, will characterize the editorial department. Most space will be devoted to the discussion of such topics as seem likely to be of interest to the largest class of readers. At the same time, it will be the aim to give due attention to all the great movements of educational opinion which are becoming so marked a feature in the intellectual progress of the age. Deploring the tendency of the day in Ontario, to drag even the most sacred educational questions into the arena of party conflict, the editor will strive earnestly and honestly to lift up the discussion of all such questions to a higher plane.

Last, but by no means least, the JOURNAL will, with pleasure and thankfulness, avail itself of the aid of a number of prominent educational writers who have kindly promised regular or occasional contributions. A list of some of these valued contributors will be published in the first number of the new volume. By means of helpers so efficient, the editor hopes to secure fair and adequate presentation of both, or rather of all, sides of all the more important topics that may come up from time to time, such as the proposed College of Preceptors, the Departmental Examinations, the choice of Text-books, etc.

Modesty is becoming at all times, and especially where one is putting on the harness. The subscriber ventures to hope that these frank statements of his aims and purposes may not seem like the words of one who is ready to promise great things. While, he trusts, not much accustomed to thrust his own personality before his readers, the present occasion makes it not inappropriate for him to refer to some of the grounds of his hope that he may be able to render some service to the cause in which it is his ambition to be useful. Having been born and having grown up in New Brunswick, having been educated in Nova Scotia, having taught for a score of years in those provinces, and in Ontario, having passed through all grades of the profession from the district school to the college, and having had some years' experience in journalism in Ontario, Manitoba, and the North-West, he trusts he may, without presumption, lay claim to some measure of preparation for the management of a journal intended for the use of teachers all over the Dominion. He will, at any rate, do his best. Those for whom he is to cater must be the judges.

J. E. WELLS.

MANY editorial and other items are unavoidably crowded out of this issue.

THREE copies of the JOURNAL will be sent to one address for \$2.70, five copies for \$4.00, and ten copies for \$7.50.

FRIENDS of the JOURNAL will confer a special favor by sending us the address of any teacher or other person likely to be interested in it.

THE price of a single copy of the JOURNAL is one dollar per year, fifty cents for six months, twenty-five cents for three months. But see the premium list on third page of cover.

PLEASE note that this is not a sample copy of the JOURNAL that is to be. Send in your subscription, if possible, but in any case do not fail to drop us a postal card asking for a copy of the next number, which we shall be glad to send for examination.

AT an informal meeting of persons interested in the study and teaching of Modern Languages (including English), held during the Session of the Ontario Teachers' Association in August last, it was decided to endeavor to form a Modern Language Association for the Province of Ontario, and Mr. J. Squair, B.A., of University College, was appointed Provision Secretary, with instructions to make arrangements for a meeting at an early date. That meeting is now called for Wednesday and Thursday, December 29th and 30th, in University College Y. M. C. A. buildings. The preliminary meeting takes place at 11 a.m. on Wednesday, for organization, election of officers, etc. For the remaining sessions, extending over Thursday, an attractive programme has been arranged, including an address by Dr. Wilson, and papers by other well known writers. The aim of the proposed society is excellent, and can scarcely fail to awaken deep interest.

WE note that the North-West Council at its late session resolved to ask the Dominion Government for a grant, amongst others, for the establishment of one or more High Schools in the Territories. Whether this is the best mode of attaining it or not, the object is a most desirable one. Amongst the many difficulties which the settler on the prairies has to meet, those in the way of securing a good education for his children are amongst the most serious. The great distances at which the settlers are placed from each other, by the large sizes of their holdings, and especially by the multitudinous reservations of one kind and another by which the settlement of so large a portion of the land is retarded, will render it very difficult for a long time to come, to secure even efficient common schools, within reach, especially as the severity of the climate in winter must make it well-nigh impossible for the younger children to go long distances during the time when they can best be spared. It has always seemed to us that one of the serious mistakes in the free grant regulations was that the settlers were not permitted and encouraged to build their houses in groups, or little villages, as the Mennonites have done. This would have gone far to settle the school difficulty, as well as to save the families, and

especially the women, from the isolation and awful loneliness of life on the prairie at a distance of perhaps miles from a neighbor.

BUT, to whatever extent the energy of the pioneers may enable them to overcome the difficulty in the case of common schools, it is clear that they cannot, by their own unaided efforts, secure High School advantages for a long time to come. It is undesirable, however, that they should be dependent upon the Dominion Government for institutions of this kind, which are beyond the scope of the proper functions of the central authority. The best solution of this, in common with many other problems, will be the organization of the Territories into one or more provinces, as the Council desires, at an early day. Whatever difficulties may be in the way of working the machinery of a local legislature in a country where the distances are so magnificent and the population so sparse, they must be less than those that attend the present system of government by an irresponsible body at a distance of fifteen hundred or two thousand miles, and immersed in more important matters nearer home. Waste, neglect, and absurd blundering are sure to go hand in hand. We hope to see the Territories enjoying "home rule," like other parts of the Dominion, at an early day, with such liberal provision for local administration as will enable them to have efficient schools, both primary and secondary, under their own management.

EVERY teacher of English etymology should furnish himself with a copy of a little work recently prepared by Prof. McElroy, of the University of Pennsylvania. It is an excellent specimen of the application of the inductive method, and the system has this great merit, that it can be indefinitely extended by the teacher himself. All he needs in the shape of assistance, is Skeat's Etymological Dictionary, and he can find materials for investigation in every piece of English prose or verse. Prof. McElroy entitles his book "Essential Lessons in English Etymology." It makes no pretence to exhaustiveness of treatment, the object being to supply the teacher with a method rather than to deluge him with facts. It need hardly be added that it pays quite as much attention to the English element of the English language as it does to its Latin and Greek elements, the author thus showing that he has thoroughly imbibed the spirit of the men who have for the past few years been laboring with zeal and success to place the study of English Philology on a more scientific basis. Such a work as this is the more needed since so little attention is given to the subject of Old English in the Provincial University, where it should find an honored place.

It has been our intention for some time past to urge upon the consideration of our readers the great advantages that would result from the election of a fair proportion of well-qualified women to the trustee boards. We are glad to see that we have been anticipated in this by other journals, and especially by "Onlooker" in the *Canada Citizen*. We have no doubt that there are to be found in all our villages and country districts, as well as in the towns and cities, well educated and energetic ladies, whose presence on the school boards would soon make itself most beneficently felt. If wisely

selected, they would bring to the work a degree of energy, of enthusiasm, and of progressiveness, that would at once elevate the character of the boards, and infuse new life into the schools. In the cities especially, the singleness of purpose which ladies of high culture and character would be sure to bring to the work would be invaluable. In England, notwithstanding its proverbial conservatism in such matters, women have for years been prominent working members of school boards. In London, as is well known, the lady members of the board have displayed a courage in attacking abuses and reforming old-time methods which have brought about most valuable results.

IN New York City a successful movement has been made in favor of the appointment of women to the Board of Education. Mayor Grace has re-appointed but two of the old commissioners, having filled the places vacated by the others with three new men and two women. Commenting on the fact, *Science and Education* says:

"When we consider the character of education in general, the peculiar conditions of public instruction, the fact that a large proportion—not infrequently a majority—of Public School students are girls, and that fully nine-tenths of the Public School teachers are women, the reasons for the presence of women on the boards of education are apparent. Then, too, it is highly probable that the presence of women commissioners will raise the deliberations of a board of education to a higher plane, and lift them out of the political entanglements in which they are too often caught."

All of which applies with full force to the boards of education in Canadian cities.

THE mode of appointment of school boards with us is, strange to say, more democratic than that in New York. But we have sufficient faith in the system of election by the people to believe that, given a suitable list of candidates, and the election freed, as it would be pretty sure to be so far as women candidates are concerned, from the baneful influence of political partizanship, the parents of the children and other ratepayers might be trusted to make as judicious selections as would be made by the average mayor. The following paragraph from *Science and Education* contains some excellent hints in regard to the kind of women that should be chosen:

"In making these particular appointments, Mayor Grace has avoided what would have been a great mistake. He has not appointed any 'cranks' or any professional agitators for 'woman's rights.' At such a time plenty of these persons come forward as candidates, but their appointment would have been turning the whole movement into ridicule. Both of the women chosen by the mayor are of the highest standing, morally, intellectually, and socially. They are neither agitators, nor theorists, but women of pure Christian character, great ability, and, what is quite as essential to a commissioner of education, and common sense. They are both deeply interested in education, and close students of its theory and practice. Distinguished for years in connection with the prominent charities and philanthropic institutions of a great city, we have every reason to predict that the character and talents which they bring to their new and somewhat trying office will elevate and improve its Public School system."

We could wish it were superfluous to add that precisely the same principles should be followed in choosing the male members of the boards.

Special.

CONSERVATISM AND REFORM IN EDUCATIONAL METHODS.

BY J. E. WETHERELL M.A.

(Read before the Ontario Teachers' Association, July 28th, 1886).

"Everywhere there is a class of men who cling with fondness to whatever is ancient, and even when convinced by over-powering reasons that innovation would be beneficial consent to it with many misgivings and forebodings. We find also everywhere another class of men, sanguine in hope, bold in speculation, always pressing forward, quick to discern the imperfections of whatever exists, disposed to think lightly of the risks and inconveniences that attend improvements, and disposed to give every change credit for being an improvement. In the sentiments of both classes there is something to approve. But of both the best specimens will be found not far from the common frontier. The extreme section of one class consists of bigoted dotards; the extreme section of the other consists of shallow and reckless empirics." Thus does England's great historian characterize the two great political parties which for 250 years have alternately held sway in British politics. And thus may we aptly characterize the two great parties in the educational world which are to-day struggling for supremacy. Everywhere we find schoolmasters in the bonds of prescription, uttering with confidence the famous dictum of the preacher, "The thing that hath been it is which shall be; and that which is done is that which shall be done; and there is no new thing under the sun." And everywhere we find schoolmasters who, like the Athenians of old, "spend their time in nothing else but either to tell or to hear some new thing." And in the domain of education, as in that of politics, we shall find the best specimens not far from the common frontier; and perhaps after diligent search we may find in some remote corner of the land the bigoted dotard and the reckless empiric. But a strange thing is to be noticed here in passing—conservatives in politics are often reformers in education, and radical politicians often cling with tenacity to the educational tenets of their fathers. Why conservatives do not conserve in all things and why reformers are not always anxious for reform is a question interesting but quite foreign to the present topic of discussion. The theme of this paper leads us to a brief examination of the most striking differences between what have been styled, "The Old Education" and "The New Education"—differences not in the subjects of education but in the processes of education, not in educational curricula, but in educational methods. Methods and curricula, however, are so interdependent that in dealing with the former one must frequently make reference to the latter.

At the outset we must be careful not to be misled by phrases. "The New Education" is a phrase now on the lips of all educationists. Its meaning is not indefinite, but the appellation itself is a misleading assumption. The "New Education" is new in its widening sway, but it is as old as Plato and Socrates in some of its leading principles, and it owes to the Baconian philosophy its spirit of investigation. The "New Education" is largely now in its practical application in the school-room, but a century ago Pestalozzi was engaged in his philanthropic labors. There are those who with reverence actually regard Col. Parker as the great apostle of the new ideas; but when Col. Parker was in his cradle the forces were silently at work which are now causing such a stir on this continent. The Pestalozzian principles took root in America many years ago, principally through the labors of Mr. Page and Prof. Agassiz. Col. Parker is the leading, because the most

enthusiastic advocate of the "New Education" in America, but to call him the founder of a new scheme of things is to discredit the unselfish labors of many earlier and silent workers in both hemispheres, and to check the advance of the new methods by exciting the antagonism of those who are repelled by the dogmatism and extravagance of the leading disseminator of the reputedly new doctrines. To glorify any one man for having discovered such pedagogic laws as, "Proceed from the known to the unknown," "Put ideas before words," "Never do for a child what he can do for himself," is to display dense ignorance and to throw ridicule on the cause of advancement.

Although the new ideas had their first practical application in the schools of Germany, still, even in Britain, the land of educational conservatism, there have been for many years spasmodic yearnings for educational reform. Milton and Locke, Goldsmith and Addison, uttered feeble protests against prevailing follies. In more recent times Scott and Thackeray and Dickens spoke with ridicule and contempt of the typical pedagogues of their times. Dr. Arnold, of Rugby, was the first English schoolmaster to declare that leading principle of the "New Education,"—"It is not knowledge but the means of gaining knowledge that we have to teach." Macaulay thus describes the pedagogism of twenty centuries: "Words and mere words and nothing but words had been the fruit of all the toil of all the most renowned sages of sixty generations, during which time the human race instead of marching merely marked time." And now we are done with marking time and have begun to march again. It took a century to make preparations for the advance, but "Forward" is now the word "all along the line."

With the old methods of education we are all perfectly familiar, for it has fallen to our lot to live in the transition period of educational thought, and most of us were reared in the reign of Rod and Rote. Some of us were so fortunate in the days of our youth as to be able to say, "The lines are fallen unto us in pleasant places," but ill was the heritage of the many twenty years ago. Even now many of the old methods are in full swing in hundreds of schools all over the land, and they exercise their baleful influence to a greater or less degree in every school from the humblest to the highest throughout this broad Dominion. The curriculum of every Public School, of every High School, of every academy, of every college, of every university in the land imposes upon its students such studies, and shackles them with such tests, that it is simply impossible to carry out the new principles in all their fulness. The old studies, and the old order of attacking those studies, and the old methods of testing progress in those studies, produce limitations so confining that the new ideas necessarily have a sluggish growth. But they are growing, nevertheless.

Let us now briefly compare the "Old Education" and the "New Education," with special reference to guiding principles, and to the methods employed in working out these principles; and you will allow me to describe these systems in a series of contrasts. Although almost all rhetorical antitheses are unfair, as they contain an element of hyperbole, still they are invaluable for purposes of this kind. The "Old Education" was not entirely vicious, nor can we suppose that the "New" is entirely excellent; but the former embraced so many defects, and the latter offers so many advantages, that for the sake of a clear presentation (even at the risk of being misunderstood), I may seem for the moment to rob the "Old" of all its saving graces, and to clothe the "New" in a too attractive garb.

The motto of the "Old Education" is "Knowledge is power." And so it is. But the experience of centuries has proven that knowledge is not the greatest power. The omniscient man is not always the omnipotent man. In the realm of mind the scholar is

often distanced by his inferior in knowledge. The motto of the "New Education" is "Activity and growth are power." A good saying it is, too, but not entirely novel. Its essence was one of the apothegms of Comenius, the distinguished educational reformer of the seventeenth century, "We learn to do by doing." The "Old Education" stored the mind with knowledge, useful and useless, and only incidentally trained the mind. The "New Education" puts training in the first place and makes the acquisition of knowledge incidental.

The "Old Education" was devoted to the study of books. Not only the text-books were used as an end rather than as a means. "How far have you been in Sangster's Arithmetic?" and "How far have you learned in Bullion's Grammar?" were common queries of the schoolmaster in the old days, and these queries betrayed the educational aims of the questioner. Quantity was everything; growth was little or nothing. The "New Education" is devoted more to things than to books. Text-books are used, but only as repositories of knowledge to be consulted as occasion requires—that is, they are used not as an end but as a means of acquisition and improvement.

The "Old Education" was fond of *memoriter* recitation. In fact, "learning the lesson" was the be-all and the end-all of the school-room. How many a woe-begone victim has felt the weight of some martinet's wrath because of ignominious failure in reciting some precious morsel like this: "A Relative Pronoun, or, more properly, a conjunctive pronoun, is one which, in addition to being a substitute for the name of a person or thing, connects its clause with the antecedent, which it is introduced to describe or modify." To repeat words correctly was everything; to understand them was of secondary importance. In all branches of study, definitions had to be carefully memorized as a basis for future work. The "New Education" reverses all this. What Coleridge calls "parrotry" is reduced to a very comfortable minimum. Definitions have their place, but if they are memorized, it is at the final rather than at the initial stage in the pursuit of a study or topic. Original human thought takes the place of imitative jargon. Intelligible facts displace unintelligible rules and definitions.

The "Old Education" was eminently subjective, dealing largely in abstractions. The "New Education" employs objective methods, preferring the presentation of truth in the concrete.

The "Old Education" began its work with the unseen and the unfamiliar, and dangerously taxed the weak reflective faculties. The "New Education" begins with the seen and the common, and gradually develops the reflective faculties by reference to knowledge already obtained by the strong and active perceptive faculties of the child. The former system initiated the tyro in geography by forcing him to commit to memory the names of the countries and the capitals of Europe; the latter leads him on a happy jaunt over his immediate environment. The former asks the little head to carry the names of all the bones in the skeleton of a rhinoceros; the latter shows to fascinated investigators the anatomy of a leaf. The former taught our infant lips to lisp the dimensions of ancient Babylon, and the name of Jupiter's grandmother; the latter opens dull ears to the melody of birds, and unfolds dim eyes to behold the glory of the heavens. The wail of Carlyle will find an echo in many hearts: "For many years," says he, "it has been one of my most constant regrets that no school-master of mine had a knowledge of natural history so far at least as to have taught me the grasses that grow by the wayside, and the little winged and wingless neighbors that are continually meeting me with a salutation which I cannot answer, as things are. Why did not somebody teach me the constellations, too, and make me at home in the starry heavens

which are always overhead, and which I do not half-know to this day?"

The old system of tuition was marked by mechanical routine; the new boasts of almost complete absence of machinery, of infinite variety of programme, of multiplicity and attractiveness of devices. On the one hand joyless thralldom and lifeless monotony; on the other continual novelty and an exhilarating sense of freedom.

(To be Continued in next issue).

Examination Papers.

EDUCATION DEPARTMENT, ONTARIO.—MID-SUMMER EXAMINATIONS, 1886.

SECOND CLASS TEACHERS.

ENGLISH LITERATURE—COLERIDGE.

Examiner—John Seath, B.A.

1. Show to what extent the form and the substance of the selections you have read from Coleridge are the result of the influences that affected literature during his life time. (Value 10).
2. Illustrate, by two marked examples in each case, the way in which Coleridge heightens the effect of his descriptions (a) by dramatic touches, and (b) by the use of contrast. (Value 6).
3. And now the storm-blast came, and he
Was tyrannous and strong;
He struck with his o'ertaking wings,
And chased us south along.

With sloping masts and dipping prow,
As who pursued with yell and blow
Still treads the shadow of his foe,
And forward bends his head,
The ship drove fast, loud roared the blast,
And southward aye we fled. 5
- (a) Develop the force of the personification as expressed by "tyrannous," "struck," "o'ertaking wings," and "chased." (Value 8).
6. (b) In the same way develop the significance of each point of the simile. (Value 6).
4. Nor dim nor red, like God's own head
The glorious Sun uprist:
Then all averred, I had killed the bird
That brought the fog and mist.
'Twas right, said they, such birds to slay,
That bring the fog and mist.
The fair breeze blew, the white foam flew,
The furrow followed free;
We were the first that ever burst
Into that silent sea. 10

Down dropt the breeze, the sails dropt down,
'Twas sad as sad could be;
And we did speak only to break
The silence of the sea!

Day after day, day after day,
We stuck, nor breath, nor motion;
As idle as a painted ship
Upon a painted ocean. 15
- (a) Develop the force of the following expressions: "averred," "The furrow followed free," "Down dropt the breeze," and "stuck." (Value 8).
- (b) Develop the significance of each point in the simile. (Value 6).
- (c) Justify the use of the irregular forms of expression. (Value 3).
- (d) A later reading for l. 8 is "The furrow streamed off free." Explain the reason for the change, and for the continued preference for the one in the extract. (Value 3+3).
- (e) Show the relation of ll. 5 and 6 to the development of the plot of the poem. (Value 3).
- (f) Comment on the transition from ll. 7 and 8 to ll. 9 and 10, explaining the artistic reason for the peculiarity. (Value 3).

5. By means of the most marked examples in 3 and 4 above, show how the poet secures (a) lingual melody, (b) vividness of presentation, and (c) force of expression. (Value 3x3=9).

6. Verse, a brood mid blossoms straying,
Where Hope clung feeding, like a bee—
Both were mine! Life went a maying
With Nature, Hope, and Poesy,
When I was young!
When I was young!—Ah, woful When!
Ah! for the change 'twixt Now and Then!
This breathing house not built with hands,
This body that does me grievous wrong,
O'er aery cliffs and glittering sands,
How lightly then it flashed along:—
Like these trim skiffs, unknown of yore,
On winding lakes and rivers wide,
That ask no aid of sail or oar,
That fear no spite of wind or tide!
Nought cared this body for wind or weather,
When Youth and I liv'd in't together.

Flowers are lovely; Love is flower-like;
Friendship is a sheltering tree;
O! the joys that came down shower-like,
Of Friendship, Love, and Liberty.

Ere I was old.
Ere I was old?—Ah, woful Ere,
Which tells me, Youth's no longer here!
O Youth! for years so many and sweet,
'Tis known, that thou and I were one,
I'll think it but a fond conceit—
'T cannot be that thou art gone!
Thy vesper-bell hath not; it toll'd:—
And thou wert aye a masker bold!
What strange disguise hast now put on,
To make believe that Thou art gone?
I see these locks in silvery slips,
Thus drooping gait, this altered size:
But springtide blossoms on thy lips,
And tears take sunshine from thine eyes!
Life is but thought: so think I will
That Youth and I are house-mates still.

(a) Develop the significance of each point in the metaphors and similes in ll. 1-5, 12-15, and 18-22. (Value 18).

(b) Explain clearly the meaning of ll. 25-38. (Value 10).

(c) Give in a few sentences, without the poet's amplification, the meaning of the above extract, adding the substance of the lines that follow, and explaining fully the meaning, and the relation to the context, of

Dewdrops are the gems of morning,
But the tears of mournful eve.

(Value 10).

(d) State the chief shades of feeling that should be expressed in reading the above, showing the significance of the noteworthy punctuation marks in ll. 2-7 and 25-30. (Value 8).

(e) What passage in the above extract seems to you to be the finest? Assign reasons for your answer. (Value 6).

GEOGRAPHY.

Examiner—J. J. Tilley.

NOTE.—Candidates will take only 6 questions, but of these the first and sixth must be two.

Questions of equal value.

1. Compare the natural commercial advantages of the different continents.
2. Name the different functions fulfilled by mountains, in the economy of nature.
3. Describe the Trade Winds and account for their existence.
4. Account for the difference between the climate of Labrador and the climate of Ireland.
5. Where are the following and with what events are they associated in history:—Coruna, Tel-el-Kebir, Vicksburg, Ridgeway, Orleans, Londonderry, Shrewsbury, Sedan?

6. Between what principal towns and cities in Ontario and in the United States is commerce carried on and what commodities are exchanged?

7. (i) Account for the variation in the length of our days and nights.

(ii) At 12 o'clock P.M. of midsummer to an observer 23½ degrees from the North Pole, where will the sun be?

(iii) If a man were to travel around the earth in just one year, in what direction must he go to have 366 days in that year? Explain.

8. Where and for what noted are:—Palermo, Basle, Hull, Odessa, Toulon, Cardiff, Bologna, Cracow, Nottingham, Cronstadt, Funchal, Tiflis, Mandalay, Bayrout, Lahore, Balkh, Tokio, Fez, Monrovia, Auckland?

HISTORY.

Examiner—Jus. F. White.

NOTE.—Only six questions are to be answered; of these 7 and 8 must be two.

1. State in detail the great changes that marked the Revolution of 1688-9. (Value 16).

2. Give an account of Marlborough, showing his character, the objects for which he fought, the nations allied against him, and the results of his wars. (Value 16).

3. Describe the social, political, and intellectual condition of England under Anne. (Value 16).

4. Write a paper on the life and times of Chatham. (Value 16).

5. Trace the growth of British power in India under George II. and George III. Relate with especial fulness the parts played by Clive and Hastings. (Value 16).

6. Sketch the literary history of England in the early part of the 19th century. Refer especially to the life and work of Coleridge. (Value 16).

7. Describe the Constitution of the branches of the Dominion Government. What are the powers and functions of the Parliament of Canada as distinguished from those of the Provincial Legislatures? (Value 18).

8. Give the chief causes and the effects of the Rebellion of 1837. (Value 18).

Practical.

“EXAMINATIONS.”

BY E. M. LUTZ.

This is the name of one of the greatest bugbears in our public schools,—not so much from any doubt of their value, since, in spite of all the hue and cry against them, it must be admitted that some such test is a necessity in graded schools, but because of the many difficulties connected with them.

The examination itself was never my trouble, but the examination of the examination,—in other words, the correction of examination papers,—not alone for the labor it entailed, which is considerable, but because I could not help feeling that both my labor and theirs had failed of its real object when pupils found it so hard to understand why they “were only 70, when they were sure they answered every question.” At length, partly from suggestions heard at different times, and from my own experience, I adopted the following plan of dealing with these papers. It is simpler than any I have heard of, and proves very satisfactory to me.

First: The questions are written on the board and numbered, the answers being numbered to correspond.

Second: After the answers are written out, the papers are collected and redistributed, taking care that near neighbors do not get each others, and that the poorest pupils get the best work.

During the work of correction the pupils refer freely to the text-books. Any answer which fully covers the ground of the question, whether it is found just so in the book or not, is accepted; my instructions, to each one, being to correct that paper exactly as if it were your own. When they have finished looking them over, the papers are returned to the owner, and if upon examination he thinks the answer is marked wrongly, he appeals to me. After he has carefully consulted the answer in the book on each question in correcting the paper he held, he is not nearly so apt to find fault with his own.

the little distinctions and differences that seem so unimportant when he receives his work without thought from your hands have their proper weight now that he has sat in judgment on another; and what would be a monotonous drudgery to the teacher sitting alone in her room becomes an inspiring exercise, developing thought, judgment, and a juster appreciation of grades and per cents.

Some will object that the corrections will not be honest, but I do not find it so; however, I require the corrector to sign his name in light lead-pencil at the end of the paper and if he makes a mistake which he cannot explain, such as rediting a wrong answer, or debiting a correct one, I take it from his grade.

I am sure that this plan will work well in all grades above the fourth, and I think in the third and fourth grades of average intelligence it could be used with some modifications.

The greatest gain is to the class; which sees all the work in a different light, for this responsible connection with it. Whether they are satisfied with their grades or not they see plainly where the blame rests, and have no feeling that you just "did it," as sometimes happens.—*N. E. Journal.*

A FEW HINTS ON TEACHING FRACTIONS.

BY AUGUSTA TOVELL, ST. LOUIS.

The use of objects, in any way, is a great improvement on the old methods of teaching arithmetic. But in many cases figures are made the basis of an arithmetical operation, and the objects are used as a means of explaining the figures.

$\frac{1}{2}$ of $\frac{2}{3}$ means nothing to a child, and although lines and other objects may be used to illustrate the manner in which we obtain $\frac{1}{3}$ for the answer, still he has no definite idea in his mind of what he has done. His imagination can make no picture of $\frac{1}{2}$ of $\frac{2}{3} = \frac{1}{3}$.

If objects, either present or reproduced by the imagination, after having been frequently handled, were made the basis of arithmetical operations, and the figures made secondary,—that is, a means of recording what has been done,—we should find arithmetic a much more profitable study than it is as we frequently find it taught.

I noticed once, in a primary school, where the number-work was too much abstract, a little girl who did not seem to get on with her arithmetic work as well as she was expected to do. One day some question in money was brought up as a sort of diversion; she was ready enough at this, and far better than any of the others in the class. I found that she was quite familiar with all the parts of the dollar, and could tell what change to give in almost every case I gave her. I asked her how she learned so much about it, and she told me that her father sometimes let her help him sell in the store. She was learning arithmetic in the store better than in school.

We will place ten apples before a class that is beginning fractions. We will suppose that, from the beginning of their instruction in number, they have been taught to find $\frac{1}{2}$, $\frac{1}{3}$, etc.

How many apples have we here? "Ten."
How many times can you take two apples out of these ten? "Five times."

Then what is a fifth of ten apples? "Two apples."
Now one of you may give me three-fifths of ten apples. How many? "Six apples."

Now put each fifth by itself. I want half of your three fifths; can you give it to me? Some one will discover that one of the groups of two must be divided to get this, and will give me three apples.

What part of ten apples is one apple? "One-tenth." Three apples? "Three-tenths."

Now we will write what we have done. Tell me what you did. I gave you half of three-fifths, and it was how many apples? "Three apples."

And three apples is—? "Three-tenths of ten apples."
Write it all in figures. " $\frac{1}{2}$ of $\frac{3}{5}$ of 10 apples = 3 apples = $\frac{3}{10}$ of 10 apples."

Cut an orange into four equal parts, what part of the orange is one piece? "One-fourth."

(Holding them together)—What part can I make of two pieces? "One-half."

If I take one-fourth away from one-half, what shall I have left? "One-fourth."

We will cut these fourths in half; how many pieces have we now? "Eight."

What part of the orange is one piece? "One-eighth."

Give me half of the orange; now I must give you four pieces. You may take one-fourth of the orange from my half. How many pieces did you leave me? "Two."

What shall I call them? "Two-eighths."

Now see how many eighths it will take to make three-fourths of the orange? "Six-eighths."

How many eighths will it take to make $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$? "Seven-eighths."

Now take one-fourth from seven-eighths. Five are left. Five what? "Eighths."

Now get three-fourths and see how many times you can get two-eighths out of it. "Three times."

Now, will some one take three-eighths of the orange and then give me one-half of it. Some child will soon see that one of the pieces must be cut in half. Now what have I? "You have one and a half eighths."

Now, I will cut my eighth in half. If I were to cut all the eighths in half, how many pieces should I have? "Sixteen."

Then what shall I call them? "Sixteenths."

How many sixteenths make half of three-eighths? "Three sixteenths."

Now, how many little boys must I call up here if I give two sixteenths to each of them? "Eight."

Then how many times can I get two-sixteenths out of sixteen-sixteenths? "Eight times."

The little boys may put down the pieces, and I will take six of them. How many sixteenths are there left? "Ten."

I have some pieces of paper; each of them will hold just three-sixteenths of the orange. How many pieces will it take to hold the ten-sixteenths? "Four."

Are all the pieces full? "No; one has only one-sixteenth on it."

If a piece of paper holds three-sixteenths, what part of a piece will it take to hold one? "One-third."

Then we will tear off one-third for this odd sixteenth. Now, tell me how many of my pieces of paper I have used. "Three and one-third of them."

How many thirds would that make? "Ten thirds."

If we were to take our ten-sixteenths and put them together in twos, how many would we have, and what should we call them? "We should have five-eighths."

How many times could I get three-sixteenths out of five-eighths? "Three and a third times."

Or what? "Ten-thirds times."

Now we will write: $\frac{10}{8} \div \frac{3}{16} = \frac{10}{3}$; or, $\frac{5}{4} \div \frac{3}{16} = 3\frac{1}{3}$.

It will be seen that in this way all the operations of fractions can be brought in.—*N. E. Journal of Education.*

For Friday Afternoon.

SPELLING REFORM.

"Spell Phthisic," (said our amiable and most conventional teacher, whom we all liked). Jim, a little cunning rebel, as he was, answers, "T-i-s-i-c."

"No, P-h-t-h-i-s-i-c," said the teacher, and the dialogue went on.

"Why do you spell it with a *pth*?"

"To show that it is from the Greek, and means consumption."

"Couldn't we know it to be from the Greek and meant consumption without the *pth*?"

"Perhaps you could, but you would have to turn up the dictionary for it."

"And if you spell it with a *pth* you needn't turn up the dictionary, need you?"

"No, you blockhead, that is to say, if you know Greek, the form of spelling would tell you that it was Greek."

"Do English people generally know Greek before they learn to spell English?"

"Of course not. What a foolish question!"

"Well, why did they make the word so we have to learn Greek spelling before we learn English spelling?"

"Why, because that is the right way to spell; who ever heard of it being spelled another way? And when you learn Greek it will strike you with great pleasure to see how simple the spelling and meaning of *Phthisic* would have been had you only known Greek before you learned to spell."

"Do all English people, then, learn Greek after they learn to spell so as to be struck with this great pleasure?"

"Of course not. But why do you ask?"

"Well—I was only thinking. But how many do learn Greek?"

"Perhaps 20,000, according to the Encyclopaedia."

"And how many learn English?"

"About 100,000,000."

"And how many 20,000 are there in 100,000,000?"

"About 5,000, of course. But what of that?"

"Is not that the same as if every one in a town larger than Pictou should be compelled to spend his time in learning English words with Greek spelling, so that one boy should have the pleasure of seeing, when he comes to study Greek, that some of the English words he learned were spelled pretty much, though not exactly, like Greek?"

"You had better hold your tongue, Jim, you are a dangerous boy—to dare to question the proper way of spelling words, which I have, by dint of careful labor for years, become almost perfect in; in which I have attained more excellence than in any other subject. You conceited, radical little scamp!—keep mum, and spell *Phthisic*."

MAKING THE BEST OF IT.

IN CONCERT.

Upon the shore of life we stand
And watch the years fast glide away;
Beneath the touch of Time's stern hand
Art slowly crumbles to decay.
How short our days, how few our years,
A little while of light and gloom;
We laugh with joy, we moan with tears,
And friends consign us to the tomb;
O, make the best of it!

FIRST BOY.

While merrily the blacksmith sings,
His hammer on the anvil rings;
The marks of honest toil he bears,
The clothes are soiled and patched he wears;
What, though his face with smut and smoke
Be darkly stained, his soul is free,
And at his labor, stroke by stroke,
He hammers out his destiny;
He makes the best of it.

SECOND BOY.

The sun-browned farmer guides his plow,
Or swings his scythe in meadows fair;
The sweat is dripping from his brow,
His face is seamed with lines of care;
And yet, beneath his plain attire,
A noble heart beats true and warm.
He has enough for food and fire,
A home to shield him from the storm;
He makes the best of it.

THIRD BOY

The merchant in his counting room,
With anxious mind and face of gloom,
Sits deeply brooding o'er his schemes,
Or lost in speculative dreams.
He is a man of wealth and power,
For fortune favors him to-day;
A crash may come at any hour
And sweep his worldly gains away;
He makes the best of it.

FOURTH BOY.

With patient toil the lawyer delves
Through the dry volumes on his shelves;
Looks up his points in the reports,
Makes out his briefs, attends the courts;
He wins his laurels at the bar,
And clients come from near and far;
He goes to congress full of fame,
And sometimes wins an honored name;
And makes the best of it.

FIFTH BOY.

With pills and plasters in his hand
And spectacles upon his nose,
The doctor comes with visage bland,
To comfort all our worldly woes.
Up at all hours at night and day
To mount his steed and fly away,
He hurries to the couch of pain
Through mud and dust, through snow and rain;
He makes the best of it.

SIXTH BOY.

Within his den, with lofty air,
Tipped back in his old easy chair,
The heartless editor we find,
With frowning face and pensive mind;
He runs his fingers through his hair,
Then slyly takes a dram,
Writes some sensational affair
Or coins a "special telegram,"
And makes the best of it.

SEVENTH BOY.

His heart to God, his thoughts to man,
The pastor gives from day to day.
To boldly preach the Christian plan
That mortals may not go astray.
If he but works with conscience clear,
With willing mind and ready hand;
If he is honest and sincere,
His soul may reach the better land
He makes the best of it.

EIGHTH BOY.

The dandy comes, too vain to toil,
To forge the steel or till the soil;
Too lazy in life's harvest field
To reap the fruit that work will yield.
He looks around with cautious pains
And weds an heiress, void of brains,
Her father's hoarded wealth he shares,
They live in style and puts on airs,
And make the best of it.

FIRST GIRL.

The sweet young girl of seventeen
Sits in a soft upholstered chair
And reads the latest magazine;
With bangs of frizzes in her hair
She is the belle of all the town;
She wears a Mother Hubbard gown;
Too proud her pretty hands to soil,
She lets her mother scrub and toil,
And make the best of it.

SECOND GIRL.

An old maid sits before the fire
And sees the last faint sparks expire;
Her faith is gone, and lines of care
Have marred her features once so fair;
With hopeless heart and anxious look
She longs to find a nestling nook;
Her early suitors all are gone,
Dream on, old maid, alone dream on,
And make the best of it.

THIRD GIRL.

The good wife in the kitchen stands
With flour and pie-crust on her hands;
The floors are clean, the tinware bright,
The windows clear, the walls are white;
Her heart is light, her face is sweet,
Her eyes are bright, her home is neat;
Her daughter, rosy-cheeked and fair,
Are early taught to help her there
To make the best of it.

IN CONCERT.

In the great world, for good or ill,
All have a mission to fulfill.
Is work degrading? No! Take hold;
Be not by vulgar pride controlled,
Be not ashamed of honest toil,
For labor bears away the spoil.
Toil on with willing hand and brain,
Nor waste God's fleeting years in vain;
Oh, make the best of it!

—Eugene J. Hall.

Educational Notes and News.

Georgetown High School will be formally opened on 10th January.

The Ridge school house, about half a mile from Sunderland, has been destroyed by fire.

Mr. Brown, Principal of the Whitby Model School, is slowly recovering from his serious illness.

Mr. Bewell has been engaged by the Whitby School Board to assist Mr. Henderson in Model School work.

Miss Stork, Brampton High School, has removed to Almonte High School, and Mr. Lees, of Lindsay, has been elected to her post.

A candidate for a teacher's certificate in Michigan the other day in a school examination wrote that there were two kinds of gender, "lady and gentleman."

Dr. Jex-Blake, the head master of Rugby School, has accepted the living of Alvechurch, in Worcestershire, which is of the value of £1,200 a year. He will leave Rugby at Easter.

The Trustees of Selkirk School No. 17, Walpole, have engaged Mr. S. A. Thompson, who has been engaged as Headmaster of the Selkirk Public School for the past two years, for the ensuing year.

Amongst other requests made by the North-West Council in the memorial to the Dominion Government adopted at its late session, was one for the establishment of one or more public High Schools.

Mr. D. J. McKinnon, Public School Inspector of Peel, has decided not to extend any third-class certificates for next year. He says he is aware there are legally qualified teachers enough to fill all the positions.

Mr. J. C. Harstone, who has been headmaster of the Seaford school for several years past, has resigned that position to accept the head membership of the Lindsay High School, to which is attached a salary of \$1,400.

Mr. William Burns, B.A., of Brampton High School, has been appointed to the Science Mastership at St. Catharines Collegiate Institute. Mr. W. J. Galbraith, of Streetsville High School, will fill Mr. Burns' place at Brampton.

Miss Jennie Whitelaw, Woodstock, one of the teachers of the Central School, and who holds a certificate from the Toronto Art School, has been chosen to conduct an evening class in the Mechanics' Institute of that town.

At a largely attended meeting of the "old boys" of Trinity College School, Port Hope, held at the Rossin House on Tuesday night, it was decided to band into an association, and inaugurate the event by a dinner on December 16.

Both Toronto and Ottawa Normal Schools have their full complement of students for the term commencing in January next. Those teachers desirous of being admitted to the fall term of 1887 should make application about it not later than the 1st of April.

The Mikado of Japan has ordered that the English language be taught in all the schools of the Empire, and high court officials have recently completed a tour of the United States, during which arrangements were made for publishing text-books for that purpose.

The Woodstock High School has been raised to the status of a Collegiate Institute. The following is the staff of teachers:—D. H. Hunter, B.A. (Tor.), Principal; Geo. Strachan, B.A. (Edm.), A. D. Griffin, 1st Prov. A.; T. H. Lennox, B.A. (Tor.), G. R. Watson, B.A. (Vic.), Ph.D.

Principal Merchant, of the Owen Sound Collegiate Institute, has organized, in connection with the school, a society for the cultiva-

tion of flowers. Each member is to place one plant in the school and care for it while he is in attendance. Already many of the pupils have joined the new organization, and the rooms present quite a new and attractive appearance.

Examinations for entrance to the High Schools will be held 21st, 22nd, and 23rd, commencing the first day at 9 a.m. Candidates must notify the Inspector at once, if they have not already done so, of their intention to write. Drawing book No. 4 or 5, containing candidate's work, must be presented.

A meeting of the School Board was held on Tuesday evening, when the resignations of Misses Jarvis, Andrews, and Curtis were accepted. Miss Pattinson was engaged to take charge of Miss Jarvis's room, at a salary of \$350; Mr. H. W. Bell, at a salary of \$310; and Miss B. Maclean, at a salary of \$200.—Milton Champion.

Public object lessons on dirt are to be established in Paris. The lessons will be given in a hygienic museum, and they will present in a graphic form the dangers to health from dirt of all kinds. It would be a good idea to send the street-cleaning bureaus of some American cities over to Paris to attend these object lessons.—N. Y. School Journal.

A meeting of the Board of Directors of the Ontario Teachers' Association was held at the Education Department on Friday. It was decided to hold the annual meeting of the Association next August, when papers will be read by Messrs. Tilley, J. L. Hughes, Dr. McLellan, and J. C. Morgan, and addresses be delivered by Dr. Potts and Prof. Clark.

Ex-President Noah Porter, of Yale, has just returned from a three months' sojourn in Germany and England, and enters upon his college work at once. He retains his chair of Clark Professor of Moral Philosophy and Metaphysics, and will room in the "Lawrence," the new hall. While at the Edinburgh University the ex-President received the degree of LL.D.

Mr. Farewell gave the first of his series of addresses on "How we are Governed" to the teachers of the Model School on Tuesday last. The address was quite short, but full of sound advice, which, if followed, will prove of much service to them. Mr. Farewell has consented to deliver a series of short addresses to the teachers on "How we are Governed." Mr. Henderson occupied the chair.—Whitby Chronicle.

Genuine dignity and genuine fun are not at all incompatible. Pupils love a teacher who has the element of humor. But who be unto him who, lacking this fine sense, puts on a make-believe of nonsense to win a ready smile from his class. The most absolutely deplorable High School master we ever knew was a man who took occasion, now and then, to speak of Shakespeare as "W. S.," or of Victor Hugo as "Vic." Cheap wit cheapens personal influence.—N. E. Journal of Education.

Inspector McBrien has been inspecting the town schools during the week, and reports everything working to his entire satisfaction. Accompanied by Mr. G. Y. Smith, one of the County Board of Examiners, he visited the Model School on Wednesday, and examined the teachers most minutely in the practical work of their profession. He expressed himself as highly pleased with the teaching ability shown, and hoped that all would find schools in his inspectorate. He gave the teachers many valuable hints and suggestions and pointed out to them many of the pitfalls that beset the path of the young teacher.—Whitby Chronicle.

Teacher—"The class in ancient history will please stand up. Miss White, what was Ceres god of?"

Miss White—"God of Matrimony."

Teacher (sarcastically)—"I am surprised at your ignorance, Miss White. Where did you learn that?"

Miss White—"From the book. It is printed there as plainly as can be."

Teacher—"What does it say?"

Miss White—"Ceres, God of Husbandry."—The Rambler.

Mr. Matthew Arnold, who has been Inspector of Schools for the Westminster district of London during the last 35 years, has just resigned. Last Friday evening he bade farewell to the teachers with whom he has been so long associated. The occasion was celebrated by the presentation to Mr. Arnold of a silver claret jug and salver by the teachers. He made a speech in response, from which the following is an extract:—"Though I am a school-master's son, I confess that school teaching or inspecting is not the line of life I should naturally have chosen. I adopted it in order to marry a lady who is here to-night, and who feels your kindness as warmly

and gratefully as I do. My wife and I have had a wandering time of it. At first there were but three lay inspectors for all England. My district went across from Pembroke dock to Great Yarmouth. We had no home of our own. One of our children was born at Derby, in a lodging, with the work-house—if I recollect rightly—just behind it, and a penitentiary in front.”—*Ex.*

A university for women was dedicated in St. Petersburg last October. The building cost over \$150,000, the money being raised by subscription throughout the empire. Even Siberia furnished for the purpose about \$8,000. This new temple of science for Russian women is handsome in style and finish; and in its heating arrangements and ventilation it surpasses any other building in this capital, including the imperial palaces. In the building there are six lecture rooms, each large enough to seat three hundred students, seven museums and laboratories, a library, two large halls, special rooms for the president, physician, and professors, a dining room, kitchen, and other apartments. The ceremony of dedication took place in the largest hall, Bishop Arseny officiating. While the Tsar was being chanted, an arch-priest went from room to room, sprinkling them with holy water. In a conspicuous place there was a large portrait of the present Czar, although Alexander III. did not subscribe a cent toward the building. After the abolition of serfdom, the women of Russia petitioned the Czar to open the highest institutions of learning to them. Only seven years ago, however, were they allowed to pursue a university course of study, and that in a private way. Nearly six hundred young women at once entered upon the pursuit of liberal studies, and up to this time over twenty-five hundred women studied in the university. At the present time the women's university counts over seven hundred students and twenty professors, and give instruction in literature, history, classical and modern languages, mathematics, astronomy, anatomy, physiology, zoology, chemistry, mineralogy, and physics. All these sciences are divided into three departments—literary, natural science, and mathematics. The students are evenly divided between these three departments. The tuition fee is fifty roubles (about \$40) per annum. Prof. Betekoff, the chairman of the trustees, in his speech gave a review of the great difficulties which Russian women have to overcome on their way to the temple of science. On one side there were ladies giving tens of thousands of roubles for the higher education of their sisters, and hundreds of young ladies begging to be allowed to study; and on the other was imperial opposition. Women physicians risked their lives during the late Turko-Russian War and in time of deadly epidemics; and the Czar, while decorating the brave female surgeons, yet obstinately refused to incorporate a medical college for women.

The semi-annual meeting of the Elgin Teachers' Association at St. Thomas last month was well attended. Miss Jennie Forbes, of the Model School, read an excellent essay on teaching practical English. Miss Forbes then proceeded with a class to illustrate her method. After obtaining a word by a simple device, she proceeded to dwell upon it by writing it on the board, and having the class construct sentences containing it. By this and similar devices she claimed that pupils could be led on until they could frame a complete idea, in this way developing the power to express their thoughts in correct form and good English. Considerable discussion followed. Mr. J. H. Smith, of Belmont, introduced the subject of commercial work in Public Schools. He showed how he took up the different business forms. Discussion by Messrs. Hammond, Ames, Hughes, and Grout. Mr. John Millar, B.A., next dealt with English Composition. Composition and grammar, he held, should go hand in hand. He first dealt with the statement, its sub-divisions and their complements. Mr. Hammond urged that more attention should be given to practice than theory. The subject was also discussed by Messrs. Hammond, Butchart, Warwick, and Ford. In the evening a public entertainment was held in the lecture-room of Knox Church. Various musical exercises, under the direction of Prof. Jones, were well rendered, and gave good satisfaction. Miss Phoebe Scott, of Sparta, recited the "Fall of the Pemberton Mills" with excellent effect. A debate on the subject "Resolved, that the reading of fiction in general is conducive to the development of moral and intellectual strength," was conducted with spirit and ability. Mr. Hammond, of Aylmer, led on the affirmative, and was assisted by Mr. Rothwell, Headmaster of Dutton High School. The negative was championed by Mr. Ames, of the Collegiate Institute, assisted by Mr. Rutherford, Headmaster of Aylmer High School. Messrs. Millar, Smith, and Eedy were chosen to sum up the arguments of the debate and give a decision.

They decided in favour of the negative, to the evident surprise of many, especially of the ladies.

On Saturday morning N. M. Campbell, of the Model School, took up the subject of Modern Methods. He said that we are now going back to the oldest methods, that is the natural methods, and these consist in the use of objects associated with the idea to be taught, allowing the pupils to actually perform operations. By a series of illustrations Mr. Campbell explained the theory of teaching numbers by objects, and thereby assisted the number with the object—a plan fitted to make an impression on a young mind. In speaking of reading he strongly recommended the "Look and Say" method, showing that it is the natural method, and also showed the difficulty attending teaching by the phonic method. Considerable discussion followed, in which Messrs. Boughner, McKenzie, Butchart, Grout and others took part. Mr. Rothwell, Headmaster of Dutton High School, on the subject of Psychology in its relation to the teaching profession, spoke at some length on the effects of civilization. Mr. Ames followed with a few well-chosen remarks. Mr. G. W. Shepherd, B.A., then introduced "History, and how to Teach it." He first spoke of the real object of teaching history, that is, that by past examples to teach rights and duties of citizenship and to make able leaders for our nations. The objects in teaching history were: 1, to lay a proper foundation on which you may afterwards rear up a historical superstructure; 2, to stir up the imagination of children; 3, to cultivate the memory; 4, to aid a child in expressing its thoughts; and 5, to create a love for the subject. He would take up the whole history of a nation by topics, showing the growth or decay of a nation, and using biographies of great men as these topics. Animated discussion followed, in which Messrs. Campbell, Miller, and McKenzie took part. The committee appointed to nominate officers reported as follows:—President, Mr. N. M. Campbell; vice-president, Mr. Rothwell; corresponding secretary, Mrs. L. Thornton; secretary, Mr. Smith; treasurer, Mr. Leitch; librarian, W. Atkins; executive committee, Messrs. Millar, Rutherford, McKenzie, McArthur, Grout, Misses M. Reid, Baker, M. Arnold, Cattanach, Lavin.

Question Drawer.

QUESTIONS.

SOMETHING NEW, PERHAPS.

At intervals, for the past few years, I directed my efforts to the finding of a triangle whose three sides are rational, and the area a square number. Even during my sleepless hours at night I resolved the problem, looked at it in the dark, would rise in the morning in hope that the new idea would do something, but failure after failure was the result, till one idea started in the night of the 17th instant brought out the desired object. I used three unknowns, and two of them to fourth powers in the diophantine equation. I had to employ what is known as *double equalities*, thus raising the unknowns to high powers. The sides came out in fractions and so did the area, but they were all *positive*, and, on removing the denominators, I obtained integers. I was afraid to examine the work, almost afraid to breathe, for fear all would vanish. The triangle is an obtuse one.

JOHN IRELAND, Fergus.

(a) Where is Scythia and what is the modern name for it?

(b) What is the best book on Botany for a beginner?

(c) Parse like in the sentence, There was my Roland to bear the whole weight of the news which alone could save Aix from its fate, with his nostrils like pits full of blood to the brim.

(d) What kind of an infinitive is *to death* in the sentence, He was shot to death in his youth? W. McD.

(a) Where can I get Queer Questions and Ready Replies mentioned in your issue of Dec. 1?

(b) Kindly give solution to the following from H. S. Arithmetic: "A mixture of soda and potash, dissolved in 2,540 grains of water, took up 980 grains of aqueous sulphuric acid, and the weight of the compound solution was 4,285 grains. Find how much potash and how much soda the mixture contained, assuming that aqueous sulphuric acid unites with soda in the proportion of 49 grains to 32, and with potash in the proportion of 49 to 48." ALPHA.

ANSWERS.

W. MoD. (a) The term Scythia, as used in ancient times, denoted a vast and undefined territory lying on the north and east of the Black Sea, the Caspian Sea, and the Sea of Aral. The word as now used does not denote so much a tract of country as a catalogue of tribes and nations.

ALPHA. (a) You can either send direct to publishers or order through any local bookseller. We do not know the price.

(b) Perhaps some science teacher will kindly answer your question.

2,73440
 2,36720
 2,18360
 2, 9180
 2, 4590
 3| 2295
 3, 765
 3| 255
 5| 85
 17

Answer to Question (c) by "Ignoramus" in last issue of the JOURNAL, by Charles Richmond, aged 9, of Parry Sound school. The headmaster informs us that the question was given to a class of twenty in Junior 3rd Class, all of whom solved it without assistance.

$$73440 = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 5 \times 17$$

$$= 3 \times 5 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 2 \times 17$$

$$= 15 \times 16 \times 17 \times 18$$

Solutions to Problems in No. 23, by T. C. Doidge:—

(a) Prime factors of 1800 = 2, 2, 2, 3, 3, 5, 5.

Since we have the 3rd power of 2 as a divisor, 1, 2, 4, 8 are divisors of 1800.

Also 1, 3, 9. The product of each factor of 1, 2, 4, 8 and of 1, 3, 9 gives numbers that are divisors of 1800, thus:

1, 2, 4, 8
 1, 3, 9,

1, 2, 4, 8, 3, 6, 12, 24, 9, 18, 36, 72. As there is the second power of five, 5 and 25 are divisors; also the product of these divisors with each of the divisors just found, thus:

1, 2, 4, 8, 3, 6, 12, 24, 9, 18, 36, 72
 1, 5, 25

1, 2, 4, 8, 8, 6, 12, 24, 9, 18, 36, 72, 5, 10, 20, 40, 15, 30, 60, 120, 45, 90, 180, 360, 25, 50, 100, 200, 75, 150, 300, 600, 225, 450, 900, 1800 = 36 divisors.

$4 \times 3 \times 3 = 36$ divisors. (By increasing each index 1 and multiplying.)

(b)

$$\frac{12}{7 \times 13} + \frac{6}{7 \times 11} + \frac{9}{11 \times 13} = \frac{132 + 78 + 63}{7 \times 13 \times 11} = \frac{273}{7 \times 13 \times 11} = \frac{3}{11} = .272727 +$$

The decimal to be added must consist of three figures, and when added must make the result greater than 1.

$$.27272 + .728 = 1.00072 \dots$$

1 - .272 = .728 or $\frac{728}{1000}$ Answer.

(c) $\frac{1}{5} = .2$

$$\frac{1}{5^2} = \frac{1}{25} \text{ of } .2 = .008.$$

$$\frac{1}{3} \text{ of } \frac{1}{5^3} = \frac{1}{3} \text{ of } .008 = .002666666 \dots$$

$$\frac{1}{5^3} = \frac{1}{125} \text{ of } .008 = .00032$$

$$\frac{1}{5^4} \text{ of } \frac{1}{5^3} = \frac{1}{5^7} \text{ of } .00032 = .000064$$

$$\frac{1}{5^4} = \frac{1}{625} \text{ of } .00032 = .0000128$$

$$\frac{1}{7} \text{ of } \frac{1}{5^7} \text{ of } .0000128 = .00000182857 \dots$$

{ Value of expression inside of brackets = .2 - .026 + .000064 - .0000182857 ... } = (.1973955714) $\times 16 - \frac{4}{239} = 3.158329142 \dots$
 - 0167364 ... = 3.141592+. Answer.

(d) 125
 150
 225

500 bbls. @ \$7 = \$3,500, less 4%, or \$140 = \$3,360 to be divided.

Every bbl. of A's is worth $1\frac{1}{10}$ of B's.
 " " C's " $\frac{2}{3}$ of $\frac{1}{10}$ of B's, or $\frac{2}{30}$ of B's.

A's 125 bbls. is worth as much as $137\frac{1}{2}$ bbls. of B's.

C's 225 " " " 261 " "

The money is divided into the ratio of $137\frac{1}{2}$, 150, and 261.

$$\left. \begin{array}{l} A \text{ receives } \$ 842.30 \\ B \text{ " } 918.87 \\ C \text{ " } 1,598.83 \end{array} \right\} \text{Answer.}$$

(e) The prime factors of 73440 are 2, 2, 2, 2, 2, 3, 3, 3, 5, 17. First by inspection.

5 is one of the consecutive numbers, or 10, 15, 20, 25, 30, 35, &c.
 17 " " " " 34, 68, 85, 102, &c.

5 and 17, or any multiple of 17, can not be two of the consecutive numbers.

10 and 17, or any multiple of 17, can not be two of the numbers. 15 and 17 may be two of the numbers; also 17 and 20, and it can be easily seen that no other multiples of 5 and 17 can be two of the numbers. Therefore the numbers are between 17 and 20 inclusive. As 19 is not one of the factors, the only numbers remaining, viz.: 15, 16, 17, 18, which are made up of the prime factors, are the four consecutive.

Second method.—Find all the divisors and arrange according to order of magnitude, thus: 1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 15, 16, 17, 18, 20, 24, 30, 36, 40, &c. It will be seen that there are only four consecutive numbers, viz.: 15, 16, 17, 18, that are divisors of 73440, and are consequently the four consecutive factors.

T. C. DOIDGE.

The following are my solutions to questions in your issue of November 15th, 1886:

I fancy "Quaker's" (b) is misprinted. If you allow A to have \$1.25, and C \$1.44. Then let per cent. that B has more than A be x.

Then let $125 \times \frac{100+x}{100} \times \frac{100+x}{100} = 144$. Let $\frac{100+x}{100}$ be y.

Then let $y^2 = \frac{144}{125}$ or $y = \frac{12}{5\sqrt{5}}$.

Then let $\frac{100+x}{100} = \frac{12}{5\sqrt{5}} \therefore x = 7.3345$. \$1.25 and 7.3345 per

cent. of itself = \$1.34 = B's share.

.. Sum divided = (\$1.25 + \$1.34 + \$1.44) = \$4.03 +.

(c). At last payment, if he had spent $\frac{1}{3}$ of the money he had, he would have had (\$33 $\frac{1}{3}$ - 50c.) = \$32 $\frac{2}{3}$ left.

\therefore \$32 $\frac{2}{3}$ = $\frac{2}{3}$ of money then.

\$48 $\frac{2}{3}$ = money then.

Similarly in second payment:

\$48 $\frac{2}{3}$ - 50c. = \$48 $\frac{1}{3}$ = $\frac{2}{3}$ of money then.

\$72 $\frac{1}{3}$ = money then.

Also in first payment:

\$72 $\frac{1}{3}$ - 50c. = \$72 = $\frac{2}{3}$ of money then.

\therefore \$108 = money at first.

I think "Subscriber's" 1. is misprinted also. If you divide the fraction $\frac{1}{3}$ into two such parts that 4 times one of them added to $5\frac{1}{2}$ times the other may make 4 $\frac{1}{3}$?; then 4 times 1st part + $5\frac{1}{2}$ times 2nd part = 4 times 1st part + 4 times 2nd part + $1\frac{1}{2}$ times 2nd part = 4 times both parts + $1\frac{1}{2}$ times 2nd part, $\frac{1}{3} \times 4 = \frac{4}{3}$ = 4 times both parts. $\therefore 4\frac{1}{3} - \frac{4}{3} = \frac{4}{3}$ = $1\frac{1}{2}$ times 2nd part. $\therefore \frac{1}{3} \times \frac{4}{3} = \frac{4}{9}$ = 2nd part, and $\frac{1}{3} - \frac{4}{9} = \frac{1}{9}$ = 1st part.

Ans. to No. 2 of Subscribers:—

$\frac{3}{5}(A+B) = C+D$, $\frac{2}{5}(A+C) = B+D$, $\frac{4}{5}(B+C) = A+D$. From these we get

$$\begin{array}{rcl} 50A + 50B & = & 51C + 51D \\ 56A & + & 56C = 75B + 75D \\ & & 65B + 65C = 66A + 66D \\ \hline \text{Sum} = 106A + 115B + 121C & = & 66A + 75B + 51C + 221D \\ & & 40(A+B+C) = 222D \\ & & D = \frac{2}{11}(A+B+C). \end{array}$$

Literary Reviews.

Substituting we get,
 $D = \frac{20}{111} \{80 (C + D) + C\}$ or $353 D = 262 C$.
 $D = \frac{20}{111} \{B + \frac{1}{5} (B + D)\}$ or $2620 B = 4716 D$.
 $D = \frac{20}{111} \{A + \frac{1}{3} (A + D)\}$ or $524 A = 1179 D$.
 From this we find A 's time = $\frac{524}{1179}$ of D 's time, and $\frac{524}{1179}$ of D 's time = B 's time.
 $\therefore A$'s time = $\frac{524}{1179} = \frac{1}{2}$ of B 's time. $\therefore \frac{1}{2}$ of B 's time =
 2 hrs. B 's whole time = 10 hrs.
 A 's time = $10 - 2 = 8$ hrs.
 Also D 's time = $\frac{1179}{524}$ of A 's time = 18 hrs.
 Also C 's time = $\frac{353}{262}$ of D 's time = 12 hrs.

S. Pool.—(a) Suppose the wagon to go 210 ft.:
 $210 \div 10\frac{1}{2} = 20$ turns made by front wheel.
 $210 \div 11\frac{1}{2} = 18$ turns made by hind wheel.
 Dif. = 2 turns in 210 ft.
 1 turn in 105 ft.
 440 turns in $105 \times 440 = 46200$ ft.

G. B., Cashtown.

Literary Chat.

The motto of Lord Clyde's life, always inscribed upon the fly-leaf of his pocket memorandum-book, says: "By means of patience, common sense, and time, impossibilities become possible."

A good style is the vivid expression of clear thinking, and it can be attained only by those who will take infinite pains, in the first place, to purge their own minds of ignorance and half-knowledge, and in the second, to clothe their thoughts in the words which will most fitly convey them to the minds of others.—Prof. Hurley.

The "Swiss Cross" is the name of a new monthly magazine to be published from January, 1887, from the office of Science, New York. The prospectus announces that the periodical will be devoted to spreading among the people a love and knowledge of nature. The "Swiss Cross" is to be hereafter the efficient organ of the *Agassiz Association*.

D. C. Heath & Co. will publish in April a valuable book for Teachers, entitled: *Suggestive Lessons in Language and Reading*, by Anna B. Badlam, of the Rice Training School, Boston, Mass. These Lessons are said to be plain and practical, being a transcript of work that has been successfully done in the school-room. They are intended for children from five to eight years of age, the plan being so elastic that it may be used in any of the primary grades.

Ginn & Company have in press an edition of *Cobes' Tablet*, edited with Introduction, Notes, Vocabulary, and Grammatical Questions, by Richard Parsons, Professor of Greek, Ohio Wesleyan University. The publishers say that this little volume has arisen from a belief that *Cobes' Tablet* deserves a higher recognition than it has received from educators, and that in its preparation the works of Schweighäuser, Simpson, Drosihn, Büchling, and Jerram have been consulted, besides some minor editions prepared for school and gymnasium use.

Two new processes in illustrating Juvenile Books have been adopted this year by the Worthington Company of New York. One is seen in *Worthington's Annual*, and the other in "*From Meadow Sweet to Mistletoe*." The *Annual* is printed in alternate tints. It is the first book ever so printed, and a patent has been applied for. *From Meadow Sweet to Mistletoe* is illustrated by the photogravure-lithographic process, and is also the first book ever printed in this way, the photogravure process having heretofore been only applied to costly works, such as the Vanderbilt and Meissonier galleries, etc. These two processes, as applied by this publishing house at an immense expense, certainly are entitled to warmest praise, and the new and beautiful books thus embellished should command large sales.

An Awful Doom

of any nature is usually avoided by those who have foresight. Those who read this who have foresight will lose no time in writing to Hallett & Co., Portland, Maine, to learn about work which they can do at a profit of from \$5 to \$25 and upwards per day and live at home, wherever they are located. Some have earned over \$50 in a day. All is new. Capital not required. You are started free. Both sexes. All ages. Particulars free. A great reward awaits every worker.

VEAZIE'S FOUR-PART SONG READER. By G. A. Veazie, jr., Supervisor of Music, Chelsea, Mass. Introduction price, 40 cents. (Ginn & Company).

Designed for the upper classes in Mixed or Boys' Schools, and also for adult singing, singing clubs, and conventions. The elementary chord-practice is based upon Hohmann, and designed to follow Mason's old Third or his Advanced Third Music Readers. The exercises and songs are arranged for soprano, alto, tenor, and bass, each part kept within easy limits. This limitation of range is, it is claimed, secured without sacrificing the interest of the music, and has been found to improve the carrying of the voice, and to be of special value to boys whose voices are nearing the transition state. The songs are of a high order, being selected from standard school-works of Europe.

OCCUPATION, RECREATION, AND INSTRUCTION FOR THE FIRST WEEKS AT SCHOOL.

This is an attractive little primer published by Ginn & Co., Boston, and intended as a child's companion during its first weeks in the school-room. Some of its specialties are short sentences, occupying but a single line, frequent repetition of words, number training of a pictorial character, and color plates, affording applications of number, material for thought and language, etc. The authors are J. H. Stickney, author of *Language and Reading Series*, and S. C. Peabody, Teacher in First Grade Primary School.

THE PHILOSOPHY OF WEALTH—ECONOMIC PRINCIPLES NEWLY FORMULATED. By John B. Clarke, A.M., Professor of History and Political Science in Smith College; Lecturer on Political Economy in Amherst College. (Boston: Ginn & Company).

It would be impossible within the narrow limits at our disposal to do justice to this work, which is a thoughtful and able contribution to the discussion of a subject second to none in intense practical interest. Such questions as the relation of labor to wealth, the elements of social service, the law of demand and supply, and above all, the ethics of trade are unquestionably among those least satisfactorily settled and most needing settlement at the present day. Detached sentences such as the following, can convey no idea of either the completeness of the author's theory, or the cogency of his reasoning, but they may serve as hints of the spirit in which he has approached his task.

"The purely competitive system of industry has had its youth, its manhood, and its decrepitude. It has developed, first, a conservative rivalry, then a sharp and destructive contest, and finally a movement toward consolidation and monopoly."

"Moral force as an economic agent, is the characteristic of the new regime."

"Composition without moral restraints is a monster as completely articulated as the saurians of which the geologists tell us."

"The theory of the modern bargain appears to be that of the mediæval judicial combat; let each do his worst, and God will protect the right."

"What is ordinarily termed a good bargain is, morally, a bad bargain. It is unequal and good for one party only. Whenever such a transaction takes place, some one is plundered."

As the author observes in his preface, this book cannot be a text-book in the ordinary sense of the term, because of its incompleteness. It omits whatever is common to economics and practical politics, and has nothing to say about the burning questions of currency and protection. But it is a work which cannot fail to be both interesting and helpful to the many, teachers and others, who, as readers, observers, and thinkers, are in revolt against the general spirit of the old political economy.

THE AUTOBIOGRAPHY OF BENJAMIN FRANKLIN, WITH NOTES AND A CHAPTER COMPLETING THE STORY OF HIS LIFE. (Houghton, Mifflin & Company, Boston and New York).

This book, which contains also a sketch of Franklin's life from the point at which his biography ends, is one of the "*Riverside Literature Series*." Well printed on good paper and neatly bound in paper, and sold at fifteen cents, it affords an excellent example of what is being done at the present day in the way of putting the best literature within reach of the millions.

THE ELEMENTS OF EUCLID, Books I-VI, and part of Books XI and XII. (Cambridge, Drighdon, Bell & Co.) By Horace Drighdon, M.A., formerly Scholar of Queen's College, Cambridge; Headmaster of Harrison College, Barbados.

The special features of this edition of Euclid are in the fact that it is a new translation from the Greek text, in a somewhat more modern form than the current translations, and that to aid the student to solve questions such as are set in examinations, the solutions of a considerable number of important propositions are incorporated in the text, with riders attached to them.

SECOND NATURAL HISTORY READER. By Rev. J. G. Wood, M.A. (Boston School Supply Company).

The first volume of this attractive series of children's readers was noticed in a previous issue. The essential features of the second are the same, the words used in the descriptive lessons being longer, but still mostly of one syllable. The illustrations are many and clear, the paper and printing good, and the lessons convey in language suited to the child much interesting information about the habits of animals.