The Educational Review.

Devoted to Advanced Methods of Education and General Culture.

PUBLISHED MONTHLY. ST. JOHN, N. B., DECEMBER, 1894. $1.00 PER YEAR

G. U. HAY, Editor for New Brunswick. A. McKAY, Editor for Nova Scotia. J. D. SEAMAN, Editor for P. E. Island.

THE EDUCATIONAL REVIEW.

Subscribers should promptly notify the REVIEW of change of address giving old as well as new address. Communications from New Brunswick should be addressed EDUCATIONAL REVIEW, St. John; from Nova Scotia and Newfoundland to W. T. Kennedy, Academy, Halifax, from Prince Edward Island to J. D. Seaman, Charlottetown.

CONTENTS:

OUR PREMIUM OFFER.

The past year has witnessed a more prosperous subscription list for the REVIEW than any previous year in its history. To increase its subscription list still further for the coming year, and also to induce our subscribers to pay in advance, which arrangement is the *only satisfactory one* to us and to them, we make the following offers:

First,—Any subscriber sending a renewal of subscription paid up to December, 1895, with *twenty-five* cents additional, will receive a copy of WOOD'S NATURAL HISTORY, *or* the four volumes mentioned in Offer number 2, page 142. State which you prefer.

Second,—Any subscriber sending a renewal of subscription, together with the name of one person not now a subscriber to the REVIEW, both paid up to December, 1895, will receive *free* a copy of WOOD'S NATURAL HISTORY, *or* the four volumes mentioned in Offer No. 2, whichever preferred.

Third,—Any subscriber sending a renewal, together with the names of *two* persons not now subscribers to the REVIEW, the three subscriptions paid up to December, 1895, will receive *free* a copy of WOOD'S NATURAL HISTORY, and the four volumes mentioned in Offer No. 2.

Fourth,—Any subscriber sending a renewal with subscription paid up to December, 1895, and *fifty cents* additional, will receive *free* the five books named in Offers 1 and 2, page 142.

Our readers will perceive the great value of these offers that are more fully stated on page 142. These are standard works, and of the greatest interest to teachers. It must be distinctly understood that no departure can be made from the terms set forth in the offers above named. Those who intend to avail themselves of these offers, should read carefully the terms, so that mistakes or additional correspondence with reference to them may be avoided.

It should be remembered also that while the books offered are on good paper and in clear type, they are bound only in paper covers. They will be sent direct to subscribers from the publishing house, and a duty from six to nine cents will have to be paid on each (Wood's Natural History, 6 cents; the other four volumes, probably nine cents, for the four, as they are of greater weight).

We hope our subscribers will appreciate this offer, by helping to extend the influence of the REVIEW, as well as to promote the study of good literature.

THE death of Francis Bain, the well-known naturalist of P. E. Island, is a loss to science. He published lists of the birds and plants of the Island, and the results of his geological researches there are known and valued abroad.

PRINCIPAL GRANT of Queens University, Kingston, recently delivered an address on "Outdoor Sports in Canada." He spoke enthusiastically—and who would not?—of such sports as curling, skating, snow-shoeing. Those who take part in these sports do not dread winter. They welcome its approach when they think of the delights in store for them. Curling is a game that ought to be more common. There is no nobler or more invigorating sport, or one less free from the objectionable phases that have crept into other games, namely, the roughness that characterizes foot-ball, or the gambling that debases too many sports. Belonging to the Fredericton Curling Club, are four teachers, and this rink is known in the club

as the pedagogue's rink. These "knights of the broom" express their willingness to meet four pedagogues from any club in the Maritime Provinces during the coming winter, in a friendly game. Now, where are the pedagogue-curlers of Halifax, St. John, Truro, St. Stephen, Pictou, New Glasgow, Newcastle?

We wish our subscribers, one and all, a Merry Christmas and a Happy New Year.

The time allowed for the Dominion History competition, has been extended six months—to July 1st, 1895.

No more useful Christmas gift could be presented to a teacher or scholar, than a copy of Webster's International Dictionary.

See the clubbing rates on another page of the Review with magazines and periodicals, and consult the advertisements.

The Teachers' Institutes of St. John and York Counties will be held on Thursday and Friday, Dec. 20th and 21st. See programmes in another column. Carleton Co. Institute will be held on the same dates.

The reports of the Teachers' Institutes, in another column, will be found stimulating, especially to those who, if asked to do something to get out of ruts, are willing to respond and make an effort that will do themselves and others good.

The University Extension lectures in St. John this season are even more interesting and well attended than those of previous seasons. Dr. Stockton's lectures on Constitutional History, and Prof. Dixon's, on Astronomy, have been finished, and Prof. Stockley has begun his lectures on Milton. Dr. G. F. Matthew and Dr. Philip Cox will begin shortly a course on Zoology.

We are indebted to a valued correspondent for the description on another page, of the new Harkins Academy building, and to A. A. Davison, Esq., Secretary to the Committee for the cut representing this the finest and best equipped school on the North Shore. Through the efforts of Principal Yorston and the high school pupils, a liberal sum of money has been raised to found a library.

The St. John School Board has come in for considerable criticism concerning its book-keeping. It is not objected that anything is wrong, or that the accounts are indecipherable, or that previous auditors have been incompetent, but that neither single nor double entry has been the mode. Most firms have a system of their own, but with School Boards it may be otherwise—at least it should be so, it is said. It has also been discovered that more teachers are employed according to population than ten years ago. If these critics look back a decade they will find a still greater disproportion, and if they look forward and live ten years more, they will no doubt see the number increased.

A TEXT-BOOK ON BOTANY.

A text-book on botany that shall be accurate, scientific, and practical, and one that shall have special reference to the study of cultivated and wild plants of the Atlantic Provinces, has long been felt to be a necessity. This work will shortly be undertaken, if sufficient encouragement be given, by Dr. W. F. Ganong, late of Harvard University, and now Professor of Botany in Smith's College, Northampton, Mass., and Mr. G. U. Hay of St. John, N. B. If the proposed arrangements can be carried out, the work may be looked for early in the year 1896. The following general plan is here submitted with the hope that in the many difficulties that face the authors of such a work, they may at once receive practical suggestions from teachers and others to guide them. These suggestions will be thankfully received, and the fullest consideration given to them, if forwarded early to Mr. Hay, St. John.

Preliminary sketch of a plan for an Elementary Text-book of Botany, for the use of schools in the Atlantic Provinces of Canada, by W. F. Ganong and G. U. Hay.

The book to consist of 3 parts: (a) the text-book proper, and (b) a Manual of Atlantic Province Plants—these two to be bound together, and put into the hands of students. (c) A guide for teachers in using the work: to be bound separately for teachers only.

Sketch of Part I.

A Text-book of the Principles of the Anatomy, Morphology, and Physiology of Plants.

The general plan of treatment in this part will be, to treat the plant primarily as a living being; to show what work its parts do, and how their structure depends thereon; not to separate minute anatomy and physiology into distinct chapters, but to treat them in connection with the organs themselves.

The chapters would run nearly thus: Chap. I. The place of plants in nature, and their relations to the mineral and animal kingdoms.

Chap. II. The typical higher plant, the work it does, and the consequent formation of three principal organs—leaf, stem, root. The relation of the three, and these unfolding in the individual plant. Plants having other habits.

Chap. III. The leaf in particular—most essential organ of higher plants, physiology and anatomy of leaves, leaf arrangement, etc.

Chap. IV.–VII will deal with the root, stem, flowers, and fruit treated similarly.

Chap. VIII. The groups of plants—*i. e.*, some account of the general characteristics of (1) algae, (2) fungi, (3) mosses, (4) ferns, (5) gymnosperms, (6) monocotyledons, (7) dicotyledons.

Chap. IX. Classification and use of manuals.

Sketch of Part II.

A Manual of the commonly occurring wild plants of the Atlantic Provinces of Canada, with reference to their habits, uses, etc., together with a supprementary manual which may include the plants commonly cultivated in the Atlantic Provinces.

Based primarily on Gray's Manual, but with briefer descriptions, the space thus gained being given to features of

their natural history, local names, uses, etc., with the aim to make it not simply a manual, but also to some extent a natural history of plants, modes of dissemination, etc., where known being given. To this may be added, if deemed advisable, a brief manual of the commonly occurring cultivated plants of garden, green house, and house, in the Provinces.

SKETCH OF PART III.

A practical guide for teachers in the study and the teaching of Elementary Botany. To accompany the "Text-book" (Bound separately for use of the teachers). It will take up the work chapter by chapter, and show how each should be taught; giving simple, laboratory outlines for each chapter, directions how to secure material for winter study—what seeds are easy to obtain, how to grow them in class-room; simple experiments in vegetable physiology with home-made or no apparatus, which can be tried with the class; with directions for drawing, etc.

Part II. will be the work of Mr. Hay, but he feels that it cannot be done adequately without the assistance of every botanist in these Provinces, and he hopes this assistance will be extended to him.

Parts I. and III. will be the work of Mr. Ganong, and he makes the same request for advice and assistance. Mr. Ganong hopes to accomplish well the work that he has marked out for himself. His experience at Harvard and the Summer Schools, his late studies in Germany, have made him acquainted with the best practical methods of dealing with his subject, and in his Part III, especially, teachers may hope for that practical assistance which his own experience has developed and proved.

APPOINTMENT OF TRUSTEES.

The present mode of appointment of trustees in the city of St. John, has recently caused some criticism from various sources. It has been proposed (1) To vest the appointment of the entire Board in the city council. (2) To control the schools entirely through a committee of the council. (3) It has been gravely suggested by the St. John *Sun* which usually takes an enlightened view of educational topics, to throw open the election of trustees to the citizens—presumably the same plan that is now followed by the cities in the United States.

It is argued in support of the first proposal, that the appointment of four out of nine trustees by the government, is too great a share, and that the city is as much entitled to elect its school boards as are the country districts. The interests of the state would be looked after by the chief superintendent and the inspectors. It may be stated in answer to this, that it has been regarded as a mistake by many that the appointment of our trustees in country districts has not been reserved by the state; as it is much greater control is exercised by it in the country districts than in the cities. The Board of Education through its officers, makes and unmakes trustees as necessity arises, orders assessments when the ratepayers refuse to make proper provision for the support of schools, and requires the inspectors to visit country districts twice in the year, whereas the city schools are only inspected once. Beside the direct interest the state has through the partial payment of the teachers' salaries, the principle of responsible government would not be violated even though all trustees were appointed by the government. It is done by the direct representatives of the people.

It has not been urged that the government appointees have been less efficient trustees than those appointed by the council, nor that the interests of the schools and the city have suffered at their hands. It may be, and if so, it is to be regretted that party men have received the appointments, but this course has not invariably been followed, and it can be confidently asserted, that up to this time, politics have not been a potent factor in the government of our schools.

The second proposition is much more objectionable than the first. The city councils in old St. John and Portland, at intervals, took a spasmodic interest in the conduct of the schools, and it is a matter of history, that when its interest was greatest, the schools flourished least. Councils have tried their hands at making trustees, and have not failed to appoint from their own body. These appointments, while many of them have been good, have not invariably been so. It is humiliating to the teachers and detrimental to the interests of the schools that preferment should be at the disposal of those who are themselves soliciting the suffrages of the citizens. The change in the city government, while it has diminished the influence of the ward politician, has raised another barrier against council control of the schools. In some of the provinces of the Dominion, as in the United States, not only state but municipal government is conducted on party lines. This means that a man is not even eligible for such office as a fence-viewer or field-driver, unless he is in accord with the party in power at Ottawa. This state of affairs, fortunately, does not yet exist in New Brunswick in as far as state and municipal government goes, but such a course is not without its advocates even here. Should party politics prevail in our civic government, we might expect that teachers as well as other officers would hold office only during the tenure of office of their party. This brings up the chief objection to the proposition of the *Sun*—the election of trustees by the citizens. This has been the bane of educational progress in the United States, where teachers and school officers—no difference what their merits—are removed as politics fluctuate. The best men refuse to go through the turmoil of an election for the privilege of performing gratuitous and responsible services, and as a consequence, the school Boards are composed of less desirable men who seek office for the patronage and votes it will control.

TALKS WITH TEACHERS.

Most teachers aspire to a city school, and look upon such a position as the acme of perfection in as far as teaching goes. A situation in a graded school certainly has many advantages, among which may be mentioned — greater chances for self-improvement, more social advantages, better living and less hardship in reaching school, less meddlesome interference and gossip on the part of parents and sometimes trustees, and shorter hours.

These advantages are undeniable, but "all is not gold that glitters." To begin with the teacher in the country is a much more important personage than in the city. The dwellers in cities are less social to strangers than those in country districts, and unless a teacher has friends in the city she is likely to lead a lonely life for some time. Though the hours are shorter in the city, the work is harder, the pupils are more difficult to manage, and more is expected of the city teachers. You strive with pupils for a year only to fit them for some one else, and they pass from your hands. You will miss the fresh air of the country, and the kindly greeting of all you meet.

It is the practice in some city buildings where there is a reserve teacher stationed, but no class-room, to send her into some of the more overcrowded rooms to assist the teacher. In my opinion, such a course does more harm than good. The work of both teachers is repressed for fear of interference, or confusion takes place in consequence of such. The reserve teachers would be far more profitably employed in observing the work in the different rooms than in attempting to assist where there is no separate class-room.

A case, somewhat similar to the following, came to my notice a few days ago: A teacher, anticipating a notice of dismissal from the trustees, sent them his resignation instead. On the last day of the term, he withdrew his resignation, but if the trustees received the withdrawal at all on that day, it was too late for them to call a meeting to notify the teacher. Can the teacher legally hold on? I think not. If he could, it would render abortive the clause in the agreement regarding notice. A notice once given, cannot be withdrawn by either party, except by the consent of the other party, and even then it is doubtful, if a new agreement would not be necessary.

Can two trustees legally notify a teacher without consulting the third? The third trustee must be consulted and given the chance to refuse if nothing else. If two trustees could transact the business, a third would not be necessary. At the same time it would hardly be advisable for any teacher to take advantage of this and hold on in a district where the majority of the board is against her. There are many ways in which her position could, and no doubt would, be rendered unpleasant.

For the REVIEW.]

Natural History in the Common Schools.

It will be necessary to procure one or more small spirit lamps, a dozen or more test tubes, and a pint of alcohol. Spirit lamps can be bought at twenty-five cents each. It would be well to have one for each desk, which would involve an outlay of about fifteen cents per pupil for lamp and alcohol. If so many lamps cannot be afforded, one or two pupils should heat the minerals and show the results to the others. Do no buy test tubes in nests, as the larger tubes are not suitable. Get small ones, not more than five inches long, with corks to fit tightly when half in. Test tubes cost not more than fifty cents per dozen. Also get a few cents worth of litmus paper, and, if the paper cannot be conveniently procured, a little litmus powder, to color white paper when needed. Prices are given here, partly that teachers may see that the outlay need only be small, and partly that they may be able to protect themselves from dealers, who would charge exorbitant prices. The writer will always be glad to select and purchase the required apparatus for teachers who may desire him to do so.

Before this course of lessons begins the teacher should make up his mind not to tell his pupils anything which they can find out with reasonable effort. He is not to communicate knowledge to them, but simply to direct them in acquiring it for themselves. Nor is he to spend all his time in directing them. Let them grope their way as far as possible. When they get off the track they may need a little guidance in getting on again.

Nor should the teacher often hinder them to communicate facts that they *cannot* discover themselves at the time. It will generally be better to leave such knowledge to the future. An interesting fact may be given occasionally, when it would be likely to stimulate enquiry.

But the teacher will find it easier, perhaps, to restrain his own *telling* propensities than those of his pupils. The lesson must be conducted in such a way that the quicker pupils will not tell the slower ones, before the latter have had time to reach the result sought. Lessons are often so managed that none but the brighter pupils do any original work. They deprive their duller or slower class-mates of all the *pleasure* and all the profit to be gained by discovering things for themselves. The result is that the majority of the class not only display but little interest in their work, but gain very little in the power of independent thinking. Their time is practically wasted, or worse than wasted.

It will be best to begin with two common minerals which differ widely. The contrasts brought out in the comparison will help to fix the properties of both in the mind.

We will select white (milky) quartz, and grey, reddish, or black limestone.

Each pupil should be provided with a small paper or wooden box to hold the minerals, the glass rod or tube for the acid, a piece of rather fine, flexible wire, a piece of litmus paper, a bit of window glass, and other requisites. On each desk should be placed a cup of water, a small bottle of hydrochloric acid, and, if it can be afforded, each couple of the older scholars should have the use of a spirit lamp. Each pupil, also, should have a knife, or some pointed steel instrument (a large needle, for instance), for testing hardness. Ask the pupils first to find which of the minerals will scratch the other, using a sharp corner of each. When they have noticed that there is a very white mark left on each when rubbed by the other, but that only one of them makes a scratch in the other, ask them to account for these facts. They will conclude that the one which scratches the other is the *harder*, and the one which is scratched the *softer*. They will also find that the white streak in both cases is the color of the powder of the softer mineral. By reducing some of the latter to powder with a knife, it will be found to be white, although the mineral may be black. If a bit of the hard specimen be beaten or ground into powder, it will also be seen to be white. Tell them that the *color* of the powder of a mineral is called its *streak*. Let them now try to scratch a piece of glass with each mineral. They will succeed with the harder one only, and will infer that this one is harder than the glass, the other softer. They should next try to scratch each mineral with steel, and will conclude that one of them is harder than steel, while the other is much softer. The teacher might now inform them that the hardness of minerals is expressed in degrees, from 0 to 10, and that the hardness of the harder mineral is seven degrees; also that any substance as hard or harder than that is regarded as very hard. The hardness of the softer mineral will not be more than three or four degrees.

Direct the pupils to make a little loop at one end of a fine wire and fit into it a thin sliver of the softer mineral. Let them hold the wire so that the sliver is in the hottest part of the flame of an alcohol lamp. They will soon find that the wire becomes too hot to hold. Let them suggest a remedy. They will probably think of twisting the other end of the wire round a lead pencil by which they will hold the sliver in the flame for about five minutes. Direct them to drop it on a piece of litmus paper which has been reddened by hydrochloric acid, much diluted with water. The heated mineral will be found to be lustreless and friable. When dampened with water and pressed against the reddened paper it will turn the paper blue. Let them try the harder mineral in the same way. They will find that it does not become powdery, nor will it, when dampened, turn red litmus blue. It will also be found that if the softer mineral be dampened without being heated, it will not affect the color of the reddened paper. The pupils will now apply a drop of hydrochloric acid to each mineral. Bubbles will form on the softer one, but not on the other. Teach them the use of the term "effervescence." Have the minerals put into the cup of water to wash off the acid, and leave them there for a while. It will be seen that they are not soluble in water, at least not perceptibly so.

The teacher should now, but not before, give the names of the minerals. Marble, chalk, and other varieties of limestone (carbonate of lime, calcite), should now be examined in the manner described, and compared closely with one another and with the quartz. The pupils will see that they resemble each other in their properties much more than they do quartz. Marble shows little glistening surfaces when broken. Chalk is much softer than the others—hardness about one degree. But they are all soft; they all have a white streak; they all effervesce when treated with the acid; they all become white and crumbly when heated; the heated product, when dampened, always turns red litmus blue.

The pupils are now prepared to believe that they are all varieties of the same mineral, limestone (or calcite). They may be told that the lustreless, powdery substance obtained by heating them is lime, whence comes the name limestone. They will be able to tell, or to find out by enquiry, how lime is made on the large scale, and will be led to see that the method is really the same as that which they employed.

Some lumps of unslaked lime should be procured, and a piece as large as a small apple placed in a dish on each desk. When as much water as it will absord has been slowly poured upon it, it will become so hot that a match may be lighted in it as it crumbles up. It is now water-slaked lime. Set a lump of the unslaked lime away, and leave it till it is reduced to powder. This is air-slaked lime.

The principal varieties of quartz should now be taken up and examined as the first piece was. They will all be found to be very hard, unaffected by heat or acid, and insoluble in water. They differ much in color, as do the varieties of limestone. The pupils

will already begin to see that minerals cannot be distinguished by their colors.

Before leaving these two minerals their crystals should be compared. It will be found that calcite crystals will split along smooth surfaces running in definite directions. These crystals, are, therefore, said to possess cleavage, and the surfaces along which they split are called planes of cleavage. Their edges are indicated by lines running across the faces of the crystals. No such planes can be found in the crystals of quartz, although lines of fracture, where the crystals have begun to break or crack, may sometimes be mistaken for the edges of cleavage planes. Quartz crystals are devoid of true cleavage. They are terminated by six-sided pyramids, *i. e.*, they have six triangular faces on the end. Calcite crystals vary greatly in form, and some of them look remarkably like crystals of quartz. But their softness, as well as their cleavage and effervescence, when treated with acid, at once distinguish them from quartz.

It will be interesting and instructive for the pupils to prepare crystals of some substances which are soluble in water. For instance, let them, at home, make strong solutions of common salt and alum; then hang a thread or two in each and set them away where they will be undisturbed. In a day or two, if the crystals which form are very small, the threads may be hung in another strong solution that the crystals may grow. Beautiful crystals can be obtained in this way. The pupils may be led to see that if they could dissolve the massive (uncrystallized) pieces of quartz and limestone they might obtain quartz and calcite crystals. They will also infer that the crystallized forms of these minerals must have been dissolved in some way before they crystallized.

Do not hurry these first lessons. Give the pupils time to do their own observing and reasoning, even though it take the allotted time for two months to get through with quartz and calcite. If time can be found the pupils should write a careful account of each lesson. These notes should be examined by the teacher and afterwards corrected by the pupils.

J. BRITTAIN.

We commend to teachers the thoughtful consideration of the following by H. L. Clapp, Boston, in the *Journal of Education*: "In nature study we find the best material for language work and drawing. Free flow and continuity of thought never came so easily with other material. There never was so much disposition to use the pencil freely outside the school as well as inside. Power to observe accurately, reason independently, and express concisely by the voice, the pen and the pencil, has reached a high stage of development. Nature study seems to have clarified the children's thoughts, developed their self-reliance, and shown them the real correlation of studies better than any, perhaps I might say all, thing else which they have studied."

For the REVIEW.]

Suggestions on Teaching Geometry.

The proper teaching of geometry is a matter of vast importance, for every boy and girl should get the fullest benefit of the mental training to be obtained from the study of that subject. A good teacher is by no means bound down (Provincial Exam. notwithstanding) to any particular text-book, and there is no reason why he should allow himself to be hampered by a slavish adherence to either Hamblin Smith or Hall and Stevens—to mention only those prescribed in Nova Scotia.

In his report for January, 1893, an agent of the Massachusetts School Board remarks two methods among teachers of geometry. The first is the study of the syllabus from a text-book with full demonstrations, the "obvious lack of mental training being made up for by so-called 'original' deductions from the syllabus." The other is to pursue the syllabus by the "original" method. He finds that the "original" method is the best when the teacher has ability enough to carry it out, and deplores the fact that many of the usual deductions from the syllabus are so valueless, and thinks they would be better replaced by propositions that would be useful afterwards. A syllabus text-book is, in my opinion, very necessary, but it should be of the simplest kind possible and give the pupil every opportunity under the guidance of his teacher, to make use of his acquired knowledge, and learn to "deduce" for himself.

I would venture to suggest a different way of beginning the subject from that usually adopted. But, first, let me observe that it is better to have the pupil memorize the axioms, etc., only as they become necessary, than to require him to learn them by rote, while as yet, he can see no use for them. Take "angles" as the first subject, and thoroughly discuss their properties before taking up anything else. "An angle is a simple concept incapable of definition properly so-called." Its nature, however, may be described in a "nominal" definition. The idea that it is "the inclination of two straight lines which meet," has to be revised and extended before the pupil finishes the third book. Why not, with Halsted and Wilson,* use the following "nominal" definition: *Two straight lines which go out from a point are said to form an angle.* I have tried both with pupils of all ages and capacities, and found the latter as easily acquired as the former and much more satisfactory. Call the point the vertex and the lines the arms. A line rotating about the point from one arm to the

---

* Elements of Geometry, Halsted—Wiley & Sons, New York. Elementary Geometry, Books I. IV., Wilson. McMillan & Co. London.

other, may be said to describe the angle. Then greater, equal, less, *sum*, and difference may be defined with regard to angles. If the two arms are in the same straight line, call the angle a straight angle; then, that all straight angles are equal follows. And if a right angle is half a straight angle, all right angles are equal, and Euclid's eleventh axiom is unnecessary. The 13th, 14th, and 15th propositions follow immediately, and in a very simple manner. Other deductions may be made by the pupils, and the angles formed by two straight lines and a transversal may be considered.

Then should follow a very valuable and essential group of propositions, namely:—Euclid's 4th, 26th (1st part), 5th, and 7th, proved, of course by modern methods. After mastering the above, the pupil should be exercised in the use of the stock of facts and methods he has acquired by this time. This may be done, as usual, by "exercises." Problems can now be solved, and they should now be taken up. It is only necessary that the 1st, 9th, 10th, 11th, and 12th, should at present be fully demonstrated in the text-book; others can be used as exercises. I think that that tacitly assumed axiom of Euclid's, used in the fourth proposition, namely, that figures can be moved in space without distortion, should be given due prominence. Its importance is great, for nearly all of Euclid's system ultimately depends upon it, and it should hereafter be used when and whenever it may be the means of simplifying a proof. F. I. S.

Sydney, C. B.

For the REVIEW.]

Illegal Schools.

MR. EDITOR,—Such is the heading of a paragraph in the last *Journal of Education*, in which it is asserted that "if teachers have neglected to qualify themselves in one way or another to have instruction in music, in drawing, in hygiene and temperance, given in their schools, they will not only render themselves liable to loss of public money, but to further penalties if they should make a statement or affidavit that the school has been conducted according to law when it is not so conducted. If there are teachers now who cannot see that their pupils obtain the privileges and advantages which the law intends they should have, they belong to the class who should no longer have indulgence granted to them."

These statements have greatly distressed many teachers in Nova Scotia, many of whom we know to be our best and most conscientious.

There are teachers who make no effort to keep pace with the progress of the times—who jog along in the easy, old-fashioned ruts, quite indifferent to the appeals made to them regarding improved methods, so long as they can draw their salaries.

They lend a willing ear to ignorant parents and equally ignorant journalists who denounce as faddists those who lead in the march of improvement.

It is true that such teachers were aroused and made to give to their pupils that training which the wisdom of our foremost educationists consider best; for the seed-time of youth is too precious to be wasted The warnings in the *Journal* seem to have been intended for the indifferent, against whom, when the time comes, proceedings will no doubt be taken.

But as always happens in such cases, the disturbing effect of these admonitions seem to have fallen most heavily upon the most conscientious.

Taking music, for example, there are those who believe fully in music as an educational subject, and who would teach it if they thought they could, both because of this conviction and because they would faithfully carry out the course of study.

About four teachers in every hundred are musically so defective that they cannot distinguish right from wrong in singing. It would be a great mistake for them to make any attempt to teach music directly. The government has licensed them to teach, and must now accept the situation. To punish them, or to drive them out of the profession, would be barbarous injustice. Let the government see to it that hereafter there shall be no addition to their numbers. But even in the case of such teachers something may be done by them. There are some things about music which might be taught to prepare the way when the opportunity does arise. Besides it nearly always happens in country schools that one or more of the older pupils sing well and can direct the rest while the teacher keeps order and directs the work. In graded city schools the teacher may exchange work with one who can teach singing.

The teacher who has what is called a correct ear can always teach singing, whether she sings or not. She can utilize those pupils who have good voices, or she may use a musical instrument, such as the flute or the violin. As good results as I ever heard in the teaching of music were in Truro by a teacher why could not sing a note, but who was assisted by a little girl.

It will be found, then, that in ninety-six cases out of a hundred there will be no difficulty. But even in the few remaining cases much can be and should be done, for music is the most hygienic of all æsthetic recreations.

As for drawing and temperance, there can be no valid reason for neglecting them, and the law should be enforced. BEOBACKTER.

For the REVIEW.]

A Naturalist's Views on the Latin Question.

To the Editor of the Educational Review:

DEAR SIR,—Will you allow me the privilege of explaining in the REVIEW the attitude of a naturalist towards the teaching of Latin in the public schools.

I have read Professor Bridges' paper in the July REVIEW with appreciation, as well as with some regret—regret that the study of Latin should in these days need defense. During the past few years I have been led to think much on the value of the classics by my association with young men who come to study the sciences in the universities, and whose previous training has been most diverse. I have become able to tell after short acquaintance with them what the nature of the education of each has been, whether it was of the all-round old-fashioned sort which includes large quantities of the classics, or of that modern scientific kind without them, which prevails in some parts of the west. I have always found the former in comparison to the latter to be not inferior in the attainment of scientific excellence, while very superior in scholarly habit, in self confidence and ease of manner, in breadth of sympathy, in understanding of the relations of their studies to human interests. With knowledge, these things make culture, and culture makes men vastly superior to those who lack it. The classics seem to me the best medium yet introduced into education for developing culture: Latin is, for several reasons, the most utilizable of the classical languages; therefore I believe in the study of Latin as a part of the education of all men.

Lest it may be said that this culture is very ornamental but little useful, I hasten to add the fact, that other things being equal, it is the cultured men whom we choose by preference for our assistants, aid to promotion and recommend to position, and I have observed that the same principle holds good in many other departments of affairs.

But I do not mean to argue for the practical value of Latin, but for its moral value. The only fault that I can find with Professor Bridges' admirable defense of it, is, that he did not take his ground squarely for this latter phase, treating its practical use as secondary and incidental. Educators should not allow themselves to be stampeded by the clamor for the practical in education, but present a solid phalanx against it. Education in its ideals is not, and never can be primarily practical, except in the sense in which religion or philanthropy or virtue are practical. The cause of the pressure for it in these provinces, lies in this, that we confuse education in the true sense with training for a trade or profession. The aims, methods, and tools of the two are different. The ideal of the age is to make a man know himself and his environment, and how to adapt himself thereto; of the other, it is to have him to know and to use the tools of a trade. Blind as we are to this difference, and feeling the need for both, it is little wonder that there comes the cry for the practical in our schools and colleges. When we come to recognize that the college and the institute of technology are equally necessary, but cannot be combined, that the high or grammar, and the manual training schools, must be two different institutions, and that the grafting of one upon the other spoils both; when these facts are recognized, then on the other hand, we shall hear no more questioning the value of Latin;' and on the other, the provinces will begin to derive truly practical benefits from their educational system. I am, Mr. Editor,

Sincerely yours,

W. F. GANONG.

Smith College, Northampton, Mass., Dec. 4, 1894.

For the REVIEW.]

Make the School-room a Happy Place.

It is the permanence of early impressions that makes the work of the primary teacher especially responsible. The perception of this fact has so filled the minds of educators that improvement in this work has been very marked. Yet the enthusiastic teacher will strive to make further attempts at improvement, will go on

> "Without halting, without rest,
> Lifting better up to best."

A great writer on ethics tells us that ethics distinctly elevates the mental and physical tone; that pain of any sort has a depressing effect and lowers the vitality. It means that no word or smile of yours that carries to one little heart the kindly message of your sympathy; no brightness that you can show from pictured walls or blossoming windows is lost. There never yet was good, enthusiastic work in a school-room without brightness. Neat desks and floors are surely necessary to a bright and neat school-room.

Both for beauty's sake and for honesty's sake, the children must learn to respect public property, to keep knives and pencils from desks and doors, and not to mark books. Many a school-room might be made a more attractive place with a slight effort. But why should not some of our favorite pictures hang where so many of our working hours are spent? Perhaps if we succeeded in bringing refining influences to bear more directly upon our work it would seem less like drudgery.

These adornments, and many more, are good; but better a hundred times is the loving beauty that

reigns in some happy school-room, the fadeless beauty of a loving heart.

Happy is the child who need dread no rude repulse, whose delicate instincts of affection are withered by no harsh sternness, no cruel sarcasm; who can feel even in the hour of punishment it is right; who sees in the teacher no enemy, but a faithful friend, and who carries through the long years loving memories and undiminished loyalty.

Let us often remind ourselves what a blessed privilege is that of giving happiness. Let us take home to ourselves these beautiful words of Ruskin,—"Be sure that the room is a pleasanter place for your living in it." M. L. D.

Albert County, N. B.

For the REVIEW.]

Natural History Questions.

It is winter. But where are the birds that made the summer so pleasant? Are they all gone south? Not they, for we see some in the woods, and some in the neighborhood of our houses in search of food. Can we not get at least a postal card from each school to which the REVIEW comes through the teacher, telling us what birds are to be seen in the month of December in each section. If the teacher does not know, let her ask her pupils to find out. It will be fun for them, and very much more—it will be original work in science too. It will be research—of the very same nature as the work done by the greatest scientists, and it will be that kind of scientific teaching which the educational authorities say is of value in developing the observing powers of the young. A teacher can teach science very well in many cases if she knows no scientific facts by simply getting her pupils to observe. That is useful, and is amusing at the same time to the young children. But if a teacher who knows *many* scientific facts tells these facts to the children, it is not science teaching at all.

Those who know the natural history of the school section as well as those who do not know it, can both equally well try this lesson with their schools, and with especial advantages in the country where pupils have sometimes a long way to travel before reaching home; and to whom some such object of observation in the course of their monotonous tramps would be a revelation and a delight. Instruct them to bring in answers to the following questions, the answers to which the teacher will promise to put into neat, short form, perhaps on a post card, and send them to the REVIEW. If there are mistakes the REVIEW may be able to correct them. Some of this information may be very useful so that the REVIEW may be very thankful to some of the young observers for their local observations.

Now the REVIEW would like to know what answers the observers can give to the following questions, say, by the first of January.

What birds are to be found within the school section during the month of December? If you find more than one kind, arrange the most abundant first in your list and the rarest last?

For the REVIEW.]

City Training Class.

A large meeting of the teachers of Halifax was held on the 23rd of November, to arrange for a City Teachers' Training Class. In Nova Scotia a premium is put on professional training, but it is not made compulsory. Scholarship one grade higher is accepted as a substitute for a normal school training; that is one year at a good academy is considered equal to the theory and small modicum of practice received at a normal school.

At this meeting it was argued that in cities the graduates of the high school—the daughters of the citizens—are sure to be appointed to the city schools; that the training received in an ordinary normal school—much theory and little practice—is of much less value than an apprenticeship under experts in the schools, supplemented by lectures, etc. In Germany, France, and England, the normal schools are small and the teachers' training requires two or three years' practice in normal conditions. In the United States there are two classes of normal schools—state and city.

Dr. Harris, United States commissioner of education, says: "If any schools for the training of teachers in this country ought to deserve the name of professional, it is the class known as city normal schools.

Dr. Larkin Dunton says that only one normal student should be in a practice school at a time, and she should remain for several successive weeks—that the practice school should be supplemented by teachers in various parts of the city, their classes being used for the same purpose as the those in the practice school. These conditions are possible to a moderate degree in cities like Halifax or St. John, but only in a small way in provincial towns.

In Ontario there are fifty training schools, with an average of twenty-five students each. In Hamilton, the pupil-teachers are required to spend one-half of each day in actual practice in normal conditions. The inspector, Mr. Ballard, says "that the power to handle a class cannot be learned theoretically; that a city system of education may very properly embrace within its autonomy all the machinery necessary for

the adequate training of its own teachers." It was strongly urged that the most of the so-called practice obtained in a small model school was almost useless to the teachers, sometimes injurious, and absolutely ruinous to the unfortunate pupils, upon whom the practice is conducted.

The normal committee of the National Educational Association reported: The practice in teaching should be in the schools themselves, under circumstances like those which will attend the future work of the pupil-teachers. Prof. Payne, probably the ablest educationist in America, said: "The conditions under which this alleged training takes place, are so peculiar and unlike those under which real school work will be done, that harm is quite as likely to arise from it as good. The criticism which follows this practise teaching, is quite likely to be either empirical and worthless or hypocritical and pernicious."

It was shown that the teachers of Halifax who had no theoretical training at Truro stood higher than those who were trained there; but that as a class, those who had been carefully selected and practically trained at Mount St. Vincent stood higher than either—showing the advantage of practice under skilled supervision over theory without adequate practice.

Under these circumstances, it was considered wrong that the graduates of the academy should be compelled to incur the expense of leaving their homes when a much more practical training might be obtained in the city, including besides the apprenticeship over an extended period, psychology, the theory and history of education, method, and scientific laboratory practice, all in the Dalhousie College—drawing in the art school, Tonic Sol-fa, Sloyd and the Ling gymnastics from specialists.

A unanimous resolution was passed, endorsing this view, and expressing the opinion that the recognition by the Council of Public Instruction of such training wherever given, properly tested and found efficient, would be right and a benefit to education.

A class of twelve has been formed and is now in working operation.

The Importance of Civics in the Public Schools.

Extracts from a paper by Miss Graham of Collingwood. Read before the Teachers' Convention at Amherst, November 15, 1894.

The subject of this paper being simply to call the attention of teachers to the necessity of giving our pupils such knowledge of their country as will make them better citizens of the twentieth century than their parents were in the nineteenth, the what to teach and how to teach it of civics can only be briefly referred to. The tracing of the word civic back to family gives, it seems to me, a hint as to where to begin. The children can be led to see what government in a family means; the necessity for government.

We should not, however, attempt to teach the science of civil government while our schools are absolute monarchies. The teacher is but the head of a society called school, where each one is responsible for his or her share in making the whole an ideal body. When the children think of the school as ours, not exclusively the teacher's, they will the more readily think of the district, province and Dominion, as ours, not as the property of the few. It may be well to tell our pupils stories of the Iron Duke, of Nelson and of General Wolfe, but let us not neglect to hold in highest esteem, the men who in England and Canada have devoted and are to-day devoting their talents to the cause of good government, men who truly believe with Locke, that "the end of government is the good of mankind."

The school house, public roads, post-office, railways, public institutions, etc., afford subjects for many lessons. In this county there is now being built a hospital for harmless insane. Where is it? Why is it necessary? Who is building it? Who gave them authority? Where did the money come from? How much money did the the county last year pay to the asylum of Halifax? Those are but a few of the questions that suggest themselves.

Teach the older pupils that in a few years they must share in the responsibilities of citizenship and while they may never be called upon to defend their country with the sword, their duty as citizens is imperative.

Let us not dismiss the question of teaching civics in our public schools with "Oh well, its all right for those who are interested in this particular subject to teach it, but I prefer botany or chemistry;" tastes differ, you know, for the duty of a public spirit is binding on all.

In a few weeks we shall listen to the bells ring out the present year, and as they "ring in the new," may they speak to us of progress both in our school subjects and methods. Let us resolve that during 1895, some progress will be made towards helping our pupils to become good, true citizens of "this Canada of ours!" Public spirit is not party spirit and we can teach civics; we can teach patriotism without teaching partyism just as truly as we can and do teach morality—without respect to creeds.

"Ring out the coldness of the times,
The civic slander and the spite;
Ring in the love of truth and right,
Ring in the common love of good.

Ring out the darkness of the land,
And ancient forms of party strife;
Ring in the nobler forms of life
With sweeter manners, purer laws."

Harkins Academy, Newcastle, N. B.

The following cut will give a good idea of the new academy which was formally opened in Newcastle, Tuesday, October 23rd. The building is constructed of the beautiful olive free stone from the quarry at French Fort Cove, two miles below Newcastle.

The walls are laid in broken courses of quarry-faced stone, with sills, lintels and belt courses of dressed stone. On the lower portion of the tower appear the words: 1864—HARKINS ACADEMY—1893, cut into the stone. The building is ninety-six feet two inches long, and fifty-eight feet ten inches wide. The walls are thirty-eight feet from the ground, and the roof is covered with heavy Canadian slate.

There are two main entrances in front, recessed from the front of the tower and projecting from the main wall of the building. The two back entrances open respectively to the boys' and girls' play-grounds. The tower rises thirty feet above the walls of the building, and its upper windows give a magnificent view of the town and also of a long stretch of the river, both up and down.

The foundation walls of the building enclose the basement, which has been excavated in full, and gives ample room for the heating and ventilating systems, dry closets, cold air chambers, fuel bins, etc.

The heating and ventilating system is that known as the Smead-Dowd, which has been placed in so many school buildings, and so far has given good satisfaction. There are three school-rooms on each flat, with ample halls and cloak rooms. There are also two comfortable teachers' rooms. The one on the first floor, intended for the use of the principal, is also used as a library. There is also quite a large room in the tower, which would be very suitable for a small museum. The rooms are all neatly finished, the floors and window frames of hard pine and the

HARKINS ACADEMY, NEWCASTLE, N. B.

wainscotting of oiled hemlock. The black-board surface extends all around the walls in each room.

On the second floor two of the rooms are connected by large folding doors, so that the rooms can be thrown together as an assembly hall for opening exercises and upon public occasions.

The building makes a fine appearance, and is very creditable to the architects, Messrs. Dumaresq & Mott, and the contractors, Messrs. J. K. McDonald & Co., of New Glasgow.

The cost, which was in the vicinity of $20,000, is the bequest of Mr. John Harkins, who died July 7th, 1837. He bequeathed the bulk of his property in trust to the trustees of St. James' Presbyterian church, Newcastle, to be expended for educational purposes. In 1863 a comfortable wooden school-house was built and the remainder of the fund was allowed to accumulate in the hands of the trustees. This building was burned early in 1893, and the trustees came forward and presented to the town the new "Harkins Academy," as it now stands.

The academy staff at present are Mr. F. P. Yorston, Principal; Miss E. McLachlan, Advanced Department; Miss M. Dunnett, Intermediate; Miss S. Harrison, Secondary, and Miss M. Gjertz, Primary.

Few towns, with the population of Newcastle, can boast of as good a building for educational purposes, and this one, occupying, as it does, the advantageous position of overlooking the town, will stand as a monument to the donor of so large a bequest and is fitly named HARKINS ACADEMY.

Teachers' Conventions.

CUMBERLAND CO., NORTH AND WEST COLCHESTER, N. S.

This meeting, held November 7th-9th, was decidedly successful. The enrolment reached about 140 before the close. The Amherst academy building, in which the meetings were held, has fourteen class-rooms, and an assembly hall. On the afternoon of Wednesday the 7th, the visiting teachers heard lessons given by the Amherst teachers on such subjects as—paper-folding, the Canadian flag, digestion, etc. In the evening, a reception and welcome were tendered the visitors.

On Thursday morning, Inspector Craig delivered an address. He believed Association meetings gave teachers clearer ideas of their duties. He stated that our pupils show serious defects when brought face to face with practical work. He urged that teachers should endeavor to teach lessons on the occasion of the inspector's visit, and not merely do a bit of catechising.

Miss Pipes, in her paper on Patriotism, showed that the feeling of love for country is one of the strongest in the human heart. Our mountains, forests, rivers, and seas, can be made the subject of object lessons on Canada's greatness. It is very important that teachers and pupils understand the nature of our government. Col. Blair gave a fine address, the burden of which was the need of technical schools in agriculture and other arts in this country. Other countries, such as the United States, England, France, Germany, and Sweden, had found it necessary to establish such schools. The teacher could do much by showing the pupils how the plant took in nourishment, how the soil should be broken up in order that the food locked up in it may be of service to the plant, the importance of drainage, etc. Boys and girls must be taught how to do things. They could commence with their school grounds.

A discussion followed. The following were some of the ideas advanced: Pupils should get their education that they may work better; digging a ditch and digging it well, is just as honorable as professional work; we fail in interesting boys often because we teach them against the grain, against their taste for practical work; the farmer's opportunity for self-education in after life being poor, he should have special attention in school.

Miss Kirkpatrick read a quotation from T. H. Rand: "Our school system is worth what the men and women who officer it are worth, not a penny more. Let us lift ourselves up to be noble men and women, that we may lift up our school system." She said the teacher must be steeped in the subject taught—must ever be cheerful and show the example of a noble life.

Miss Davison read a paper on the best way to maintain discipline. The following are some of the principles dealt with in the paper and the discussion:—Even the chance words of a teacher may have great influence. The teacher should sometimes speak to the scholars of his or her responsibility, thus enlisting the sympathy of the pupils, and creating a feeling in the school in favor of good order. Scholars are quick to notice partiality, and to annoy a teacher who does not keep her temper. Prizes are of little value, often doing a great deal of harm by discouraging dull pupils. The markings on the buildings outside are a good criterion of the discipline inside. Plan the year's work. Prepare the day's work. Grant a recess to scholars who have to stay after school, before they resume their work. Talks with parents prevent misunderstandings.

In the afternoon, Miss Graham read a paper on the importance of civics in common schools. [Extracts from the paper will be found on another page.]

Dr. McKay thought the histories should be re-written, giving a history of governments.

Miss Johnson read a paper entiled "Vertical Writing *vs.* Slanting." She held that the schools had failed to produce good writers by the use of the slanting style. Their graduates failed in both legibility and rapidity. Office assistants and others developed a style of their own similar to the vertical. In writing according to slanting style the pupils let the left shoulder fall lower than the right and curve the spine in the middle. This is very slightly the case with writers in the other style. Vertical writing is superior in legibility and rapidity, and is in accord with hygienic principles. The discussion seemed to show that the primary teachers were unanimously in favor of the vertical system.

In a discussion on the possibility of an unmusical teacher giving instruction in singing, Miss Dickson suggested the use of a pneumatic pitch-pipe. She had two unmusical teachers who had been able to teach music in this way. The superintendent thought that all but three or four per cent of the children could be taught to sing with regular practices. It was useful as a hygienic exercise. Principal Slade said that children's voices were often ruined by asking them to sing too high notes.

A paper on "The Advantages of Written Spelling," by Miss Cassie McKenzie, was read by the Inspector. The power to write words was the true test of the ability to spell them. Writing trained the eye. The mind was not overtasked. Each misspelled word should be written over a number of times. The majority of those who spoke on the paper thought that a combination of oral and written spelling was necessary.

Professor Andrews spoke on "Research Work." He compared at length two methods of studying science. In one the student read books, and took notes on lectures, watching an experiment at times. The result was that he acquired a general scientific knowledge, and some facility in note-taking. The student proceeding by the second method engaged in practical scientific work. They became truth seekers and truth-finders. Science was common sense made exact. Practical work increased the power of attention. The greatest men were distinguished by their exceptional ability to attend to one thing at a time. The pupil also learned by the latter method not to place dependence on the book alone. He might even down the book if necessary. Little flowers and crystals became his teachers however. This begets a humble spirit. The professor went on to show that the principles of electrical science could be illustrated at a trifling cost. He showed a gold-leaved electroscope, a leyden jar, an electrophorus, etc. Dr. McKay also emphasized the need of practical scientific work. All parts of plants should be drawn. Book study only in science is apt to disgust pupils.

On Thursday evening, a public meeting was held. It was addressed by the inspector, superintendent, Professor McDonald and others.

The inspector gave some important statistics regarding the schools of his district. These showed that the great majority of scholars left school before reaching Grade VIII. Great attention should be paid therefore to primary pupils The superintendent showed the importance of instructing teachers in manual training and calisthenics. Teachers must use tact in introducing the latter subject. Let them show scholars the object of the exercises. Military drill had been shown to be very effective in preserving order in the most difficult circumstances. The teachers should set an example to the pupils in the carriage of the body. Teachers who have been instructed in manual training could do a great deal to repair and adorn the school rooms. The scholars could be taught to do a great deal.

The audience was favored with singing by a quartette of girls from Principal Slade's school in Oxford. Their singing produced a deep impression on the audience.

On Friday morning, a business session was held, at which the officers for the ensuing year were elected. It was decided to hold the next meeting at Parrsboro.

Principal McKay read a paper on "Simple Experimental Methods of explaining Weather Phenomena." The barometer was illustrated by filling two glass tubes, joined with a piece of rubber tubing, with mercury. To show the increase of pressure in water with depth, the mouth of a thistle-tube had been covered with rubber sheeting tied under the run of the tube. A long straight piece of glass tubing containing some mercury, was connected with this by means of rubber tubing. A rough air pump and air compressor had been constructed from circular pieces of wood connected by means of cylindrical pieces of sheepskin. The valves were made of oiled silk. A simple still constructed from a worm of glass tubing, was shown to explain the causes of rain. The speaker endeavored to illustrate the way in which the causes of trade winds and cyclones could be explained. Dr. McKay said that all the fundamental apparatus for science lessons could be made with a little work.

Miss Dickson of Oxford gave an interesting language lesson. She had drawn pictures of animals on the board. The pupils were asked questions as to what the different animals could do. Hence sentences were formed by the pupils. Miss Dickson performed several actions all of which she got the pupils to describe in one word. She asked them also to name the animals represented by the pictures, giving reasons for their decision. The pupils were also induced to combine simple sentences into compound. The speaker highly recommended the National Language Tablets in fifteen series, published by the American Book Co., New York. Professor McDonald gave an address on Primary Arithmetic. The difficulty in teaching arithmetic is not to teach the processes, but to get the pupils to understand when the processes should be used. All arithmetical processes could be reduced to the fundamental ones of addition and subtraction. These should not be separated. When we get the scholar to see that six and two are eight, we should also get them to note that two from eight leaves six. The teacher must be careful to see that the child does not rattle off the multiplication table in an unmeaning way. Let the pupils verify the results. Let the mode of expression be varied. Say five things taken four times are twenty things or four fives are twenty. At the same time let the converse truth that five fours are twenty be dwelt on. Then the pupil will understand that it can find the cost of one hundred and twenty-five things at two cents each, by finding what twice one hundred and twenty-five is. The pupil should always understand that the multiplier simply

shows how many times the multiplicand is to be taken. Hence we should never write "cents," for example, after the multiplier. In finding the area of the floor of a room give the pupil a square foot or some other square unit.

Votes of thanks were tendered Dr. MacKay, Prof. Andrews, Prof. McDonald, Secretary Ross, the Amherst teachers, the citizens of Amherst, the press and the Railway Companies. The convention then adjourned.

GLOUCESTER COUNTY, N. B.

The Gloucester County Teachers' Institute met in the grammar school building, Bathurst, on November 29th. There were forty-one teachers present. The first session opened with Inspector Mersereau in the chair. The following officers were elected: President, B. D. Branscomb; Vice-President, Aimé A. Gionet; Secretary-Treasurer, L. R. Hetherington; additional members of the executive committee, Miss Emma Stout, Miss Marie E. Dumas.

Inspector Mersereau addressed the institute. He stated that the teachers' work did not end with the class, the day or the term, but was a continuous work with its results reaching far into the future. He regretted that the teachers of the county had not taken a more active interest in procuring school libraries and flags. The first was a great means of developing a wholesome taste for good reading, the second went far in inspiring a feeling of loyalty in the pupils. He gave some valuable hints as to the "ways and means" by which a teacher may procure these and gave practical advice in regard to the observation of "Arbor Day."

Miss Katie R. Hall, B. A., of Bathurst Village Superior school, read an original and very carefully prepared paper on "The Duties of Parents." This paper was discussed by Messrs. Mersereau, Branscomb, Hetherington, Gesnit, Legere, Lanteigne, and Misses Wheeler, Stout and Alexander. It was thought by the members of the institute, that if Miss Hall's paper was read by the people of the county it could not fail to have a beneficial influence. It was accordingly arranged that the paper should be printed in the *Courier* and some English paper, and circulate it as widely as possible throughout the county.

There were three papers read at the afternoon session. "Plant Life," by Miss Mary Alexander; "Oral Grammar," by Miss S. F. Foley; and "Busy Work," by B. D. Branscomb. These papers were discussed by Messrs. Mersereau, Branscomb, Legere, Savoie, Lanteigne, Ginoet, Morrisey and Misses Hall, Wheeler, Alexander and Dumas. The papers were all of very high merit especially the one on "Busy Work." Mr. Branscomb explained that there were two essential properties that "Busy Work" should possess: It should keep the pupils busy and at the same furnish mental exercise. He gave a list of exercises, with explanations and blackboard illustrations, which he had found successful.

The fourth session was taken up in a discussion of "Discipline" and "Canadian History." There were two papers read in English by Miss Mary Alexander and L. R. Hetherington and one in French by J. E. Lanteigne on "Discipline." Canadian History was discussed in two papers by Miss E B. Wheeler and Jean F. Doucet.

In the afternoon session the Institute met at the Ferry School building. Here there is an ungraded school of eighty pupils. The scholars were present and model lessons were taught by members of the Institute. Mr. Mersereau and Mr. Branscombe each giving a lesson in geography, J. E. Lanteigne a lesson in the "First Steps in Reading" (French). Miss Laura Eddy a lesson on the silk worm to grade III. Number by Mr. Gionet and a most excellent lesson in composition by the president. After each lesson the teaching was criticised by members of the institute. This was perhaps the most profitable session of the institute. It meets next year at Caraquet.

Nova Scotia at the World's Fair, Chicago.

Diplomas of honorable mention, we understand, have been awarded by the board of lady managers of the Chicago exhibition, as provided by Congress, to the following educational institutions as represented by the individuals named:

The Provincial Normal School of Nova Scotia, Professor Ottie Smith; the Public Schools of Kings and Hants, Inspector Roscoe; the Public Schools of Annapolis and Digby, Inspector Morse; the Public Schools of Halifax City, Principal Murray; the Public Schools of Yarmouth Town, Principal Cameron; the County Academy of Pictou, Principal McLellan; the County Academy of Antigonish, Principal Chisholm; the County Academy of Colchester, Principal Campbell; the Truro Public Kindergarten, Mrs. Patterson; the Halifax Public Kindergarten, Mrs. Harriman; the Dartmouth Public Kindergarten, Miss Hamilton; the Victoria School of Art and Design, Halifax, The Secretary; the Provincial School for the Blind, Halifax, Supt. Fraser; the Provincial Deaf and Dumb Institute, Principal Fearon; the Church School for Girls, Windsor, Principal Machin; the Acadia Seminary, Wolfville, Principal Graves; the Ladies' College, Halifax, Principal Kerr.

The awards were given only to the institutions or groups of schools which really excelled in at least some departments. Where awards are made to more than one institution, it is understood that both excelled, but chiefly in different departments. No colleges are on the list.

Clubbing Rates.

The EDUCATIONAL REVIEW, subscription price One Dollar, will be sent one year, payment in advance, with the following standard periodicals:

Littell's Living Age (weekly),	subscription price	$8.00,	both for	$8.00	a yr.
Atlantic Monthly,	" "	4.00	"	4.20	"
The Century,	" "	4.00	"	4.20	"
Garden and Forest (weekly)	" "	4.00	"	4.00	"
Scientific American (weekly)	" "	3.00	"	3.50	"
Popular Science Monthly (monthly),	" "	5.00	"	5.00	"

Our readers will see how advantageous it will be to club the REVIEW with these periodicals and save money.

QUESTION DEPARTMENT.

F. L. D.—1. In any circle let AB and CD be any two arcs of given magnitude. Join AC and BD by lines which meet in E. If the arc AB does not vary in size, then the angle BDA will not vary, no difference where it is placed on the circumference. Also since the arc CD is of given length, therefore the angle CAD is of constant magnitude. But the angle AEB is equal to the sum of these when E is within the circle, or equal to the difference between them and two right angles when E is without the circle, as they never vary, neither does the angle at E vary.

2. There are various kinds of instruments used to measure the amount of rainfall. The simplest is a cylindrical copper vessel, eight inches in diameter and eighteen inches in height, inside of which is placed a funnel, which serves the purpose of preventing loss by evaporation and renders measurement easier. There are also complicated instruments that *record* the quantity of rain that falls. The simplest form is the best. It would be well to encourage some of your school boys to make such observations. They would be near enough the truth to be of some interest. At all events it would be good practice for the boys.

3. North of Coquimbo the prevailing winds are from the east and bring moisture from the Atlantic, which is all precipitated before the mountains are crossed. The coast winds of the Pacific supply moisture for only a few miles inland. South of Coquimbo the conditions are all reversed, and the deserts occur on the east of the Andes.

E. G. P.—Hamblin Smith's Arithmetic, Ex. CXI, page 271. Find the smallest number of seconds that will be divisible by the seconds between the strokes of each bell. That will be 840 seconds or 14 minutes.

This is a simple exercise in L. C. M.

F. E. S.—How many square rods are there in a trapezium whose sides are respectively 10, 12, 6, and 8 rods, the sides whose measures are 10 and 12 rods, being at right angles?

This is an impossible problem. For let ABCD be the trapezium whose diagonal is BD, with A a right angle, and AB=12 rods and AD=10 rods. Then since ABD is a right-angled triangle,

$$BD=\sqrt{10^2+12^2}=\sqrt{244}$$

$$\therefore \quad BD=15.62 \text{ rods.}$$

Then in trapezium BCD, sides BC and CD=6+8 =14 rods.

That is sides CB and CD are less than BD, which is impossible, since any two sides of a triangle must be greater than the third.

SCHOOL AND COLLEGE.

A fine portrait of the late Wm. Eaton of Kentville, and father of Professor Eaton, has been placed in the Kentville academy. Mr. Eaton was for many years inspector of schools for the County of Kings, and subsequentiy clerk of the Kentville School Board. In both positions he did excellent work, and won the esteem and confidence of all parties. He deserves to be long remembered for his services to that community, especially in educational matters.

The progress that characterizes this country in the externals of education, is very remarkable. A fine new schoolhouse has been erected in Bear River, Digby, N. S. It has a large assembly Hall, lighted by electricity—a Blymer bell and a Dominion flag—the gift of John Troop, collector of customs. The pupils are preparing to buy an organ for the high school department.

The prosperity of Lunenburg for the last few years is finding expression in one of the finest school buildings of the province. This town is to be congratulated upon the excellence of its school system which has been developed under its scholarly and able principal.

Campbellton, N. B , high school (grammar school after January 1st, 1895) has a school flag, and now the pupils are making a canvass of the town for funds to add to their library. They are meeting with gratifying success and hope to be able to purchase two hundred volumes.

Three years ago the Restigouche, N.B , County Teachers' Institute, offered a school flag as a prize to the school making the best display of manual work at the annual meetings of the institute, to become the property of the school that would win it three times in succession. This year it became the property of the Tide Head school. Credit is due to Miss Effie McKinnon, the former teacher and Miss Mary A. McPherson the present teacher.

Miss Susie B. McPherson is the most popular teacher that has ever been in Shannon Vale, Restigouche County. She ascribes her success to an intelligent board of trustees, the most painstaking and efficient secretary in the province, and to an obedient, studious and lovable set of pupils.

Miss Katie R. Hall, B. A , after two years of successful service, has resigned her position as Principal of Bathurst Village superior school. She has made many friends in town and village, and her resignation is universally regretted. It is rumored that B. D. Branscombe, of Tracadie, is to be her successor. If so, the trustees are to be congratulated on their choice of a principal.

Mr. L. R. Hetherington, B. A., formerly of St. Mary's school, York County, has been appointed to succeed Mr. Johnson in the Bathurst grammar school.

Doaktown is to have a superior school next term. Some of the pupils wish to prepare for the university, so the trustees are trying to find a principal qualified to undertake such work.

There are 84 pupils enrolled in the school at Nepisiquit Bridge, Gloucester County. There is too much work for the teacher, Miss Lizzie H Garrett and her assistant, Miss Edith Eddy. It should be made a graded school. Miss Emma C Stout found the work of this school too arduous, and so resigned it at the close of last term to the regret of many of the parents, and is now teaching at Dumfries, Northumberland County.

BOOK REVIEWS.

MUST GREEK GO? by John Kennedy, Superintendent of Schools, Batavia, New York, Boards; pp 66; price 50 cents. Publisher, C W. Bardeen, Syracuse, N. Y. This is one of the latest contributions to this vexed question. The author takes the broad view that the proper study of Greek is an inspiration, and quotes many examples from English classic poets to show their debt to the Greek language and literature.

DOKTOR LUTHER, by Gustave Freytag, edited by Frank P. Goodrich, Ph. D., Professor of German in Williams College. Boston, Ginn & Co. Pp. 178. Price 90 cents. This sketch of Luther's life and work first appeared in Freytag's *Bilder aus der deutschen Vergangenheit.* It was revised and published separately in 1883 on the four hundredth anniversary of Luther's birth. The present edition contains a short account of the life of Gustave Freytag. A table of the principal events from 1483 to 1555 precedes the text. The notes contain much historical matter in small compass.

GESCHICHTEN ANS DER TONNE, by Theodor Storm. Edited by C. F. Brusie, Professor in Kenyon College. Boston, Ginn & Co. Pp. 126. Price 65 cents. The author tells us how he came to name these stories. He and his playmate, Hans, in the long autumn evenings were accustomed to gather on the stairs somewhere and tell stories. "The more secretly we had pitched our 'story-tent' the more beautiful the stories seemed. This preference for concealed nooks drove me continually to the discovery of new hiding places; but the best discovery of this sort that I made was a great empty cask which stood in our so-called warehouse. Here in the evening after lessons we would crouch together, with my little hand lantern between us, and having shoved over the entrance some boards that lay in the cask we sat opposite other as in the most secret chamber." Three delightful stories are given us in the present edition. They are written in simple conversational German. This should prove a most interesting reading book for those who are beginning to read German.

THE TEACHER'S MENTOR. Standard Teachers' Library. This is No. 9. Published by C. W. Bardeen, Syracuse, N. Y. 121 pages, 50 cents. In this volume are included Buckham's First Steps in Teaching, Huntingdon's Unconscious Tuition, Fitch's Art of Questioning, and Fitch's Art of Securing Attention. It is a great boon to teachers who are just beginning or whose means are limited, to be able to purchase just the books they most need at such reasonable prices.

THE QUESTIONS AND ANSWERS OF AMERICAN HISTORY, CIVIL GOVERNMENT AND SCHOOL LAW, given at the uniform examinations of the state of New York. 100 pages, 25 cts. C. W. Bardeen, Syracuse, New York. A book of this kind referring to Canada would be of great value to our teachers and is much needed by them.

HAND BOOK FOR SCHOOL TRUSTEES, by C W. Bardeen, editor of the *School Bulletin*, applies particulary to the state of New York, but generally many useful hints may be derived from it both by teachers and trustees There are some amusing regulations in New York state, *e. g.* : "A contract compelling the teacher to board with the trustee is null and void." "A pupil may not be expelled for wearing her hair in a way disapproved of by the trustees." Separate schools may be established for colored children. The handbook is published by C. W. Bardeen, Syracuse, N. Y. Price 50 cents.

ARITHMETIC BY GRADES, by John T. Prince, Ph. D., consists of eight books corresponding to so many grades for pupils' use and a manual for teachers' use. Those for pupils' use correspond very closely to the classification in city graded schools. The author has followed the inductive method, and the books are devoid of the useless verbiage contained in rules and definitions. The examples are numerous and very practical, and must prove of great assistance to the teacher not only in suggestion and variety, but in blackboard work as well. Another advantage in the number of books is the saving of wear and tear—only one is being worn out at a time. The manual for teachers' use covers the work embraced in the whole series for pupils' use, containing answers and numerous suggestions and explanations. The books are published by Ginn & Co., Boston, and will be mailed at twenty-five cents each for pupils' series, and ninety cents for manual.

EKKEHARD, by Joseph Victor von Scheffel, edited by Carla Wenckebach, Professor of German in Wellesley College. Boston, D. C. Heath & Co. Pp 235. Price 75 cents. In 1885 *Ekkehard* appeared. It is a historical novel of the tenth century and was suggested by a study of the Chronicles of the Monastery of St. Gall and the incidents of a trip through the country around Lake Constance, the scene of the novel. The editor has considerably abridged the original. Brief notes translate the more difficult phrases. The text is that of the 110th German edition.

A HISTORY OF ENGLISH LITERATURE for Secondary schools, by J. Logie Robertson, M. A., First English Master, Edinburg Ladies' College; cloth; pp. 394. Publishers, Harper & Brothers, New York. This book is a brief review of English literature from 449 to 1894—its entire extent. This is divided into six periods, and a survey of each period is made, first in its political, and secondly in its literary aspect. The authors are classified, biographical and critical sketches given, followed by specimens from the works of each, showing their style. It is noteworthy that there are short sketches of American men of letters. The work is an admirable compedium of the history of English literature, and its consciseness and excellent plan, outlined above, make it a valuable addition to the student's library.

First Latin Book, by Collar & Daniell; cloth; pp. 284. Price, $1 00. Publishers, Ginn & Co., Boston. This is an admirable book to introduce the student to Latin. It is a model of simplicity and clearness, and is specially attractive in its consciseness, its illustrations and clearly printed pages.

Latin at Sight, by Edwin Post; cloth; pp. 210; price, $1.00. Ginn & Co., publishers, Boston, Mass. This consists of an introduction, which contains matter valuable to the teacher of Latin, suggestions for sight-reading, and selections for practice.

A Scientific French Reader, by Alex. W. Herdler, Princeton University; cloth; pp. 186; price, 85 cents. Publishers, Ginn & Co., Boston, Mass. A good book for students who wish to increase their knowledge of French and to make themselves familiar with recent scientific discoveries and inventions.

Macmillan's Shorter Latin Course, second part, by A. M. Cook and W. E. P. Pantin, Assistant Masters in St. Paul's School; cloth, pp. 193; price 2s. London, McMillan & Co., and New York. The plan of the authors is to make the student familiar with Latin constructions by numberless examples, and the constant iteration of familiar words.

Primer of Hygiene, by Ernest S. Reynolds, M. D. (Lond.); cloth; pp. 154; price, 1s. Publishers, Macmillan & Co. London and New York. This is a useful little work, dealing with matters that concern the health of the household, on which it gives much information in a concise and interesting form.

Commercial Geography, by E. C. K. Gonner, M. A., Professor of Economic Science at University College, Liverpool; cloth; pp. 205; price 3s. Publishers, McMillan & Co., London and New York. This is a book that should be in the hands of all teachers of commercial geography, to supplement the somewhat meagre information found in the text-books on the productions and other statistics of the countries of the world.

Physiology for Beginners, by M. Foster and Lewis E. Shore, Cambridge University, England; cloth; pp. 241; price, 2s. 6d. Publishers, MacMillan & Co., London and New York. The chief merit of this book is the simple and elementary character of the instruction given in it. The illustrations are almost as numerous as the pages, and their clearness, and the simple and didactic methods of the text, make it an excellent book for the beginner or for the general reader. The authors wisely insist on those who use the book, carrying out the directions for actual observation and experiment, adding this fact, which all teachers by the experimental method will cordially approve: "Even the things which can be learnt without actual observation, are learnt far more quickly and surely with it. Every teacher who teaches the subject practically, knows how well he is repaid for the trouble which the practical teaching has given him."

Macmillan's Literary Readers: *The Lances of Lynwood*, by Charlotte M. Yong; price, 1s. 6d; *New Literary Reader*, part IV; price, 1s. 3d; *New Literary Reader*, part V; price, 1s. 6d. The above books are attractive in make up, and their contents such as will interest and improve youthful readers. Teachers will find in them excellent material for supplementary reading.

Fables ad Rhymes for Beginners, by John G. and Thos. E. Thompson. Ginn & Co., Boston, publishers. This primer is an attempt to place before children at the very beginning some things worth reading, in a form simple enough for them to read. To read the first fable, the ability to recognize forty words is necessary. Thirteen new words are found in the next fable, and so on, the number lessening so that the ability to read the whole book, made up of interesting stories, consists in being able to recognize 200 words.

An Introduction to the Study of English Fiction, by W. E. Simonds, Ph. D (Strassburg). Cloth; pp 240; price, $1 00. Publishers, D. C. Heath & Co., Boston. To provide a bare introduction to the study of English fiction is the purpose of the book. No attempt at formal biography and criticism is attempted The author has, in addition to his introduction, chosen selections from "Beowulf" down to "Tristram Shandy," suitable to make at least a bowing acquaintance with some of the early masters of English fiction.

Elementary Biology, a Laboratory Manual for Inductive Study in Animal and Plant Morphology, for Preparatory and High Schools, by E R. Boyer, B A. Cloth; pp 235; price, 80 cents. Publishers, D. C. Heath & Co., Boston. This study of animal and plant types is an attempt to lead high school students into habits of systematic observation, and to faithful, accurate description of what they see.

Elementary Chemistry, by Geo R. White, A. M., Instructor in Chemistry at Phillips Exeter Academy. Cloth; pp. 272. Publishers, Ginn & Co., Boston. A book that contains the author's plan of teaching chemistry to his own pupils. If there is a teacher who believes that this subject can be taught without plenty of time for thought and experiment, he ought to get this book, read the introduction and follow out carefully the methods of the author.

The December Magazines.

The *Atlantic Monthly* is at the head of American literary periodicals. Its educational articles are thoughtful and suggestive. The December number contains an article on Architecture of School-houses.

Garden and Forest is the leading journal of its class in America. Its weekly visits to intelligent owners of gardens and woodlands would be that of a wise and entertaining friend.

The *Popular Science Monthly* is a scientific, but not a technical magazine. It deals with practical and educational subjects in a way that interests the people at large.

In every home there is usually one, at least, who is of a practical or inventive turn. To such a one the weekly visits of the *Scientific American* would be an education in itself, stimulating him to habits of intelligent, practical study.

The great feature of the *Century* magazine for the coming year is the Life of Napoleon, begun in the November number. It is of absorbing interest, and successive numbers will be hailed with delight by students.

[For clubbing rates with these periodicals see page 138.]

The *Delineator* for January, which is called The Holiday Number, offers a table of contents which is extremely attractive and promises well for the New Year. In the college series a new departure is made, and the description of life at the Co-Educational Institutions is begun, the first article being on Cornell, from the pen of Florence M. Holder, 1891. The hygiene of the Eyes and Ears is the subject of an able contribution by A. B. Longstreet. There is an exceedingly pretty "Good Night" drill for children. Subscription price of the *Delineator*, $1.00 a year, or 15 cents per single copy. Address orders to The Delineator Publishing Co. of Toronto, Ltd.

York Co. Teachers' Insitute.

The Annual Meeting of the York County Teachers' Institute, will be held in the Normal School, Fredericton, on December 20th, and 21st, 1894.

Programme.

THURSDAY, 10 A. M.—Enrolment, President's Address.

THURSDAY, 2 P. M.—Five minute papers on "Composition, by the following:—Misses E. L. Thorne, I. R. Everett, M. C. Hunter, A. M. Vandine, and Mr. J. F. Rogers. "School Libraries"—Inspector Bridges.

FRIDAY, 9. A. M.—"Nature Lessons of our Course," Mr. John Brittain. "Illustrative Lessons."—Mr. Phillip Cox. "Writing and Drawing"—Mr. H. Hagerman.

FRIDAY, 2 P. M.—"Current Topics."—Mr. A. S. McFarlane. Election of Executive. Unfinished Business, etc

E. L. THORNE, *Sec'y.* B. C. FOSTER, *Pres.*