The Educational Review.

Devoted to Advanced Methods of Education and General Culture.

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[Circular].

INTERPROVINCIAL ASSOCIATION.

The teachers of New Brunswick, Nova Scotia and Prince Edward Island will meet in an Interprovincial Convention in the City of St. John, N. B., during the third week in July next.

The object of the gathering is to bring the educational workers in the three provinces together for mutual helpfulness, for the cultivation of professional spirit and for the stimulation of public interest in educational work generally.

On Tuesday evening, July 17th, the civic authorities of the twin cities of St. John and Portland will extend a public welcome to the visiting teachers in the Mechanics' Institute, where all the meetings, except those of Thursday morning, will be held.

At the close of the meeting the Convention will formally organize by the election of a president and other officers.

On Wednesday morning, at 9.30 a.m., the teachers will assemble for enrolment, and from 10 to 12.30 two or three distinguished educationists will address the Convention on some of the more general aspects of popular education. On Wednesday afternoon the topic for consideration will be "The Relation of the Common School to Social and Industrial Life," and on Wednesday evening "The Influence of the College upon Industrial and Social Progress" will be taken up. The discussion will be conducted by leading representatives of Maritime Province Colleges.

On Thursday forenoon the Convention will divide itself into sections as follows: (*a*) Normal School; (*b*) Inspectoral; (*c*) High School; (*d*) Common School; (*e*) Primary School. The school buildings of the city will be placed at the disposal of the Convention for the sectional meetings. In the sections the discussions will be conducted by those connected with each, and will be specially interesting.

On Thursday afternoon a digest of the proceedings in each section will be presented for discussion in open Convention.

On Thursday evening the Convention will close with a general meeting to be addressed by distinguished public men.

On Friday it is proposed to provide an excursion up the river St. John, then at its best, to Fredericton, and returning the same day to St. John in time to connect with night trains for the east and west. At Fredericton the party will be received in the City Hall by the Mayor and Council, will afterwards visit the Legislative and other public buildings, and, if possible, a side trip to Marysville will be arranged.

It is believed that this gathering will be the most influential as well as the most interesting ever held in the Maritime Provinces, and that its attractions and advantages will be such as to secure a large attendance of the teachers of the Provinces generally.

Special arrangements for the accommodation of visitors will be made, of which information will be given later in the columns of the REVIEW.

The usual reduced rates on all railway and steamer lines will be made for members of the Convention.

A detailed programme of the Conference will be published later.

SUPT. MONTGOMERY,
F. H. EATON,
ELDON MULLIN,
} *Genl. Committee.*

EDITORIAL NOTES.

THE Interprovincial Association of teachers, to be held in St. John in July next, will be the most important educational gathering ever held in these provinces. The provisional programme published on our first page will be read with interest. Eminent Canadian teachers will be present and address the Convention. The people of St. John will extend a cordial welcome to the visitors, and everything points to the success of a meeting which has for its object a closer union among the teachers of the three provinces.

INFORMATION about the Summer School of Science of Nova Scotia, can be obtained from the Secretary, Prof. J. B. Hall, Ph.D., Normal School, Truro, N.S.

J. SCOTT HUTTON, M.A., Principal of the Institution for the Deaf and Dumb, Halifax, N. S., sends a circular to the teachers of Nova Scotia, pointing out that the law of the province provides *free* education and board for the deaf mutes at the institution, and asks them to co-operate with him in bringing this fact to the knowledge of any who may be benefited thereby.

AT a convention of teachers held at Regina, N. W. Territory, recently, the series of copy-books published by J. & A. McMillan, of St. John, received very cordial approval. The series will probably be adopted for use in the schools of that territory.

WE hope that Arbor Day will be even more generally observed this year than last. To make it successful preparations cannot be made too early. A portion of the April and May numbers of the REVIEW will be devoted to plans and suggestions for the successful observance of the day.

REV. D. HONEYMAN, D.C.L., F.R.S.C., F.S.Sc. (Lond.), the well-known Nova Scotian geologist, author of "Giants and Pigmies," has colored a geological map of Nova Scotia, New Brunswick and Prince Edward Island for the Pictou Academy. He is also preparing a similar map for the Halifax Academy, we understand. His latest work, "Giants and Pigmies," which is an outline of the geology of these provinces compared with the geology of the world, is sold at fifty cents. It has received distinguished commendations both at home and from abroad.

WE have to thank D. Wilson, Esq., A. B., Inspector of Schools, New Westminster, for a copy of the Annual Report of Public Schools of British Columbia for 1887. We recognize many familiar names on its pages of teachers from the Atlantic Provinces.

SAID a teacher the other day: "I like the REVIEW well, but could you not bestow more attention on the primary work of schools." We are anxious to do so; and invite teachers to contribute to the pages of the REVIEW, methods and plans which they have found to work satisfactorily in their schools. Successful and experienced teachers can be of great assistance to the more inexperienced in this way. At the same time it may not be amiss to caution young teachers against accepting the methods of others, except as hints from which they may elaborate materials for lessons to suit their particular needs. It is not so much the method that tells as the spirit, intelligence and enthusiasm with which it is carried out; and little or no enthusiasm can be aroused in a class by presenting a "ready-made" lesson, or one which the teacher has not made his own by careful preparation. There is a joy, too, in exercising one's ingenuity in adapting working methods to suit particular needs, and an enthusiasm is aroused and a confidence begotten that no tame acceptance of plans of school work can afford. And then it fosters what we should all strive to cultivate—more individuality in teaching.

IN a paper read before the N. B. Natural History Society recently, Mr. J. Vroom of St. Stephen contributed some interesting statements concerning the amelioration of our climate, gathered from his observations of the flora of the Province. He pointed out that plants of a southern character are gradually working their way northward, while those of a boreal type are gradually retreating. An interesting case of this migration is the *Lobelia cardinalis* which, gradually working its way through Charlotte County from the westward, has reached the valley of the St. John by way of Eel River.

THE Dalhousie College *Gazette* does not look with favor on the contemplated opening of the college early in September. It will not enable the students to attend college during the winter and teach during the summer term. All our colleges in Nova Scotia meet with the same difficulty. An annual shcool term commencing in August or September is apparently the arrangement which commends itself to the views of our collegiate and university educators. A student could then teach a full year, alternating with a year in college, instead of a half year as now, with a total loss of a great portion of the summer term.

AT the next meeting of the Albert County, N. B., Teachers' Institute, to be held in October, prizes will be awarded to pupils of the schools showing best work in the subjects of Standards III.–VII. inclusive.

EDUCATIONAL PROGRESS.

The reports of the Chief Superintendents of Education for Nova Scotia and New Brunswick have come to hand, and we present to the readers of this issue of the REVIEW some particulars of our educational standing and progress. For the sake of comparison there are subjoined some data of education in the Province of Ontario and the State of New York.

While the mere statistical portions of these reports reveal but little of the *inner* work of the schools, and the education—moral, mental and physical—of the thousands of pupils who are here represented by numbers, yet there is sufficient to indicate in the reports of the two provinces a substantial progress. And one has the more confidence in these educational reports if, in addition to "general averages," "percentage of attendance," crowded "courses of instruction," with the number of pupils studying the various "branches," there is presented by school officers a candid statement of barriers to our educational progress; a judicious sifting of progressive work and intelligent methods from figures and averages; if in the careful review of work performed a generous praise of what is good and effective is coupled with a *judicious* finding fault with what is weak and ineffective.

The report of Chief Superintendent Crocket on the schools of New Brunswick is an interesting document covering nearly 250 pages, and has the fullest details of all branches of the service. In its opening pages he alludes to the improvement in methods of instruction, the increase of trained teachers, and the demand for their services in consequence of the satisfactory character of their work, and the encouraging progress in the erection of new and more commodious schoolhouses, with the taste displayed in beautifying and improving the grounds.

The statistics for the year ending June 30th, 1887, show that there were 68,583 pupils enrolled on the school registers. This was a slight increase on the previous year. The proportion of population attending school in the second term of 1886 was 1 in 5.96, and in the first term of 1887, 1 in 5.37. The percentage of enrolled pupils daily in attendance has not materially increased, being for the time the schools were in session 60.68 per cent. for the second term of 1886, and 56.80 per cent. for the first term of 1887. The highest percentage made in any year was in the April term of 1883, when it rose to 62.79, which must be regarded as phenomenal as it fell in the corresponding term of the following year to 59.68. But "even the highest percentage goes to show that there is much irregularity in the attendance, and that it is necessary some effort be put forth by all the school officers, as well as others interested, to bring about a more satisfactory showing in this respect. No attendance less than 75 per cent. should be deemed satisfactory." Among the cities and incorporated towns, Fredericton and St. Stephen (the one with a yearly average of over 78 per cent. and the other over 77) make the best, and Woodstock the poorest showing in the matter of the percentage of enrolled pupils present.

There were 1,568 teachers employed for the second term of 1886, and 1,593 for the first term of 1887.

One gratifying feature of the report is that during the year there was less movement from district to district on the part of teachers, and that the percentage of new teachers in charge of schools was smaller than in the previous year. But there is a reverse side, and that is the decrease in salaries of teachers, as may be seen from the following average salaries for the year from all sources:

Male Teachers,	1st Class....	$521 30	decrease....	$2 42
" "	2nd "	307 92	"	5 82
" "	3rd "	231 00	"	0 08
Female "	1st "	324 40	"	10 18
" "	2nd "	226 87	"	0 19
" "	3rd "	187 57	increase....	0 70

This, showing especially such a marked decrease in the salaries of the female teachers of the First Class, is a retrograde step. The report attributes the falling off to a decrease in the amounts voted by districts. It may be found when too late that economy in this matter is something more than foolish, especially when it is applied to a class of teachers who are justly regarded as ornaments to the profession, and whose efforts to advance their educational status merit a better recognition.

The sources of support to schools for the year are as follows: Provincial, $137,186.92; County Fund, $94,558.00; District Assessment, $182,222.11; Total, $413,967.04. The average cost of each pupil for the year from all sources, including the pupils of superior and grammar schools, was the moderate sum of $6 04.

There were forty-five superior schools in operation during the first term of 1887, out of a possible forty-nine allowed by law for the province on the basis of population. These schools, as would appear from the report, as well as from the records of the Inspectors, are doing excellent work. Those established in incorporated towns or in districts which have a regularly graded system are carrying out a course of instruction authorized for grammar schools.

The grammar schools of the province had enrolled for the second term of 1886, 2,725, and for the first term of 1887, 2,788. Outside of the Collegiate School of Fredericton and the St. John Grammar

School there were only about 130 pupils in advance of Standard VIII. in attendance. Adding this number to the pupils attending the St. John and Fredericton grammar schools for the first term of 1887 (241) we have 371 pupils in these schools studying branches in advance of the common school course. In addition to these, 172 pupils are reported from the superior schools in advance of Standard VIII., making less than 600 pupils pursuing an advanced course, or less than one per cent. of the pupils enrolled. In this connection we may remark that in St. John scarcely two per cent. of the pupils yearly enrolled in the city schools reach the high school. It would thus seem that either the provisions for carrying out a system of secondary education are inadequate, or that the people do not value their privileges in this respect.

Supt. Crocket draws attention to the inadequate provision for higher education, and outlines a plan for the establishment of five high schools for the province instead of the grammar schools. Taking the rapid growth and efficiency of the superior schools as a testimony that the people of the province are ready to appreciate the advantages of secondary education, provision should be made for the establishment of one high school for a population of from nine to twelve times the number required for a superior school (6,000). Five high school sections are named for the province—a northern, embracing the counties of Restigouche, Gloucester, Northumberland and Kent; an eastern for Westmorland, Albert and Kings, or a part of Kings; a southern for St. John city and county, and perhaps part of Kings; a central for York, Sunbury and Queens; a western for Charlotte, Carleton, Victoria and Madawaska. Adequate provision is to be made for the support of these schools, both from the provincial chest and from local sources. The head master of each school is to draw $1,000 from the province, and the second $250. If the enrolment exceeds ninety an additional teacher must be employed, and if it exceeds 160 a fourth teacher is required.

The scheme is a comprehensive one. That some provision for extending and stimulating our secondary education should be made is apparent to all when the meagre results of the past years is taken into consideration.

There are other points in the report to which reference will be made in future issues.

The report of Chief Superintendent Allison on the schools of Nova Scotia for the year ending October 31st, 1887, has been received. The number of scholars enrolled in the schools of the province was 84,217 for the winter term, and for the summer term 86,713, or a total number of different pupils during the year of 105,137. The proportion of population attending school was 1 in 5.2 for the terms given above, or 1 in 4 1 for the year. The percentage of pupils daily present on an average was, for the winter term, 56.7; and for the summer term, 56.8. There were 2,081 teachers employed for the winter term, and 2,158 during the summer. The sources of support for the year are as follows:

Provincial	$203,564 19
County Fund	119,047 38
District Assessment	290,544 05
Total	$613,155 62

The above does not include amounts for buildings and repairs nor the grants to the Normal School, etc., which, if added to the above, would make a total expenditure for schools of $672,348.21.

In respect to schools and teachers "the numbers of the present year are the largest yet recorded in the history of our school system."

The following is the average salary of teachers, with increase or decrease compared with the previous year:

Male Teachers.	1st Class..	$438 01	decrease..	$0	66
" "	2nd " ..	273 57	" ..	14	18
" "	3rd " ..	182 87	" ..	15	66
Female "	1st " ..	304 69	increase ..	1	13
" "	2nd " ..	230 56	decrease..	6	66
" "	3rd " ..	162 32	" ..	7	52

While the salary of first-class female teachers was lowered in New Brunswick the past year, it is worthy of note that in Nova Scotia this was the only class to realize an increase of salary. In reference to the low average salary of teachers in Nova Scotia, Dr. Allison says:

"The low scale of salaries which unfortunately is absolute as well as relative, is not, in my opinion, a necessary proof of a mercenary disposition on the part of the people of Nova Scotia, or of a failure to set a true value on educational labor. A simple recollection of the fact that the general supply of teachers is largely in excess of the demand would save much declamatory fault-finding. The phenomenon of low salaries is simply the result of an exorable economic law. Anything that will operate towards a closer equalization of the supply of teachers and the real demands of the schools for teachers, will so far tend to place the profession of teachers on a better footing financially."

A statement on another page of the report is worthy of remark:

"The chief disturbing element in our educational system is an annual access to the so-called profession of teaching of several hundreds of young persons mostly between sixteen and nineteen years of age. * * * Who can rationally expect an untrained boy or girl of sixteen or seventeen to strike

by intuition on correct methods of instruction or discipline, or to educe them experimentally within such a period as to prevent incalculable mischief during the process? The natural recourse of the perplexed novice is to the practice of pure memoriter text-book recitations, with their consequent intellectual stagnation and sterility, and with the chances strongly in favor of this vicious method perpetuating itself."

The remedy for this is to make "our provincial licenses, with a due regard to vested interests, as reliable guarantees of teaching ability as they now are of scholarly attainments."

To attain this end, Dr. Allison urges that professional preparation be made an imperative standard, but would not insist on compulsory attendance at the Normal School; and he makes the following propositions:

1. The elimination from the provincial syllabus of all professional features, giving to the resulting certificate, according to grade, the character simply of a testimonial of *scholarship*, which shall be held to be the only required non-professional basis of license and the sole credential of admission to the Normal School, where, except as needed for illustrative purposes, the work of general instruction shall no longer be carried on.

2. That the necessary *professional* complement of this general certificate shall be either:

(1). Classification at our own or some other approved Normal School doing equivalent work; or,

(2). The successful passing of a professional examination under definite provincial regulations, which shall in general embrace the requirements implied in (1) and which shall be conducted in some central place providing the necessary conditions, partly of course in writing, but largely by exhibitions of practical work, with oral questioning on points arising in connection therewith.

3. That the general provincial examination should be made self-sustaining, while the expenses of the special one for licenses should be borne by the province, and should include reasonable travelling allowances for the candidates.

4. That as third-class teachers are a "vanishing quantity" in our system, they might be excepted from these arrangements, some local method of granting them professional certificates being provided.

Among the advantages I would anticipate from these modifications, I may mention, in addition, of course, to the increased efficiency of the teaching staff of the province, with the corresponding gain to the schools:

1. A most desirable differentiation of academic and professional instruction. The Normal School, relieved of the burden of ordinary class-room work, would concentrate its energies on professional studies and practice, with attention to certain intermediate subjects, such as music, drawing, science in its relations to oral elementary teaching, etc. The high schools, academies, and superior schools generally, would experience a similar relief and in like manner be set free to carry on their proper functions as instruments of secondary education. At present while almost every school in the land has its class of candidates "studying for license," no teacher is under the slightest obligation to give instruction in the required professional subjects. These have not, and should not have, any place in the established courses of study. So far as instruction is given in them, they are taught in an irregular sort of way, generally "out of hours." Under the proposed arrangement, this vexatious addition to regular work would come to an end. The non-professional syllabus for teachers would be identical with the advanced portions of the prescribed course of study.

2. Such an equalization of supply and demand in the matter of available teachers as would make the profession of teaching at once more remunerative and more honorable. Some persons having purely temporary purposes to serve by becoming teachers might experience inconvenience; those who propose permanent identification with the profession would gain much in every way. But enlargement on this point is not necessary. In any case the interests of society must override those of individuals.

The report of the Minister of Education for Ontario shows that the number of children attending school at present is less than it was ten years ago. The maximum was in 1877, the minimum in 1883. They were respectively 490,860 and 464,369. In 1886 the number was 487,496. The minister observes a slight improvement in the regularity of attendance; but refers to the "compulsory attendance" clause of the law, which requires 100 days' attendance per annum for all between seven and thirteen years of age, as never having been enforced by the trustees. In 1886 there were 7,364 teachers, of whom 2,727 were males and 4,637 females. There has been a steady decrease in the number of male teachers. The average salary of male teachers was $424, of female teachers $290. In counties they were $400 and $270 respectively; in cities $794 and $401 respectively. There are 5,454 school-houses, of which 607 are log buildings. The average cost per pupil was $7.09 on total attendance and $14.46 on average attendance, against $6.13 and $14.15 in 1876. There are 109 high schools with 378 teachers and 15,344 pupils, costing $31.14 per pupil on total attendance. There are fifty-five model schools for the training of teachers—1,491 were in attendance for 1887, of which 1,375 succeeded in passing.

From the last annual report of the public schools of the State of New York, we find that the number of children of school age was 1,763,115; the total enrolment, 1,037,812, and the average daily attendance, 625,610. That is, the average attendance is about 60 per cent. of the enrolled pupils and only about 35 per cent. of the total children of school age. Of 31,000 teachers only 5,821 are males. From these figures we find the average school for each teacher to have an attendance of about 20 pupils only, in a

section containing 57 children of school age. The average of teachers' salaries in the cities is about $687 per annum, and in towns about $262. The State of New York is evidently not ahead of the Atlantic Provinces of Canada in the matter of popular education. Its superintendent of education also points out that the uneducated class is increasing, and that the attendance in the schools does not keep pace with the growth of the population.

A QUARTER OF A CENTURY AGO.

We have come upon the Proceedings and Constitution of the Educational Association of Nova Scotia, held in Dalhousie College, Halifax, on the 25th, 26th, and 27th of October, 1862, just over a quarter of a century ago. President, Rev. Alexander Forrester, D.D., Superintendent of Education; Vice-Presidents, Rev. Edwin Gilpin, M.A., and Mr. George Hutton; Secretary, F. W. George, M.A.; Committee of Management, Messrs. Calkin, Patterson, Hutton, McCullagh and Hemmeon; Special Committee to report on Educational Journal, Messrs. Garvie, Hutton, Rand, Willis and Thompson. The following is the report of this Committee:

EDUCATIONAL JOURNAL. There seems to be a general and strong opinion among teachers regarding the necessity of having a journal of education to advocate the claims of education and educators. After discussion it was unanimously resolved to appoint a committee consisting of Messrs. Garvie, Hutton, Rand, Willis and Thompson, to take whatever steps may be requisite to issue a periodical. In the course of discussion it was stated that 1,000 copies of a monthly journal would cost £125; and it was suggested that application might be made to the Legislature for aid to the work.

In 1887, this journal at length came into existence in the shape of the REVIEW. No legislature, however assisted in its incubation, nor does the chicken depend on the fitful protection of such a foster-mother. And already, before three-quarters of the first year of its existence has passed we can congratulate our patrons on its strength as well as its independence—a strength which might well surprise that veteran Committee of 1862. We trust that our patrons may find it steadily improving. In the matter of illustrations, we can afford to go to greater expense than in the past; and experience will enable us to discover the kind of assistance our teachers most need.

AT a meeting of the "Frœbel Institute," Halifax, last week, a resolution was passed advocating the adoption of the Kindergarten system, as far as practicable, as a part of the public school system of the province, and a public meeting is to be called at an early day to discuss the subject.

AN IMPORTANT INDUSTRY.

The Association of Nova Scotia Fruit Growers met at Wolfville, Feb. 16th. The REVIEW has been and will continue still further to advance the interests which this Association endeavors to stimulate, by calling attention to the insect enemies of our fruit raisers and the best method of treating them. And as the REVIEW is already very generally in the hands of our teachers, and especially so in the fruit raising districts, we trust that in a short time this industry may demonstrate that our common school education is not adverse, but favorable to the development of industrial occupations. Among those who took part in the work of the Association we observe the names of many of our leading educational men. This shows plainly the drift of modern thought in the educational field. Principal A. McN. Patterson read a paper on a subject which a very successful experience well qualified him for, "The Growing of Orchards." Professor Eaton, of the Normal School, read a very able paper on the "Conditions of Success in Agriculture." W. D. Dimock, a former Principal of the Truro High School, and later Commissioner for Canada at the Colinderies in London, gave an interesting account of the "Farmer at the Colonial and Indian Exhibition." Professor Lawson, of Dalhousie University, President of the Royal Society of Canada, addressed the Association on "Recent Discoveries in Plant Growth and their bearing on Fruit Culture." Professor Kierstead, of Acadia College, was the orator of the occasion, while Professor Smith, of the School of Agriculture, gave "Hints to the Fruit Growers," and was always ready to give the benefit of his extensive knowledge in the discussions. Dr. Reid, Superintendent of the Nova Scotia Insane Asylum, also read a paper on "Agriculture, a Profession." This is a good showing for our public educational men. Fully one hundred and fifty persons were in attendance. Dr. Henry Chipman, of Grand Pre, was elected President; W. H. Blanchard, Esq., of Windsor, first Vice-President; and C. R. H. Starr, Esq., was re-elected Secretary-Treasurer.

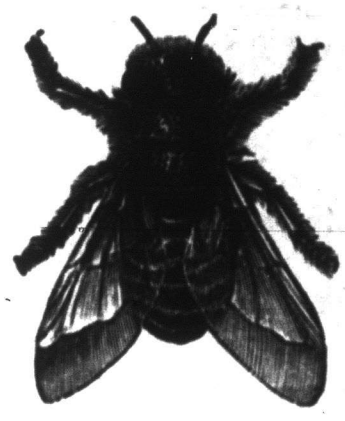
Mr. Patterson said: "One acre of good orchard is worth more than four of poor. Hundreds of trees throughout our valley have returned their owners $20 each. An acre of good land will support 40 trees, which gives $800 per acre. This is not a wild calculation, but fairly possible to intelligent, thorough and industrious work. Individuals this year have received over $200 from a quarter of an acre. One grower received $304 for 50 barrels, clear of all expenses."

The apple crop of 1887 was only about one-third of that of 1886. About 50,000 barrels were exported to Great Britain at prices between $4 and $5 for the best.

FERNDALE SCHOOL.

No. X.—The Sheep Bot-Fly. (*Œstrus Ovis.* Linn.)

Teacher. Here we have the Sheep Bot-Fly drawn magnified about three times its length and breadth. Let us examine our specimen under a lens and it will appear just as large. What is its general appearance?



Scholar. Hairy, and of a dirty ash color.

T. Its thorax—

S. Has four small black lines and black dots.

T. The abdomen—

S. Is specked with yellowish marks.

T. Is it of the same shape in each specimen?

S. No; it is tapering in some specimens—the female, I suppose.

T. Correct. Have you seen them molest the sheep?

S. Yes. They fly about their noses, and the sheep shake their heads, hold their noses down to the ground, and try to run away from them, and sometimes stamp their forefeet.

Another S. I have seen the sheep stand in a little circle with their noses all together in the centre, so that the fly couldn't get near them. And sometimes tar is put on their noses to help in keeping the fly away.

T. Very well observed. I shall now give you the history of the fly. Its only work is to place its eggs, of which it may produce over 300, or the young larvæ (as the eggs have been found to be hatched in its body) on the nostril of the sheep. The larvæ move up the nostril, holding on to its tender lining with the minute hook with which their head is furnished. They remain in the upper cavities of the nose until next summer, causing by their irritation an abundant flow of mucous and purulent matter, on which they feed. The sheep becomes weaker, loses its appetite, and often dies. When these grubs are very numerous, the struggle for food will cause some of them to enter the brain through natural openings in the bony partition between it and the nasal chamber.

S. I have seen people blow lime or a little hellebore into the sheep's nostrils to cause them to sneeze; and sometimes the grubs would be blown out.

Another S. I have seen them inject salt water and a weak solution of carbolic acid in water for the same purpose. But do they ever come out of their own accord?

T. Yes. When they reach maturity, say in June, they may descend the nostrils, fall to the ground, and in twenty-four hours change into the pupa state, with a small hard black case. In six or seven weeks it pushes off the little cap on the end of its pupa case or cocoon, and comes out as the perfect fly.

AMONG THE CONSTELLATIONS.

No. VI.—Canis Major, Etc.

A sky full of silent suns.

—*Richter.*

In the southern sky, lower than Orion and farther to the east, is the constellation of the Greater Dog. In its head shines the brightest fixed star in the heavens, Sirius, sometimes called the Dog Star. Hence the name of our Dog Days. This name had its origin in Egypt. Camille Flammarion thus accounts for it: "The overflowing of the Nile was always preceded by an etesian wind, which, blowing from north to south about the time of the passage of the sun beneath the stars of the Crab, drove the mists to the south, and accumulated them over the mountainous country whence the Nile takes its source, causing abundant rains, and hence the flood. The greatest importance attached to the foretelling the time of this event in Egypt where no signs of the distant cause of this flooding was ever visible, so that the people might be ready with their provisions and their places of security. The moon was of no use for this purpose, but the stars were, for the inundation commenced when the sun was in the stars of the Lion. At this time the stars of the Crab just appeared in the morning, but with them at some distance from the ecliptic, the bright star Sirius also rose. The morning rising of this star was a sure precursor of the inundation. It seemed to them to be the warning star, by whose first appearance they were to be ready to move to safer spots, and thus acted for each family the part of a faithful dog, whence they gave it the name of the Dog, or Monitor, in Egyptian *Anubis,* in Phœnician *Hannobeach,* and it is still the Dog Star—*Caniculus*—and its rising commences our *dog days.* The intimate connection between the rising of this star and the rising of the Nile led people also to call it the Nile Star, or simply the Nile; in Egyptian and Hebrew, *Sihon;* in Greek, *Sothis;* in Latin, *Sirius.*"

Our *dog days,* however, do not coincide exactly with the time when Sirius commences to be visible in the morning in this latitude. Near the equator Sirius rises with the sun about the first of July; further north, later. In the latitude of the Atlantic Provinces of Canada, in August.

Two or three degrees west of Sirius (Alpha) is Beta of the third dimension in the dog's upraised forefoot. Six or seven degrees downward are Delta and Epsilon of the second magnitude, about two degrees apart. These form a right angle with Eta of the third dimension below.

Above this constellation, in the milky way, is a considerable space with no conspicuous stars, which forms the constellation *Monoceros*, the unicorn. A little higher up on the other side of the milky way is the small constellation *Canis Minor*, with two stars about three degrees apart, the larger, Procyon, being of the first magnitude. A little further up still is another pair of stars, Castor and Pollux in *Gemini*—Castor being the one further north, and a double star under the telescope.

The parallax of Sirius is given by Herschel at .15″ (15 hundredths of a second), which would make its distance 1,375,000 times greater than the distance of our sun from the earth. Flammarion calculates it to be 2,600 times greater than our sun. It is slowly changing its position, and shows perturbations which can be accounted for only on the hypothesis of its having one or more large planets revolving around it. Alvan Clark of Boston, in 1862, was the first to see one of these planetary bodies. The observation was made with one of his own manufactured telescopes, and has since been more accurately repeated in European observatories. This, with numerous other examples, compel us to look upon the stars as distant suns, which may have planetary systems of greater magnitude than that of our own sun.

The Planets in March.

Mercury will be in greatest western elongation March 30th, when it may be visible as a morning star just before sunrise, in the east.

Venus is still brilliant as a morning star. At the end of the month it rises about three-quarters of an hour before sunrise. Conjunction with Mercury on 27th.

Mars is morning star. It is in Virgo, and at the end of the month will be near Spica, a star of the first magnitude, nearly on the ecliptic. It will then rise before 8 P. M., and in the morning will be in the western sky.

Jupiter is morning star, rising about 11 P. M. He is in Scorpio, and will be seen southwest of the zenith in the morning.

Saturn is evening star, and is in Cancer. It is south of the zenith in the evening and sets before 3 A. M. near the end of the month.

Neptune is in Taurus, more than thirty degrees west of Saturn.

In the middle of March the sun is nine minutes slow of a true clock. In the middle of April the sun and clock agree. They agree only on four days in the year, namely, April 14th, June 13th, August 31st, and December 24th.

FERNDALE NOTES.

II.—Our Iron.

(*a*) manufactured.

Nearly Pure. Wrought iron, horse-shoe nails, etc., about 7.8 times heavier than water. Is soft and malleable. Will not harden when suddenly cooled by plunging into cold water.

With about one per cent. Carbon—Steel. Varies from soft to hard as percentage of carbon varies from .3 to 1.8. Will harden when suddenly cooled in cold water; this is called tempering.

From two to five per cent. Carbon—Cast Iron. Very brittle, but melts at a lower temperature than the above.

Principal injurious Impurities in Steel. Even one tenth per cent. of *sulphur* makes it brittle when red hot (hot-short); and one-tenth per cent. of *phosphorus* makes it brittle when cold (cold-short). Difficult and expensive to keep these impurities out when they are abundant in the ores. About 10,000 tons of iron per year have been made at the Londonderry Iron Works of Nova Scotia. Blast furnaces have also been in operation near Jacksontown, N. B., and Bloomfield and Pictou, Nova Scotia.

(*b*) ores.

1. *Native Iron.* Small amount. Nearly all supposed to have fallen to the earth as meteors. Meteoric iron contains generally about 90 per cent. pure iron, with nickel and smaller quantities of other elements.

2. *Magnetic Iron Ores.* Generally composed of the mineral *magnetite.* (Fe_3O_4). Is attracted by the magnet. Its powder is black and therefore makes a black streak on a hard, rough, white surface like unglazed porcelain or quartz. May contain nearly 70 per cent. of pure iron. Found in veins and crystals in southern counties of New Brunswick, in the Triassic Trap of Nova Scotia on the Bay of Fundy, Annapolis, Digby, Pictou and Cape Breton.

3. *Red Hematite Ores.* Principally the mineral *hematite* (Fe_2O_3). Not attracted by magnet. Powder or streak bright red, brown-red, or blackish-red. May contain over 60 per cent. metallic iron. Several varieties—*specular*, when made up of small glittering scales, which may be brushed off with the finger; *micaceous*, when scales are very large; *fibrous*, when showing a fibrous structure; *red ochre*, when earthy;

argillaceous hematite, or *red clay iron stone*, when a heavy, hard, reddish-brown stone containing clay or sand; very abundant in St. John and Carleton counties, N.B., and in Pictou, Colchester, Annapolis, Digby and Cape Breton.

4. *Brown Hematite Ores.* Principally the mineral *limonite* ($2\ Fe_2O_3 + 3\ H_2O$). Powder or streak yellow or yellowish-brown. Not magnetic. *Red* hematite, with water in its composition, may contain over 50 per cent. metallic iron. Varieties—*compact*, often with shining, nodular surfaces, fibrous, etc.; *yellow ochre*, earthy; *bog iron ore*, in marshy places, generally porous and full of various impurities; *brown clay iron stone*, same as the *red* only it gives a yellowish streak. Found in the same localities as red hematite, and other places in inexhaustible abundance.

5. *Spathic Iron Ore.* Principally the mineral *siderite* ($FeCO_3$), carbonate of iron. Whitish grey or brown, generally. Powder or streak, white. When heated crackles and gives off CO_2 and darkens into an oxide of iron which is magnetic. May contain 40 per cent. of metallic iron. Varieties—*crystallized, concretionary, granular, oolitic*, and *earthy* or *stony*, sometimes called *spathic clay iron stone.* Very abundant in Pictou and Colchester counties; found in Cape Breton Island, and Hants Co., etc. *Ankerite* which is a mixture principally of the carbonates of *iron, lime* and *magnesia*, comes under this head, and is a very valuable ore, and exists in extensive deposits in Pictou and Colchester. *Sideroplesite*, which is ankerite without the lime, is found in large quantities near the Londonderry Iron Works in Colchester Co.

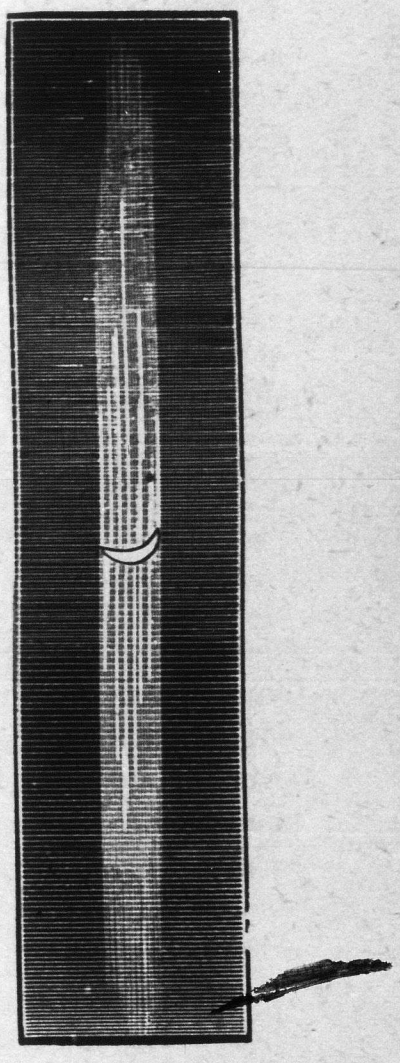
The red sandstone of Prince Edward Island and of Nova Scotia are colored by red hematite, which under certain conditions may be dissolved (especially out of the red soils where organic matter is present), and may be forming at present deposits of bog ore in favorable spots. The yellow and brown coloring matter in our soil is brown hematite, and is subject to same chemical action as the red hematite.

(Other iron minerals in another lesson).

KEEP one or two of your school books to gladden your heart in your old age. When the shadows grow long in the afternoon of life they will be a delight to you. Their oft-conned pages, as you turn them over, will each have a story of its own. Says a writer who accidentally picked up a copy of the English grammar which he studied as a boy: "When I saw that book I felt the marbles bulging in my pocket; the sole of my shoe flapping as I walked; my hands were battered and dirty, and there was a gnawing in my gastric regions as if I had eaten my dinner at recess."

A RARE LUNAR PHENOMENON.

At Pictou, the evening of February 17th was overcast and mild with some snowflakes from the south. After 10 P. M. the sky was clear and the wind apparently shifted to the north. The moon near its first quarter came out bright in the deep blue western sky, which showed a few patches of hazy cloud above the horizon in some places for a portion of the time. A band of light as bright as an aurora and of the exact breadth of the moon was projected vertically from it for a distance of perhaps ten degrees upwards towards the zenith, and as far downwards towards the horizon. The band was exactly vertical with the moon in its centre, as shown in our cut. It remained visible for at least an hour, until the moon set. Rapid fluctuations of intensity in the brightness of this beam were observable, and were tested by two observers calling the maxima and minima simultaneously. It is supposed to have been caused by the interposition of a great mass of transparent air, moving from north to south or *vice versa*, between the moon and the localities of observation. The moisture in the moving mass was being gently condensed into millions of minute linear hexagonal ice crystals, which were all polarized horizontally by the air current. The crystals were so far apart as to leave the air transparent, except in a vertical plane through the moon, where the light was being reflected from the myriads of horizontal facets of the crystals, and also to a certain degree refracted by passing through them. Were the ice crystals lying in every possible direction, the brightness would radiate in every direction from the moon. The varying undulations of intensity were, no doubt, due to the varying character of the crystal-loaded air moving past. A similar phenomenon does not appear to have ever been observed here before.



A SPEAKER at one of the educational gatherings in England thus declaims against history. He says:

"I give it as my opinion that the teaching of history to boys and girls at school is most pernicious. Why should their young minds be imbued and corrupted by the accounts of battles, massacres, and treacherous assassinations, perpetrated by kings, nobles, clergy, highland chiefs, and border ruffians?"

For the REVIEW].

A USEFUL BOOK.

"Conscious Motherhood" is the suggestive title of a recently published book which is worthy the attentive consideration of parents and teachers. The name of the author, Miss Emma Marwedel, is a guarantee that this is an interesting and valuable educational work. Its title strikes the key note: scientific principles and an intelligent application of them in the early training of the infant, *versus* instinct blindly following tradition. Educated with German thoroughness, she is a kindergartener whose deep insight into Frœbel's system has enabled her to carry out to their logical conclusions some ideas which he had not fully elaborated. In 1876, when she went from Washington to the Centennial to exhibit her kindergarten training classes, she gave utterance to her conviction "that the ball, as representing the sphere, the type of all life, was not made sufficiently prominent in Frœbel's development of the child." In 1882 her "thoughts were so far crystallized" that she presented her "Circular Drawing System, or Childhood's Poetry and Study in the Life and Forms of Nature," together with a Botany and seventeen Classification Charts for the consideration of the North American Frœbel Institute in session at Detroit. This distinguished body gave their unqualified approval and urged its publication, in a series of resolutions, appointing a committee to confer with publishers, etc. "But with all this encouragement, I was still unsatisfied. I felt that I had not yet touched the right spot in human existence, whereon to base the fair structure of human education. . . . Thought upon thought drove me back over the steps the human being traces in his ascent to manhood. I reached the home, the mother, the cradle. Then, at last, in the mother, to whom Frœbel dedicated the first use of the curve, I found the place where the corner-stone of any genuine education must be laid. But where to find that stone which should become 'the head of the corner?' . . . A remarkable book—the first of its kind in range and profundity—fell into my hands at this period. It was the work entitled the 'Soul of the Child,' by Prof. Wilhelm Preyer, of Jena, received by me as a providential answer to my question. And this, which answers not my question only, but every query as to the when, and the how, and the wherefore, which mothers and *all other educators* ask concerning the earliest physical, mental and moral needs of the child, seemed to me a boon which should not be willingly withheld for one single hour from those upon whom are laid grave responsibilities from the first day."

The first part of the book is a careful psychological treatment of principles of early education. The method by which the senses may be cultivated as means to the mental, moral and spiritual development of the child is given with clearness, and should command the study of intelligent teachers and parents. The tenth chapter, written by special request of Miss Peabody and others, "The Ideal Nursery," gives an extended account of the writer's system of "drawing on the curve," "color games," and plays for specially exercising the senses; the use of the sand-table in drawing, geography, etc.; the clever arrangements of her own beautiful kindergarten in California, and is full of hints as to the use of cheap and common materials for educational purposes which would prove serviceable to our teachers.

The second part (228 pages) is a translation of all those portions of Preyer's diary which illustrate the first part of this work. The Professor made and recorded, with only two trifling interruptions, for three years, morning, noon and night, his observations which began, five minutes after birth, by testing the sense of sight. Many, Darwin among others, have observed and registered their observations occasionally, but Preyer's observations were made so systematically, and they are so acute, truthful and discriminating that they mark an epoch in the study of child culture. Published in Germany in 1882, the centenary of Frœbel's birth, they establish on a scientific basis the pedagogics of that great genius. From different points of approach Frœbel and Preyer reach the same conclusions. In his preface, given in full, he asserts that, no matter how individuals may differ, the *order* of development is the same in all; heredity is as important a factor in psychogenesis as individual activity; that scientific observation of the *child*, from the *earliest date*, must be made if education is to be a success.

C.

Halifax.

For S.P.C.A. Column EDUCATIONAL REVIEW].

CHILDREN'S INFLUENCE.

It is one of the best and happiest aspects of this present civilization that in nearly all great movements designed for the progress and benefit of mankind, there are ways and means by which the children can help on the work. In the missionary field there is an army of children working with earnest endeavor to forward the greatest and highest project of the time; among the undaunted persistent temperance workers the little ones have their societies and "cold water armies; in the church are the Sunday-schools, the sewing circles, the various associations, in all of which the children bear an active part. In all public and private demonstrations they are foremost in the

ranks, be the occasion one of joy or of grief. When a nation, great and glorious, rang with the plaudits of a people glad to find vent in a still echoing huzza for the benefits and blessings—the peaceful accumulation of fifty golden years — the voices of many thousands of children swelled the vast chorus. When another nation, equally great and glorious, wept over the bier of a loved and revered president, the children came in crowds to place upon his grave their leafy tributes wet with the tears of sorrowing eyes. They —"these little ones"— bring with them an added presence, an indefinable something clinging to them, since that sunny day so long ago when they ascended in crowds to receive the blessing of One whose heart was tenderest towards the sweet blossoming flowers, the helpless animals, and the innocent bright faced children. And when we think of them there it seems not only right but imperative that they should occupy an important place in the furthering of a great movement, but one the need of whose existence is a blot upon our civilization; and all who are fair-minded must shrink with a feeling of shame and pitiful humiliation from the sorrowful truth that it is absolutely necessary to have societies whose chief object is to protect the helpless and innocent from "the noblest work of God."

Such, however, being the truth, it was necessary to decide upon the best means of effecting this protection and of affording opportunities by which all who desire to do good in this particular could exercise their good will to its best and fullest extent. With this end in view, then, the Society for the Prevention of Cruelty to Animals was formed, and finding that here was another "great movement" whose progress would be greater and whose influence would be more widely felt when the children were interested, "Bands of Mercy" were formed for them, of them, and by them.

Here in St. John are a number of these Bands, each one connected with some particular Sunday-school, it being rightly decided that in this way the organizations would be more successful and the ability for a faithful rendering of the service for which they are designed much greater than if they stood alone. Would not greater advantages and more faithful results mark their progress if "Band work" were introduced in the every day life of the public schools? There, where the faculties are keener and more susceptible, where all teaching tends toward the highest elevation of the soul, the use of the Society whose watchwords are "kindness to animals," would be made so familiar that kindness would become part of life—an attribute and not an added virtue donned on and for especial occasions.

This "kindness to animals" does not only mean the care and attention given to home pets by the little ones whose charge they so often are, nor is its entire meaning to be found in that ready sympathy and just indignation that allows a warmly clad man or woman to strike a homeless cat, or exclaim against the heavy burden of a shivering, half-starved horse; but patience, forbearance and loving kindness toward one another.

Many mothers raise the objection—and justly too—that therein the children are asked to report acts of cruelty towards animals committed by the hands of play-mates and school-fellows. This is neither fair nor prudent. A tale-bearing girl or boy is looked upon by companions with horror and distrust; and, moreover, a boy or girl who could carry such a tale even to a Band of Mercy would not be far behind in similar unkind actions. The first duty of the president, then, is to instil into the minds of the children, gentleness, patience, and forbearance, to teach them that hasty words, quick blows, and ugly looks are as much "unkindness to animals" as it is to rob the nest of a bird.

Man is at best only an animal, and whatever tends to prevent the higher and more artistic side of his nature from developing its best and greatest possibilities is doing an unkindness to the whole animal kingdom. To do one's very best in the little world in which he is placed, to fulfil honestly and sincerely all the conditions of life, are all that can be reasonably expected of one, and to neglect to do so is to put a stumbling-block in the way of nature's progression. Let the children understand this fully and the need for S. P. C. A.'s and for Bands of Mercy will have ceased.

It is to be hoped sincerely that these Bands will not make a mistake so often made by the anxious and interested members of other beneficial institutions. How often one is told that the work of reform is making favorable progression, and has the full jails, the crowded reformatories and asylums, the list of cruelties reported in the daily papers, pointed out as true evidence of this reform! If empty jails, reformatories and asylums, and no list of barbarous atrocities could be shown, then would reform be complete and perfect, then would man feel that some progress had been made towards the ideal life as possible to-day as when the Christ walked upon the Galilean shore preaching the simple doctrine of good will toward all men.

It is pleasant to think of the children who are akin to the flowers and animals and all the tender innocent things of earth, being among those who are working to bring about that golden age, when

> "Man to man as brothers shall
> Each to each be bound."

And when from the most remote corners of the world eager hands and voices will welcome the progress first led by a little child.

M.

St. John.

THE TEACHING OF DRAWING.

In a paper on the teaching of drawing, read before the New York College of Preceptors by T. R. Ablett, Esq., the educational value of the subject is brought out with a strength and clearness that render the paper of more than usual interest to our educators. Mr. Ablett considered drawing simply as a means of education, and explicitly set aside any treatment of it as an accomplishment or as a training for artists. He pointed out that the mode of instruction in drawing, taken in this sense, would naturally differ from that followed when the production of artists was aimed at, and must be adapted to school-children, most of whom have no special aptitude and little time for practice. To raise drawing to its proper position, we must prove that it is one of the bases of education, and should be taught to all children, whatever their future vocation. We must also prove that it can be taught by collective methods as readily as arithmetic or reading. The speaker then summarized the educational advantages of drawing as follows: I. It brings into active use certain faculties and powers of the mind which can be reached to an equal extent in no other way. For example: correct ideas of proportion and scales are developed, the graphic memory is improved, accuracy in observing is promoted, the powers of description are increased. Although drawing is a universal language, yet few are able to use it. II. Drawing facilitates the acquirement of the simple elements of education. For example: spelling demands a power of remembering the look of words, since in English the sound is not always a trustworthy guide. The improvement of the graphic memory will aid in learning to spell. Again, a child may be taught to draw before it is possible or desirable that he should learn to write. The pen is the worst of drawing-tools, and should not be the first to be put into the hands of children. The earlier use of simpler drawing instruments will facilitate learning to write. Again, drawing teaches the arithmetic of space, as figuring teaches the arithmetic of numbers. There is no reason why the child should be taught the one and not the other. The arithmetic of space may be taught as soon as a child can use a ruler and can understand something of drawing to scale. Furthermore, facts which in figures make no appeal to the mind can be readily grasped by means of drawing, especially if these are made by the pupils themselves. In all these ways drawing actually improves the mind's capacity for learning other subjects.

As a rule, the teaching of drawing is in a very backward state; for art teachers, so called, as a rule are poor teachers, and the whole instruction in this branch has been hampered by the prevalent belief that no one should learn drawing who has not a special talent for it. Then, too, collective methods of teaching have not been properly developed. To accomplish the last-named object, it is essential that the members of the class be so arranged that each one can have approximately the same view of the object to be drawn. Object-drawing is the most difficult branch of the subject to be taught collectively, but it can be done. For good class teaching of object-drawing, three vital principles must be observed: (*a*) the object must be a large one, that all can easily see; (*b*) all members of the class must obtain approximately the same view of the object; (*c*) the teacher must be acquainted with class management and with the subject, and able to demonstrate principles and methods with ability and enthusiasm.

Mr. Ablett then presented the pedagogic aim of drawing in the different grades. In Class 1 it is (1) to develop accurate observation, (2) to connect writing and drawing, (3) to ward off color-blindness, (4) to cultivate the perceptions, (5) to teach outline-drawing from real objects which present no difficulties in foreshortening; in Class 2, (1) to call attention to the difference between the real and apparent forms of simple objects and curves, (2) to cultivate the graphic memory, (3) by the dictated drawing to insure a knowledge of art terms and give facility in working from verbal instructions; in Class 3, to teach the leading principles of drawing in outline from the things of everyday life; in Class 4, to develop a useful power in drawing from rounded objects (plants and casts) that will serve as a stepping-stone between drawing from simple objects and drawing from the antique; in Class 5, to give a knowledge of shading from real things (this will assist the pupil materially in acquiring the principles of painting, should he ever want to do so); in Class 6, to enable those who have passed through the preceding classes to begin the study of the higher branches of art.—*Science.*

"How do you spell deceased?" asked the sergeant of the doorman.

"With a *z*, I guess," returned the doorman.

"Come off! There is no *z* in deceased. Where is that dictionary?"

"I don't know, sir. Sergt. ——— was looking for it last night."

"That's tough. I'm not sure about that word, and I don't want to make a mistake."

"Follow Sergt. ———'s plan, then," suggested the doorman. "Whenever he gets stuck on spelling a word he writes it phonetically, and quotes it."

ASA GRAY.

The name of Asa Gray, who died at Cambridge on the 30th of January, will long be cherished by the students of American botany. His life was an example of untiring industry and patient research. His enthusiasm has been inspiring to many a student, and no one who came in personal contact with him, or to whom he addressed letters of assistance and encouragement, will ever forget the magic of his cheerful and hearty sympathy. He combined with rare mental endowments the ardent enthusiasm which distinguishes the true teacher of science. For more than half a century his distinguished labors in behalf of American botany have produced results which only the most tireless industry and ability could accomplish. His elementary works, "Elements of Botany," "How Plants Grow," "How Plants Behave," "Lessons in Botany," and "Structural and Systematic Botany," are models of precision, simplicity and comprehensiveness. His "Manual of Botany of the Northern United States," which has passed through five editions, has been in the hands probably of every American and Canadian botanist. His "Text-Book of Botany," issued during the past year, is a revised edition of "The Lessons." Two volumes of the "Genera of North America" have been published. His "Field, Forest, and Garden Botany" was published in 1868. The great work of his life is the "Synoptical Flora," which, as far as published, consists of a volume of 974 pages on the gamopetalous orders. In addition to these he has published other works and numerous memoirs and papers, all of which have gained for him fame as a botanist which the coming years will increase, and when it will be fully realized what he has accomplished for American botany.

Dr. Gray was crowned with diplomas and honors from all the principal universities of Europe, and during the past summer, while travelling in England, received degrees from the universities of Oxford, Cambridge and Edinburgh. A host of friends in Cambridge and throughout the country will feel that his death has extinguished a bright and cheering light in the world of thought, and has removed a most cherished and valued friend and companion.

LABRADOR TEA.

The *North Sydney Herald*, Cape Breton, concludes a short article on this subject as follows: "Evidently the people of Cape Breton are in ignorance of the growth of this tea. If the REVIEW writer be correct our people are losing a grand opportunity of making fortunes out of this wonderful plant. Let an investigation be had." The *Herald* puts the case much stronger than the REVIEW; yet there is nothing, we suppose, like putting it strongly in order to draw attention. We publish the following letters, which have appeared in the *Halifax Chronicle* since the publication of our article, as they are valuable contribution to our knowledge of the subject.

To the Editor of the Chronicle:

SIR,—Your article published near the close of the year on the so-called Labrador tea plant, which is so abundant in Nova Scotia, has elicited useful notes from Principal McKay, of Pictou, and Mr. Fox, whose experience in the Magdalen Islands renders the information he furnishes of especial value. There is one point to which it seems desirable to call attention. If the leaves are collected at this season, they may probably yield a strong resinous or turpetine flavor not likely to be agreeable to any one. But if gathered in early summer time, whilst the wool on their lower surface is pale, and the secretion has not lost its more volatile constituents, they may furnish a more agreeably flavored beverage. Actual experience is the best guide in such matters, and if Mr. Fox will kindly tell us more fully the way in which the tea is prepared by those who use it, his hints will no doubt serve to obviate failures on the part of those disposed to make trials. The particulars required are such as the following: Season for gathering the leaves, whether only young leaves are used, mode of drying, rapid or slow, quantity used in infusion, time required for infusion and whether the tea is to be put into cold water or heated, or to be at once covered with boiling water, as in case of ordinary tea. Also, whether it should be actually boiled, or care taken to prevent boiling. I hope Mr. Fox will pardon me for suggesting these points as necessary ones to be known.

We have enough of the plant around the shores of Halifax harbor to supply our own wants, and all Massachusetts too, if the old taste should happen to return.

Your obedient servant,

GEORGE LAWSON.

Chemical Laboratory, Dalhousie College, Halifax, Feb. 14.

P. S.—Mr. Fox properly mentions two species of *Ledum*. This suggests a further inquiry: are both used for tea? The one credited by Sir John Richardson as yielding tea is the northern or arctic, narrow-leaved species, *L. palustre*, the Ka-ki-ki-pukwa of the Crees. The broad-leaved species, *L. latifolium*, which grows in the wooded districts, is not credited as a tea plant by Sir John. This, however, may be an omission. The species we have in Nova Scotia is *L. latifolium*.

To the Editor of the Chronicle:

SIR,—In reply to Professor Lawson's letter, published in your issue of yesterday, on the so-called "Labrador tea plant," requesting some further particulars in reference to the proper season for gathering the leaves and mode of preparing the tea, etc., as observed by me during my residence at the Magdalen Islands, I beg to say that the leaves should be gathered during the summer months, when the blossoms of the plant are fully expanded. The younger leaves are to be preferred, and should be dried quickly either by being lightly strewn in a dry warm place in the open air, or indoors, subject to a gentle heat, and after drying put away in paper bags for use.

The tea may be made either by boiling or infusing the leaves; I prefer the latter as a less quantity of the resinous matter of the plant is extracted. The quantity to be used for an infusion depends upon the strength required and may be found by a little practical experience as in case of Chinese tea.

The "French Acadian" family with whom I resided for some months, who used this tea as a daily beverage, had two modes of preparing it. One was by simply infusing the leaves in a tea pot, by pouring *boiling* water over them, as is usually done with other teas, and the other way was by making an infusion in the ordinary way and straining it into another vessel; then adding milk, sugar or molasses, to suit the taste, and boiling all together for a few minutes before using—this latter I found to be very palatable.

Notwithstanding that Sir John Richardson has mentioned but *one* species of Ledum as yielding tea *(L. palustre)*, both varieties are used; that partaken of by me, as referred to above, was prepared from the broad leaved *Ledum (L. latifolium)*, which is found so abundant in Nova Scotia. It is possible that in the cold arctic region and Labrador the effects of these plants may not be the same as in our milder climate. I do not know if they have been examined chemically. To those who may be disposed to test their qualities I would suggest their using a mild infusion, and not condemn it from simply "once tasting." It is not to be assumed that the Labrador tea plant is about to supersede the Chinese; nevertheless it may be satisfactory to many to know that in case of necessity we have a substitute for it within our own Province.

Your obedient servant,

Halifax, 16th February. J. J. Fox.

SPELLING REFORM.

The *Educational Journal* of Toronto had a capital paper on the spelling reform last month, from which we make a few extracts:

"A few years ago, Prof. Zupita, of the University of Berlin, in the course of his lectures on English Philology, having fully discussed the origin and development of all the old English or Anglo-Saxon vowels and consonants, before proceeding to the next division of his subject, uses the following remarkable words: 'I shall now proceed at once to deal in the same way with Modern English sounds, as I have been doing with Old English, passing over entirely the period known as Middle English, for the simple reason that Middle English and Modern English orthographically are practically identical.' On another occasion the professor told his students that English pronunciation had so greatly changed since Elizabeth's time, that if Shakesperè and Lord Tennyson could meet in the streets of London, and should speak English as they had respectively been taught to speak it in the schools of their day, they could scarcely understand each other. And yet Lord Tennyson's orthography is almost exactly the same as Shakespere's. In other words, the same spelling, symbolizing, in one age, one system of articulate sounds, is made in another age, to represent what, as far as mere sonnds are concerned, is almost an entirely new language."

"The London *Times*, having discovered that its persistent adherence to the extra letter of the old spelling *our*, cost it about $2,500 a year, is about to give it up and come over to the majority."

"It ought to be a source of gratification to all students of our noble English tongue, to all who desire to see it speedily become the universal language of commercial intercourse, to know that the ablest scholars in England and America have for years been making our spelling a subject of profound study, and seeking the simplest and most effective way of removing the multitude of needless difficulties that meet at the very threshold and tend to discourage every one who tries to learn our written language."

TEACHING GONE MAD.

Will the reader please cast his eye upon the following questions: 1. How can it be proved that nicotine is a poison? 2. Why are cigarettes especially harmful? 3. Is alcohol a food? 4. What is the effect of disuse upon the muscle? 5. Under what names is opium sold? 6. Under what names is alcohol drunk? 7. What is the difference between a food and a poison? 8. Is anything gained by changing from one narcotic to another? 9. What is the effect of beer as a drink? 10. How does cheerfulness help the muscle? These are the questions given as a test in physiology in the public schools of a prominent eastern city. They are not addressed to young men about to leave school. No, they are asked of little boys and girls of from eight to ten years of age. This is the examination

paper at the end of the first year's elementary instruction in physiology. Of ten questions, eight relate to drinking and smoking: the physiology is a mere side issue. These children, who ought to have about as much knowledge of such matters as they should of the methods in vogue at the stock exchange, are actually forced to learn by rote the details of human vice; and that, too, under the name of "physiology," the only science which they learn. Unconsciousness, *naivete*, is the symbol of childhood. The fact that physiology, even if well taught, tends to destroy this trait is the chief objection to its early study. Instruction, such as the above implies, crushes the most valuable trait in the child, directs its curiosity to what is morbid, and forces into precocious development all its dangerous elements. Not enough that the newspaper and the dime novel proclaim in glaring colors the story of crime and sin: some notion of the perversity of human nature must be mixed with the food of babes. That the result of this teaching is to excite in the children a morbid curiosity to experiment for themselves in such matters; or (with the boys) to regard the whole thing as a lesson in "goody-goodyness," to which they forthwith decide to show themselves superior; or to regard their father, who takes his glass of wine at dinner, as an incipient criminal,—this could easily have been foreseen, and goes without saying. If there is one method better than all others to produce a race of drunkards, this has good claims to that distinction. If there is a degree of wrong in such superlatively perverse methods, then it is still worse that the fair name of science should be outraged in this cause. Not only that this kind of teaching necessarily depends upon catechism methods (that the answer to the second question, for example, is to read that the especial perniciousness of cigarettes is due to the fact that they are made of decayed cigar stumps), but that the entire idea of science thus implanted is as wrong as it well can be. Better far revert to the old days when there was no science on the curriculum than have science thus taught. The crowning educational virtue of science is that it leads to the use of scientific methods of teaching: this usurper chokes up all possibility of an interest in the scientific. The "temperance" question is doubtless one of the most important with which our age has to deal; sufficiently important, perhaps to make some consideration of it in the public schools a legitimate proceeding, but it must be done at the right time and in the proper way. Nothing can excuse the conversion of a text-book on physiology into a "temperance" tract: nothing can excuse the sacrilege of presenting this story of disgusting vice under the name of "science."—*Science.*

PERSONAL NOTES.

Thos. J. Forsythe, B. A., of Belfast, has been appointed Vice-Principal of the Methodist College, St. John's, Newfoundland. He is an honor man in metaphysics and logic.

Professor Denton, A. B., of the Halifax Academy, has been appointed Lecturer in Geology in the Nova Scotian Summer School of Science. Professor Denton has lately attended the Summer School at Harvard University.

Inspector Oakes is visiting the Fredericton schools this week.

Inspector G. W. Mersereau finished his examination of the Restigouche schools the last of February. In his report for 1887 Mr. Mersereau refers to the excellent work done in the Dalhousie Grammar School and the Campbellton Superior School; and it is a pleasure to note that on his recent visit he found these schools had improved on their record of last year in a marked degree. The Inspector is this month visiting the schools of Gloucester.

Inspector Lay has recently visited this part of his inspectoral district and reports improvement in educational matters. Mr. Lay is an efficient and faithful officer. It is to be hoped that he will have the hearty co-operation of trustees and ratepayers in all his efforts at reform.—*Wallace, N. S., correspondent of Sackville Post.*

SCHOOL AND COLLEGE.

St. Francis Xavier College, Antigonish, is increasing its chemical laboratory facilities and enlarging its equipment.

From the Antigonish *Casket* we learn that President McNeil, of St. Francis Xavier, has purchased an organ for the use of the College.

Acadia College is keeping well to the front. Last summer it was the seat of the Provincial Summer School of Science; last month of the N. S. Fruit Growers' Association. It gave two Superintendents of Education to Nova Scotia; and the Principal and two Professors of the Nova Scotia Normal School are numbered among its alumni.

Dalhousie College is preparing for a grand house-warming. A splendid conversazione is expected to come off shortly. Some writer proposes that the name be changed to "Halifax University." If Halifax gives it a "christening gift" of say at least $100,000, all right. Not otherwise.

QUESTION DEPARTMENT.

A. K. B.—1. What is a mineral rod? 2. How does it point out the presence of minerals?

1. A superstition of the nineteenth century. 2. By accident or the conscious direction of the manipulator.

"ASTRONOMER."—Supposing a mass, say one pound of meteoric iron, should fall towards the earth with the average meteoric velocity, say of 30 miles per second; how would you calculate the heat produced by its impact?

Velocity equals 158,400 feet per second, equal to that acquired by a body falling from rest 392,040,000 feet if g always = 32. This energy converted into heat at Joule's equivalent (772 foot-pounds equal to heat which would raise one pound of water one degree Fah. in temperature) would be sufficient to heat one pound of water over 507,000 degrees Fah. But the specific heat of iron is about one-tenth of water. The mass of iron would then be raised about 5,000,000° Fah. in temperature. 3,000° is about the temperature of molten iron.

M. B.—Please name the author and comment on the thought of the following passage:

"Yet I doubt not through the ages one increasing purpose runs,
And the thoughts of men are widened with the process of the suns."

The passage is from Tennyson's "Locksley Hall." The poet seems to have in view the desire of the human mind for a broader culture, a development of what is good and noble in man's nature; and this "increasing purpose" in the higher conception that prevails of the Christian religion, as shown in the great missionary undertakings, the organization of humane societies, the tendency towards the settlement of disputes between nations without resort to the sword, the spread of scientific knowledge in its broadest sense—thus are the thoughts of men widened.

J. C.—Where will I get a good work on entomology? What author is considered best? and what is the cost of the work?

"Packard's Guide to the Study of Insects" is probably the best and most complete work for our students. Its price is $2.50.

R. S., Lutes Mountain, N. B.—Is the enclosed rock a fossil?

It appears to be a fossil of carboniferous age. It is probably a portion of the trunk of a tree which was buried in a sandstone formation, and therefore not so completely preserved as to form as if it were imbedded in clay. The dark color is due to carbonaceous matter, and portions of its surface are covered with a dense crop of minute hexagonal crystal of silica, which cut glass with great ease.

BOOK REVIEWS.

ELEMENTARY CLASSICS, MacMillan & Co., London and New York. CÆSAR, HELVETIAN WAR, AND GALLIC WAR, Book VII. OVID, STORIES FROM THE METAMORPHOSES. LATIN ACCIDENCE AND EXERCISES. VIRGIL'S ÆNEID, Books VI. and IX. ARRIAN SELECTIONS. XENOPHON'S ANABASIS, Book I.

It cannot be denied that much has been done to smooth the path of beginners in the study of the Latin language. Grammars, introductory readers, and translated editions of the classics generally read in school or college, have been issued from the press both in England and America in great abundance. There is scarcely a difficulty in text, construction or matter that is not explained, or, at any rate, towards the understanding of which contributions are not offered. Geographical references and historical allusions are fully illustrated, and maps and plans of great merit accompany the remarks and impress them upon the mind as no other mode of presentation could possibly do. Truly, O boys, your fortune is pleasanter than that of your predecessors of thirty or forty years ago! But whether the results of the present system will be commensurate with the assistance which has been so generously extended, and the efforts made to render the study attractive and useful, is a question which, by some of us, is difficult to answer in the affirmative.

There is no desire on our part to undervalue the scholarship evidently possessed by the editors of these or other editions of Latin authors, but what we have our doubts about is the wisdom of putting such books in the hands of boys to aid them in their home studies. The average boy only thinks of the translation, and when he has got the *sense* of the passage he is perfectly satisfied. He does not trouble himself about or make an effort to remember the grammatical or other remarks which accompany the translation; he has got all he wants, and there the matter rests. But the mental discipline, secured by the habitual and strenuous struggle with difficulties and the confidence in one's powers acquired by a mastery of them, he misses entirely. The proximity of the key to the difficulty is a temptation too powerful to be resisted, and before he has fairly grappled with it, and while only conscious of its stubborn and obstinate character, he consults the notes and the obstacle to his progress is removed. Every teacher knows that difficulties surmounted in this way do not permanently promote the advancement of the student, and that facility in translation and an accurate acquaintance with the Latin language are not thus obtained.

And again: We do not consider that annotated editions of the classics in the hands of boys are of any assistance to good teachers, but place them at a decided disadvantage. Every hard construction, every peculiar word, reading or allusion is commented upon. The editor has anticipated almost every remark which the teacher could make in the progress of the lesson, and has, without producing any permanent impression, deprived the observation of the teacher of the interest which arises from novelty, and that concentration of attention so indispensable in the student. And thus it not unfrequently happens that the teacher loses

all independence, and, instead of following the dictates of his own judgment, he becomes the expounder of the comments of the annotator.

Nor do we commend the plan of appending a vocabulary to the text. This, again, is supposed to save the time of the pupil. But the advantage is more apparent than real. The exercise involved in turning up the word in a good dictionary, selecting its English equivalent, and observing the quotations which exemplify its uses, is lost, and a familiarity with differences in meaning between words which are closely allied is not attained. We do not know of any better plan for boys to adopt in the preparation of their Latin lesson than to provide themselves with a dictionary, such as "Smith's," a grammar and a good text without note or comment. The teacher, if he be qualified for his post, will, when the author is read in class, elucidate all difficult passages, review points in grammar which may not have been observed by the pupil, and communicate that attractiveness to the subject, which can never be done so effectively as by the living voice of an earnest and inspiring teacher.

Holding these views we do not look with much pleasure upon the books mentioned at the head of this article. They are doubtless good of their kind, but if the student has an adequate knowledge of Latin grammar, the most of the notes are unnecessary. The same objection, however, cannot be taken to those of a geographical, historical, or archæological character, for they are certain to arouse the interest of the student, and a classical dictionary of biography and geography, or a hand-book of Roman antiquities is not always easily obtained. The maps and plans are very good and must prove helpful to the student. But whilst we commend the effort to prepare a graduated reader from the first book of the "Gallic War," and confess that the editors have been particularly successful in their gradual introduction of passages in oblique narration, there is a serious defect in the notes and vocabulary, in as far as there are many words, the quantities of whose vowels are not marked, and must necessarily be doubtful to the beginner. We are of opinion that where notes and a vocabulary are annexed to an addition of a Latin author, the marking of all the vowels by broad and distinct lines ought to be a special feature. And surely this ought to be the case in a geographical index, but it is here that the omissions are most noticeable.

Notwithstanding the many editions of the Latin classics that have appeared during the last twenty years, we must express our preference for the Oxford texts. And if the study of the Latin language is, as we believe it to be, one of the best means of cultivating the intellect and refining the taste, it ought to be pursued on such a plan as will best conduce to this result. And surely that plan cannot involve the adoption of measures by which every difficulty, as it occurs, is solved for the student, and no opportunity is left for sharpening his intellect by grappling with obstacles which demand for their conquest all the resources of his knowledge and ingenuity. With the Oxford texts, a lexicon, a grammar, and, if possible, a dictionary of geography, biography, and archæology, he should be well equipped for the work of preparation for his class, and he will soon learn that the training thus acquired will be of infinite service to him as he proceeds; success will attend his efforts, and the pleasure which springs from success will be his portion.

A Course of Quantitative Analysis for Students, by W. N. Hartley, F. R. S, Professor of Chemistry, etc., Royal College of Science, Dublin. London, MacMillan & Co., and New York, 1887. This is a capital little book of about 240 pages. The preface opens with the quotation from Fresenius, "One may be a good analyst without having tried *every* method, or determined *every* body." It opens with practical instructions in general manipulation, directions and cautions. Then it takes the student directly into quantitative analysis, the subjects chosen first being admirably adapted to the demonstration of the atomic theory and the discovery of chemical formulæ. We cannot do better, to give an idea of the practical value of the work to the reader, than noting the subjects in order: 1. Determination of lead in litharge. 2. Determination of the weight of magnesium equivalent to 108 parts of silver. 3. Determination of water and copper in crystals of copper sulphate. 4. Of the composition of copper oxide. 5. Copper equivalent to 108 of silver. 6. Iron equivalent to 108 of silver or 31.65 of copper. 7. Estimation of sodium in rock salt. 8. Estimation of chlorine in rock salt. 9. Estimation of sulphuric acid in sulphates. And so on for the first third of the volume. Then follows a section on volumetric analysis, concluding with: 31. Estimation of phosphoric acid. 32. The estimation of sugar. 33. The analysis of urine. Then follows a section on *Technical Analysis*, which is succeeded by over sixty pages on the analysis of alloys and complex minerals, the whole closing with a set of useful chemical tables. The whole subject is treated in a concise, simple, and most admirable manner.

A Treatise on Algebra, by Charles Smith, M. A, of Cambridge University. London, MacMillan and Co., and New York, 1887. This is a fine volume of over 570 pages, got up in the usual good typographical form of MacMillan & Co. It conveys the impression of being well adapted to the algebraic student. It treats the subject of indices, surds, imaginary and complex quantities pretty fully and very neatly, but we would prefer seeing a much larger selection of well graduated exercises in these chapters. As usual in many algebraic treatises, these subjects are left until quadratic equations are mastered. The chapters following treat of: 15, square and cube roots; 16, ratio and proportion; 17, the progressions; 18, systems of numeration; 19, permutations and combinations; 20, the binomial theorem; 21, convergency and divergency of series; 22, the binomial theorem—any index; 23, partial fractions, indeterminate co-efficients; 24, exponential theorem, logarithms, logarithmic series; 25, summation of series; 26, inequalities; 27, continued fractions; 28, theory of numbers; 29, indeterminate equations; 30, probability; 31, determinants. The titles of these chapters indicate their scope. The treatment of each subject is very concise and orderly. The chapter on determinants will make it interesting to some of our

college graduates, who as a general rule, neglected this more modern off-shoot of the general science of algebra. We understand that of late determinants are taken up in the first year algebra of the university of Dalhousie at Halifax.

A LATIN GRAMMAR, by Thomas Chase, Ltt.D , LL.D. SIX BOOKS OF THE ÆNEID OF VIRGIL, with notes and vocabulary, by the same author. Eldredge & Brother, Philadelphia.

In the August number of the EDUCATIONAL REVIEW we had the satisfaction of commending to the notice of our readers the "First Year in Latin," by George Stuart, A.M. The two books mentioned above belong to the same series of classical works, and are distinguished by the same admirable characteristics which we observed in the other. The grammar is excellent. Whilst there is a very full and accurate statement of the facts of grammar, they are not obscured by the mass of philological information which we too frequently find in advanced grammars. The arrangement is not inferior to the matter, and the clearness and conciseness of remark and definition will undoubtedly secure the approbation of teacher and student alike. The attention which is paid to the quantity markings is as conspicuous here as in the former work, and the use of different kinds of type is a plan by which the observations and rules are impressed upon the mind. Where every section is well done, it becomes a matter of some difficulty to select those that please us best; yet we would refer particularly to the sections which treat of the *subjunctive mood* and *oblique narration* as being scholarly and complete; the chapter on *prosody* as invaluable because it is practical, and to the carefully prepared *index* for reference. We can unhesitatingly say that with such a grammar as this, and a good lexicon, a student of fair ability ought to make his way successfully through the works of any of the Latin authors generally read in school or college, without the aid of note or comment or any of the other less legitimate means of assistance. The "Six Books of the Æneid" are, like the other books of this series, beautifully and correctly printed, and are consequently very pleasant and satisfactory to use as texts. Of notes and vocabulary we have said enough already; but we must add, respecting this edition, that we are never at a loss respecting the quantity of the vowels of the Latin words or of the proper names which occur in the text. This alone will, we have no doubt, recommend this edition of the Six Books of Virgil to the favor of many teachers and students.

JOH. AMOS COMENIUS'S VISIBLE WORLD, OR, A NOMENCLATURE, AND PICTURES OF ALL THE CHIEF THINGS THAT ARE IN THE WORLD, AND OF MEN'S EMPLOYMENTS THEREIN; in above 150 copper cuts. Written by the author in Latin and High Dutch, being one of his last essays; and the most suitable to children's capacity of any he hath hitherto made. Translated into English by Charles Hoole, M. A., for the use of young Latin scholars. The eleventh edition corrected, and the English made to answer word for word to the Latin, etc., London, etc., 1728.

This is a portion of the ornamental title page of an early English edition of one of the classic works on language-teaching, by Johann Amos Comenius, first published in 1658. He was born 1592, in Moravia, and was the author of many works which obtained for him the position of a leading educational reformer in the literature of the world. His *Janua Linguarum Reserata* (1631), has been published in *twelve* European languages, and also in Arabic, Persian and Turkish. His reputation was so widely spread, that from old Hungary he was invited in 1682 to draw up a scheme for the management of the schools of Sweden, and in 1641 was invited to attend a commission which the English Parliament intended to appoint to reform their educational system. And in 1654 he was solicited to become President of Harvard College, on the resignation of President Dunster. The work we have under consideration is shortly known as the *Orbis Pictus*, and is the best illustration of the Comenian method of teaching languages, which he seems to have been the first to adopt.

This work has just been reprinted by C. W. Bardeen, 83 and 85 Clinton street, Syracuse. New York, in a fine antique looking volume of about 200 pages. He has reproduced the original engravings exactly with all the peculiarities of the skill of the engravers of two and a quarter centuries ago. This, in itself, is an interesting feature. The lessons are conducted by question and answer on the engraving alone, the English and Latin being in parallel columns. By reading through this picture book, which commences with the letters and takes in a great multitude of the most common things and ideas in the world, a student may acquire a greater command of colloquial Latin than by reading all the works of Cicero. It is the most delightful book which the boy who has just got through the verbs in any elementary Latin grammar can read. He can read without a dictionary and enjoy the pictures. As it is an educational classic every teacher should have it in his library, and if he has it in his library, he cannot help enjoying it.

INDUSTRIAL INSTRUCTION, by Robert Seidel, Mollis, Switzerland. Cloth, 170 pages. Price 80 cents. D. C. Heath & Co., Publishers, Boston, New York and Chicago. Besides a skilful refutation of the objections that have from time to time been raised against industrial instruction in the schools, the author has presented in this book a philosophical exposition of the principles underlying the claims of hand-labor to a place on the school programme. The author certainly makes a strong plea for industrial training.

A SYSTEMATIC TABLE OF CANADIAN BIRDS, by Montague Chamberlain, St. John: J. & A. McMillan, publishers. This work, which is just being issued from the press, is for the purpose of classifying the birds found in the Dominion, and furnishing a check-list for students. The work will be of great assistance to active ornithologists, who are thus placed under additional obligations to Mr. Chamberlain for this excellent table for systematizing their labors.

N. M. SHEPHARD, 85 Nassau street, New York, sends us his splendid sheet of cuts of *medals*, etc., for schools and colleges, etc.

L. S. FOSTER, stationer, printer, etc., No. 35 Pine Street, New York, has our thanks for ornamental calendars and printed cards.

JAS. W. QUEEN & Co., 924 Chestnut Street, Phidadelphia, Pa., U. S. A., have our thanks for catalogues of microscopic, optical, physical and electrical apparatus.

BOOKS RECEIVED.

SCRIPTURE READINGS for High and Public Schools, authorized by the Education Department of Ontario.

COMMON SCHOOL LAW, by C. W. Bardeen, Syracuse, N. Y.

The MANUAL TRAINING SCHOOL, its aims, methods and results, published by D. C. Heath & Co., Boston.

GOLDSMITH'S TRAVELLER AND DESERTED VILLAGE, with notes; THE TEACHER'S COMPANION TO MACMILLAN'S PROGRESSIVE FRENCH COURSE; DIGEST OF FAWCETT'S MANUAL OF POLITICAL ECONOMY; MACMILLAN'S PROGRESSIVE FRENCH COURSE, 1st year; FLORIAN SELECT FABLES; SCHOOL READINGS, in the Greek Testament; SCOTT'S MARMION, with introduction and notes; GREEN'S SHORT HISTORY OF THE ENGLISH PEOPLE;—All published by MacMillan & Co., London and New York.

EXCHANGES.

Wide Awake, is a bright readable magazine for children and young students. The March number is finely illustrated, and filled with excellent articles.... *Vick's Floral Guide* for 1888 is an admirable number, and should be in the hands of those who are soon to commence gardening. The terms on which it may be obtained can be seen in another column.... *The Puzzler*, a new monthly magazine of games and problems, is issued by N. D. C. Hodges, 47 Lafayette street, New York... *Monographs of the Industrial Education Association*, Vol. I., No. 1., has been received. This number contains two excellent articles on Manual Training, one by D. C. Gilman, LL. D., President of the Johns Hopkins University, and the other by H. H. Belfield, Ph. D., Director of the Chicago Manual Training School ...The *Bookmart* for March, published at Pittsburg, Pa., is a fine literary number, and contains much useful information about books.... *The Popular Science Monthly* for March, comes to us richly freighted with the results of thought and investigation in the important field which it represents. Among a number of interesting articles are glimpses of Darwin's Working Life, The Indians of British Columbia, Weather Prognostics, and others equally instructive ...*St. Nicholas* for March is a finely illustrated number. The article on "A Pig that nearly caused a War," will be read with interest by students, as giving the particulars of the San Juan dispute between England and the United States... The *Century* for March, in addition to its usual series of interesting illustrated articles, discusses some educational questions, and goes straight to the point in this style: "There is no time given in our schools to the development of a strong and symmetrical body; no time to all the reasoning faculties to draw the breath of life; no time for anything but to crowd memory with facts, the *why* of them all being as utterly unknown to the pupil as it is to the wooden desk upon which he piles his many books. * * * The remedy for this condition of affairs lies in the creation of a public sentiment against the universal and destructive 'cramming' process."....*The Swiss Cross* for March is interesting as usual. The leading paper is a graphic illustrated description of a "Hindu Town," in Trinidad, followed by another on the "Cataracts and Rapids of the Kongo." There is the usual number of valuable shorter articles... *The King's College Record* is the most artistically got up of any Canadian college paper we have seen..... *The Acadia Athenæum* contains a powerful appeal from the Alumni Association, to increase the financial resources of the college ...The last *Dalhousie Gazette* contains the first part of a paper on the reformed spelling recommended by the joint Philological Societies of England and America. The reformed spelling is used.