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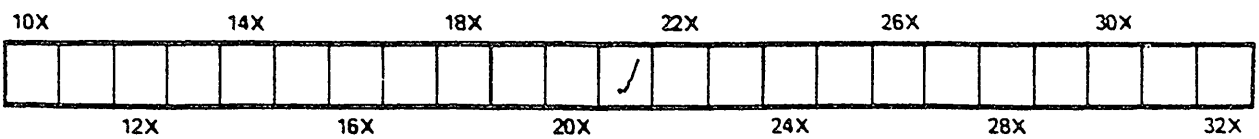

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THE ABOLITION OF THE GRAMMAR SCHOOL.

BY PROF. J. FLETCHER, QUEEN'S UNIVERSITY.

"Thou hast most traitorously corrupted the youth of the realm in erecting a grammar school."—Shakspeare, Hen. vi.

EVERYONE who has read Mr. Seath's able paper on the High School question, must recognise its clearness and sincerity. I differ from him widely as to the conclusion of the whole matter, and may seem in these remarks to criticise rather than commend; but I wish to acknowledge at the outset my indebtedness to his candid statement for a clear comprehension of the subject. I shall endeavour to imitate, in what I say here, his calm and judicial spirit which "avoids alike (in the words of Goldwin Smith) the bigotry of conservatism and the bigotry of innovation."

The problem Mr. Seath sets before himself is the unification of our secondary education. I believe that, along the lines he proposes, any satisfactory unification is an impossibility; the interests involved are too many and too conflicting.

The High School, as at present constituted, discharges three distinct functions:

(*a*) It prepares candidates for university matriculation.

(*b*) It prepares candidates for teachers' certificates.

(*c*) It attempts to serve as "the poor man's college" and to give culture, or at least useful knowledge, to those whose education ends with the High School.

What curriculum can be laid down, adapted to each of these three functions?

Of all the subjects that claim attention in the High School, only English, Mathematics, History, and the Commercial Subjects with Drawing, are at present obligatory.

In the interest of unification and of the last two classes of pupils mentioned above, Mr. Seath now proposes to make Science obligatory also. This proposal simply means the abolition of the Grammar School and the substitution of the Science School in its place.

Those who believe that the old type of education is better, will demand some cogent justification for so sweeping a change. The universities have complained that their matriculation work has been neglected or ignored in the past; there is now danger of its being superseded altogether.

Elementary Science, it is alleged,

is a suitable subject of training for the numerous class (some 50 per cent. of the whole attendance) whose education ends with the High School, most of whom indeed never reach the stage of the Primary Examination. A boy who leaves the High School at the age of fifteen for the farm, the store, the office, or the work-shop, will find a course in science more useful than a two years' course in Classics or Modern Languages, which require time to produce any appreciable effect in the way of discipline or culture. The study of science teaches pupils to observe; at all events it gives them a stock of useful knowledge.

With such a contention most people will agree. If it is possible to do anything at all for this class in the way of culture, the best course for them probably is: English, Mathematics, History, Elementary Science (*i.e.* an explanation of the laws of nature.) It must always be borne in mind, however, that mental immaturity means lack of appreciation, and that, except in rare cases, any attempt at culture at this early age must necessarily be in a great measure futile. The University Extension movement aims at supplementing in after years the culture of this class and it may do something in that way when it has maturity on its side. But the High School can not count on doing much for them; time is a necessary factor in education, which is a plant of slow growth; there is no short cut to culture; knowledge comes, but wisdom lingers. The desire to raise the lower limit of national education as high as possible, is one with which all will surely sympathize who believe that education is the hope of democracy. I should be sorry however, to see it interfere with the interests of that liberal education which it is the main business of the High School to impart. Let us hold fast the good we have. Pupils who are preparing for university matriculation and are willing to devote the requisite time, pupils who have no object in view but culture and can afford to await the slow coming of mature intellectual powers, should not be compelled to forestall any part of their course. Science they may be allowed to defer until the benefit to be received is not problematical but a proved and assured fact. The commercial subjects themselves are of questionable advantage to such pupils, though an unquestionable interference with their chief aim and a dissipation of time and intellect.

A more promising method of improving the necessarily defective culture of the class referred to—as I heard expressed on every side during the late Convention—is not by the degradation of the High School, but by the elevation of the Public School. The High School entrance examination should be based on the work of the fifth class in the Public School, and not, as now, on the fourth, and the standard of the Public Schools raised to meet the requirements of those who can not take time for more than a short course in the High School. The number benefited would be greater than by the other method; and it would be increasingly greater, as parents would be stimulated to allow their children time to complete at least the Public School course. If this plan is out of the question let us have, (instead of unification) complete differentiation and parallel courses for the different departments of High School work.

To return to our argument: If elementary science is likely to advantage those who leave the High School after one or two years' attendance for the active duties of life, it may also advantage those who never reach the High School at all, but finish their education in the Public School. If these can master more than the three R's, they should be

animated with a love of our own literature and instructed in elementary science. This seems an irresistible contention; and therefore the Public School teacher must be qualified to teach the general facts of elementary science; and as long as the High School has Normal School functions to perform, as long as it prepares candidates for Departmental teachers' examinations, so long must provision be made for the teaching of elementary science in the High School.

And here I may say in passing that, by parity of reasoning, an attempt should be made to equip the Public School teacher, of even the lowest grade, not only for the teaching of Science, but also for the teaching of English.

This can not be done without exacting Latin, at least at the Primary Departmental examination. Latin is made obligatory for all teachers in Germany and—Mr. Hodgson assures us—in some of the New England States. Few will maintain that English can be efficiently taught without some knowledge of Latin; without it, indeed, English is apt to be (as has been well said) "a strange collection of inexpressive symbols." It would be of advantage, in another way, to the candidates themselves, as bringing them in line with University matriculation. The teacher's education is not complete when he leaves the High School examination hall; in fact, it has usually only begun. No class is more anxious for self-improvement, and they struggle forward to a higher and still higher level of culture. Many of them are subsequently found in the university, where they often make most successful students on the science and mathematical side. They would be equally so on the literature side, if they were not hampered at the start by their ignorance of Latin. When they begin to think of university matriculation, the time has often passed for repairing their deficiency or for ever thoroughly mastering the rudiments of Latin, Greek and Modern Languages, without which no adequate knowledge of literature is possible. They are thus usually barred from pursuing such a course in the university.*

Mr. Seath asks the universities to modify their matriculation requirements and to accept a course laid down in the interests of the two classes just indicated, *i.e.* candidates for a teacher's certificate and pupils who by their early removal from school are soon beyond the reach of culture altogether; that is to say, he is virtually asking them to determine their matriculation in the interests of pupils who are never to matriculate. The course for matriculation is laid down by the university and is intended to be part and parcel of the university course and preliminary and preparatory to it. The end, therefore, of this course in the High School is culture, just as the end of the university course is culture; and this end it should strive to attain regardless of any lower interest that may tempt it to deviate from its ideal. This is the end for which the High School was founded, as Mr. Seath admits; and the advancement of culture is its highest and noblest function.

Whether the matriculation course laid down by the university is the best possible or not, is another question; but the universities cannot be lectured into degrading their own ideal, or shaping the matriculation

* This proposal to make Latin compulsory at the Departmental Primary—has long been before the public. Mr. Seath objects that the Public School could not then prepare candidates for the Primary. This is true; it would have to be done by the High School. The number of candidates so affected, however, would not be very large

curriculum, either by the requirements of the Public School or by the desire to impart useful knowledge to pupils who will not or can not take the time necessary for the culture course. That these two functions should be accentuated as the important functions of the High School is a serious menace to higher education in this Province. The result of such a policy must be to degrade our High Schools, to throng with pupils preparing for matriculation the classes of schools outside the educational system (which are unhampered by utilitarian ideals), and to lead in process of time to the establishment of other schools of a similar character. The founding of such a school in connection with "Queen's" has more than once been mooted, but the scheme has always been discouraged because of a natural aversion to separation because of our confidence in the efficiency of the High Schools. Any unification of the High School curriculum along the lines suggested by Mr. Seath is undesirable; it is much better that there should be diversity.

That things are as they are, is much to be regretted. The majority of those who go up for examination in the High School, Mr. Seath tells us, go up for Departmental examinations; these examinations are wholly under the control of the Department; and the options taken at the Departmental examinations determine the candidate's subsequent course. I should indeed be inclined to say that *the option taken at the Primary* is likely to determine a candidate's subsequent course; at all events, it is obvious that the character of the Departmental examination is of the utmost moment as determining the teaching in the High School. If the High School were constituted in the interest of the university matriculant and higher education, the Primary would be a real High School examination and not a Departmental one. The main function admittedly of both the University and High School is the advancement of national culture. The ideal end therefore of the High School course is not a teacher's certificate; it is not university matriculation; it is not even to supply useful knowledge; it is to make good and cultured citizens. Real culture excites a love of learning that induces to self-improvement; it teaches how to live, not necessarily how to make a living; it supplies us with a stock of heroic models for continual contemplation and imitation; it enables us to associate with the great of every age, to enter into their minds and to think their thoughts; it develops a thoughtful observant mind, with all powers working in harmony; it creates habits and aptitudes that fit for the discharge of the duties of intelligent human beings.

What a High School culture course should be, can only be determined by a consideration of that to which it leads. Taken in connection with the university course, it should constitute an organised unity with all the parts duly co-ordinated. There should be no over-lapping, no anticipating of work more properly done in the university, and no postponing of work more adapted to mental immaturity in favor of work less adapted. The general aim should be, by a due gradation of studies, to develop and strengthen the intellectual faculties for the severer course lying before them in the university. What the university course should be, in my opinion—in a great measure *is*—I will briefly state. The principle that the special or honor course ought to follow only after a general or liberal culture course has been recognised to a certain extent by the universities of the Province; but it might be carried out with greater thoroughness and consistency than it is It was, I believe, the conviction of the late Prof. Young—whose name

and influence will not soon die among us—that at least the first two years of the university course should be devoted entirely to general work, before the honor work was commenced. Many of our most thoughtful educationists are of the same mind, and the tendency hereafter is likely to be rather towards general culture than towards further specialism. Such a general course should include (in a great measure does now include): (*a*) On the humanistic side (study of *man*,) Literature, (ancient and modern,) as "the highest expression of the mind of man," and "the stud yof the intellectual and moral world we live in"; History, as "a record of the progress of the human race"; Political Science, as "the science of government and civil society"; Philosophy, as "the history of thought," and "the science of the principles of all knowledge." (*b*) On the scientific side (study of *nature*,) elementary Mathematics, as a deductive science; Physics, as an inductive science; Natural Science, (elementary Biology, Geology, Botany and Astronomy) in its broad out-lines as the knowledge of nature. Such a course should be compulsory on all. It would serve a two-fold purpose: It would guarantee a sound general culture for all, and it would serve to differentiate advanced students, as students of Literature and Philosophy, and students of Science and Mathematics.

The High School "culture course" should be the university culture course in miniature, making due allowance for the greater mental immaturity of those for whom it is intended, and eliminating the subjects that require maturer powers. Few will agree with Mr. Bryant that Political Science is a suitable subject for a High School course, at least if they give any heed to Mill's words: "Government and civil society are the most complicated of all subjects accessible to the human mind." Philosophy can hardly be taught formally in the High School, as Mr. Fouillée suggests. History does not demand much teaching (at least the common facts of history, apart from constitutional history and historical criticism) and, if suitable text-books were only accessible in the High School library, it could be acquired in the way of pastime and ordinary reading. Of the subjects remaining, literature and elementary mathematics should form the beginning and the staple of the High School culture course. These form the only proper preliminary to the university course already defined, and if the rudiments of these subjects are not mastered in youth they are as a usual thing not mastered at all. I should like to see taught to every candidate for university matriculation: Latin, English, French, Arithmetic, Algebra, Geometry, and the rudiments of Greek and German. This was the preparation we received for the university in the old days in the Upper Canada College, with a little science added over and above; and I have never known any one, who underwent the training, regret it or maintain that it could have been improved upon. Looking back to my university course, I feel convinced that no other preliminary preparation would have served as well. When the matriculation standard is reached differentiation might begin, and pupils might be allowed to take elective studies either on the literature side or on the science side, according to capacity.

In sketching the general culture course for the university I have given a place in it to Greek, as "Greece must be considered the parent of all intellectual effort in poetry, eloquence, history and philosophy," and the language and literature of Greece can hardly be omitted from any ideal scheme of higher education.

*THE STUDY OF THE CLASSICS.

THE study of the Classics, about which I am asked to say something to the Association, is, I fear, an exhausted theme. There is really not very much to be added to what Milton said two hundred and fifty years ago.

The world has been moving rapidly during the last half century in this as in other respects. In my boyhood the Classics were the education of the wealthy class in England. Even Mathematics were not a part of our regular school work, but an extra. The Mathematical teacher was not one of the regular staff; the members of the staff wore academical gowns and to them the boys took off their hats. It was said that when the Mathematical Master on his appointment asked the Provost whether he was to wear a gown, the reply was, "That is as *you* please." He then asked whether the boys were to take off their hats to him; the reply was, "That is as *they* please." Our curriculum in the Upper School, that is for three, four or even five years, was the same. The Iliad, the Æneid, Horace, a book of Greek prose extracts with a good deal of Lucian in it, a book of Greek poetic extracts with a good deal of Apollonius Rhodius in it,-and a book of Latin prose extracts of a better kind. We said all the poetry afterwards by heart. The Iliad was our great book. It left its trace on character. Matthew Arnold has a story of an aged Grandee who, being asked to go on an arduous diplomatic mission from which he thought he would never return, made up his wavering mind in favour of public duty by recalling the words of a hero in Homer. The sixth form read part of a Greek play once a week with the head master. We read other Classics in the pupil rooms of our tutors, in which relation each of the Masters stood out of school to a certain number of boys. For the Newcastle Scholarship and Medal, for which we annually competed in Classics, we studied by ourselves; and some boys before they left Eton had made the acquaintance of a very respectable number of authors. Each boy had a room to himself, and everything favoured voluntary study. Great stress was laid on Greek and Latin composition, especially on the writing of Latin verses, an accomplishment which will probably soon be extinct; but in Eton in my day was the passport to the greatest honour, and was really carried to a high point for boys, as a glance at the Musæ Etonenses will show. Thus was trained the brilliant genius of Canning, and other scholar-statesmen of that stamp. But all that belongs to a past age; to the age of old Provost Goodall with his wig, knee-breeches and buckles, who, by his command of the Eton influence, turned the Great Western Railway out of its course, and, as it was said, when the mail came by railroad, would never have his letters brought before the time at which they ought to have come by coach. More than two generations have passed since in that old school-yard, when we assembled before school round the statue of our founder, Henry the Sixth, and where the forms of distinguished visitors were often seen, I took the hand of Napoleon's Marshal Soult and gazed on the Olympian brow of Daniel Webster. Eton is now reformed. Mathematics have been promoted to their proper place; science has been introduced. The life of an Eton boy has

* The address of Dr. Goldwin Smith, the Honorary President, delivered before the Classical Association of Ontario, on April 6th, 1893.

been made more profitable and laudable; happier it could not well be.

At Oxford education was still classical, Mathematics holding nominally an equal but really a much lower place; while at Cambridge, owing to the influence of Newton, they held the higher place. But classics at Oxford included ancient philosophy and ancient history with a certain amount of modern illustration, Aristotle being supplemented by Butler's analogy and sermons. It was no illiberal training; it not only exercised industry and called forth intellectual effort but excited an interest in the great questions of humanity. To the phrase *literæ humaniores* indeed it corresponded very well. Our study of Aristotle was intercourse with a grand intelligence, though we lacked the lights which evolution has now thrown on the subject.

The classical class list of Oxford has certainly given to England a long train of statesmen and leaders of opinion, among the leaders of opinion being Cardinal Newman. Even the financial system of England has been largely the work of Oxford first-class men in Classics, and they have supplied a large quota of those permanent under-secretaries of government departments who have the ordinary administration of the country in their hands. Lord John Russell, as a scion of an enlightened Whig house, instead of being sent to one of the old Universities was sent to Edinburgh, but I have heard that after long experience he expressed his preference for Oxford and Cambridge as schools for public men.

The fatal defects of the system were: first, that it excluded, and almost condemned to ignorance and idleness, all whose aptitude was not for the humanities but for the positive sciences; and secondly, that it failed with all but the elite. Those who did not read for Honours, the pass men as they were called at Oxford, the poll men as they were called at Cambridge, got nothing but a miserable smattering of Greek and Latin which could not possibly have had any value either by way of knowledge or by way of training, and which they lost as soon as their backs were turned on the University. The time of many, perhaps of most of them, was worse than wasted, since they contracted not only habits of idleness and expenditure, but distaste for reading. Even of the classmen not many, if I may judge from what I saw among my own acquaintance, kept up their classics. Canning did; Lord Grenville did; the Marquis of Wellesley did, and after his famous pro-consulate and his long public life, wrote his beautiful Latin lines on a weeping willow. Pitt used classical quotations; whether he kept up his classics does not otherwise appear. Sir George Cornwall Lewis kept up not only his classics but his classical erudition, and continued his researches when he had become Chancellor of the Exchequer. Mr. Gladstone has done the same. Lord Sherbrooke, better known as Robert Lowe, seemed as a politician to feel it necessary to pay his tribute to democracy by disparaging classical education and lauding the utilitarian system; yet those who had the pleasure of being his guests knew that he was devoted to the classics and spent much of his leisure in reading them. But I have lived with statesmen who, having taken high honours in classics at the University, never, I believe, thought of opening a Greek or Latin book.

As an optional study classics seem to hold their own wonderfully well by the side of subjects regarded as more practically useful. They hold their own even on this commercial and industrial continent, where it might be supposed that culture would have less chance in competition with utility. So I gather from statistics

which were kindly furnished to me by my friend Mr. Harris, the head of the Bureau of Education at Washington, and from what Mr. Harris himself told me.

It is needless to say how greatly the practical importance of a knowledge of Greek and Latin has been altered since the revival of learning. It was then the indispensable key to the only literature worth reading; to the only literature, indeed, which existed, since even the chronicles, the theology and the school philosophy were in debased Latin. The early humanists were not philologists; they were seekers after the lost treasure of Greek and Roman literature. Philology came later with the generation of Scaliger and Casaubon. Then began the age of grammarians and their pedantry. We can hardly imagine the sensations of the maritime adventurers of that time when they put forth to explore an unknown world; we can as little realize the feelings of the scholars who were engaged in bringing to light the buried works of Greek and Roman intellect. Science in its progress has brought a vast and will, no doubt, bring a yet greater measure of knowledge to mankind. There is a romance which can never return.

On the other hand no age has stood more in need of humanizing culture than this in which physical culture reigns. One of the newspapers the other day invited us to take part in a symposium, the subject of which was "How to produce a perfect man." The problem was large but one help to its solution might have been a reminder to keep the balance. A romantic age stands in need of science, a scientific and utilitarian age stands in need of the humanities. Darwin avows that poetry gave him no pleasure whatever. This surely was a loss, unless that whole side of things which poetry denotes is dead and gone, nothing but dry science being left us; in which case the generations that are coming may have some reason, with all their increase of knowledge and power, to wish that they had lived nearer the youth of the world.

The study of language, however, as we now pursue it is not less scientific than any branch of physical science, while it has a special interest from its connection with the history of the human mind. The chancellor of a university, a man high in the scientific world, once exhorted his students to take to physical science rather than to languages or literature, because nature was the work of God, while languages and literature were the work of man. It was answered that man was the noblest work of God, and that he could be studied only through his languages and literature.

Supposing the studying of language to be useful, there can be no doubt that the ancient languages are its best field. The Greek language especially has perfections, particularly as an instrument of exact thought, which make it almost as much a miracle as Greek art. Optimists may persuade themselves that the Norman Conquest was politically a blessing in disguise. But they cannot pretend that it did not bring confusion into our tongue and make the English language unfit for the purpose of exact thought. We are wanting in sets of cognates and in the power of forming compound words, as well as liable to being perplexed by double names for the same thing derived from different linguistic sources, perhaps with some difference of connotation. So great is the superiority of Greek over every modern language as an instrument of exact thought, that if we were to believe, as some do, that in the struggle for existence one of them will at some distant day become supreme and universal, we might think that a chance of the palm would be still left to Greek, which is still a

living language, though spoken by a small nation and in a debased form.

The ascendancy of English is commercial. Should intellectual interests ever prevail over commercial interests the table might be turned. Already Greek may be almost said to be the language of science and philosophy. Our scientific books, especially so far as the principal terms are concerned, are almost written in Greek.

Latin, it is needless to say, has still an intrinsic value as a key to the romance languages. Any one who is master of Latin may learn in a few weeks to read French, Italian or Spanish with ease by himself, though he must go to a teacher for pronunciation. Indeed, though Latin quotations are no longer the fashion in Parliament, Latin, from its long use by the educated, has so intrenched itself in our literature, our legal, medical, and ecclesiastical phraseology, and even in our common conversation, that total ignorance of it will always be felt as a disadvantage.

As models of style it is generally admitted that the ancient writers are still unmatched. Nor is it likely that they will ever be superseded, since their simplicity and freshness are the dew of the early world. As Christopher Sly says, we shall ne'er be young again.

In the Drexel Institution at Philadelphia, the founder's munificence and taste have brought together objects of art and beauty from all times and nations; but in the centre of the collection stands supreme over all, the cast of a mutilated statue. It is the Venus of Milo and attests in its pride of place the unchallenged ascendancy of the Greek. Compare the work of Phidias with the work of Michael Angelo; while you may find more depth of sentiment in the artist who has the advantage of fourteen christian centuries, you will own that in treatment he has more than an equal in the Greek. So it is in the case of literary style. Some difference has been made, no doubt, in the practical value of a knowledge of the ancient languages by the increased number and excellence of translations. Still, a translation is not an equivalent for the original. Till I saw the ancient sculpture, I thought the casts were equivalents for the statues; but as soon as I looked on the originals I at once discovered my mistake. Even in Jowett's Plato the murmurings of the Platonic plane tree are not heard, nor does his Thucydides preserve the forms, characteristic as those of early sculpture in the Æginetan frieze, under which political philosophy, newborn, labours to find expression. We have no adequate representation of the garrulous simplicity of Herodotus or of the majestic brevity of Tacitus.

Poetry always defies perfect translation.

On the importance of a knowledge of antiquity to any student of humanity it is needless to dwell. Without it no one can understand European civilization. From Greece and Rome is derived not only much of our institutions in law, but important elements of our character, especially of our political character, in which the Greek and Roman element has been at least as strong as the Christian. Republicanism in contrast on the one hand to the monarchial spirit, on the other to what is called authorative democracy, is an inheritance from the ancient commonwealths. It is curious to note the blending of republicanism with the monarchical spirit in the political character of the British aristocracy when they were brought up on Greek and Roman literature. The Whigs of Horace Walpole's time were full of Brutus and Cassius. The French Revolutionists were still more antique in their aspirations. We all know the strange tricks which they played in

their attempts to reproduce the sentiments, actions and costume of tyrannical Rome. The world is probably now passing finally out of the zone of this influence and into a zone of social science, but the traces of political classicism are still seen.

As a manual for the study of humanity, the ancient writers, while they cover nearly the whole field, have the advantage of being entirely removed from the heats and controversies of our time. Aristotle knows nothing of evolution, otherwise it would perhaps be difficult even now to name more available text books than his ethical and political works, read with ample commentaries and with modern illustrations. The ancients are removed from our heats and controversies, but the adamantine barrier which was supposed to sever them as heathens from our sympathies has crumbled away and we recognize them and their civilization as most interesting and important factors in the development of our race. The people of Hellas were in all things our kinsmen, though theirs was a simpler, more careless, and sunnier life. Like us, though less anxiously, they strove in their inquisitive and philosophic moods to penetrate the mystery of existence. Perhaps the thing that separates them most from us is slavery, which solved for them the social problems with which we are grappling, and made them all warriors, athletes, and cultured gentlemen.

We now read the classics with enhanced appreciation of ancient life and thought. Bentley, prodigious as was his learning, had no distinct feeling for ancient life and thought; he treated the classics as if they were so many modern authors. The improvement is due partly to the progress of archæology, which has disinterred and deciphered so much, principally to the growth of the historical and rational methods. Perhaps the revival has gone in some directions as far as good sense permits. It would be hard if all our fine editions of the Latin authors were to be cashiered because they are not precisely antique in their orthography, when the deviations were convenient and would probably have been welcome by the Roman scribe. The pretensions of orthoepy again are surely rather high. I am afraid I once tried the equanimity of an enthusiastic orthoepist by saying that it seemed to me that nothing but orthoepy was wanting to the completeness of the Roman banquet in Peregrine Pickle. If we cannot pretend to pronounce English as it was pronounced in the time of Chaucer, though only five centuries have elapsed and there has been no great change in the population, how can we expect to pronounce Greek as it was pronounced in the time of Demosthenes or Latin as it was pronounced in the time of Cicero, when two thousand years or more have elapsed and when in each case there has been a deluge of immigrants with organs too coarse to manage the inflections? Our customary pronunciation has been simply an avowal of ignorance, yet it is useless to tell us that Homer and Virgil as we have been pronouncing them do not make music to our ears.

Throughout life the Classics are a delight and refreshment to him who has kept up the knowledge of them, but they are specially a delight and refreshment to old age. No retreat, after the turmoil of an active life, can be more charming than that grotto crowned with ilex from which fall the babbling waters of the Bandasian Spring. Cyril Jackson, the great Dean of Christ Church, before whom the academical and ecclesiastical world bowed, used to say that when he felt himself growing old he should wish to take with him into his retirement only three books—the Bible, Homer, and Horace.

If the physical sciences were equal as instruments in intellectual training

to classics and mathematics they would be likely to prevail, because for the ordinary student they would have, especially over the classics, the advantage of greater practical utility. Apart from anything professional, an ordinary student who took the line of physical science would carry his knowledge more with him into life, would have more opportunities of applying it, would have it better kept up for him without special study by his daily occasions and surroundings. But physical science as an intellectual training can hardly, it would seem, be brought within the compass of a university course.

To acquire the scientific habit of mind a student must not only take down notes of scientific facts from a lecturer but go through a course of scientific experiments and processes hardly practicable within the limit of three or four years. A classical or mathematical training can be thorough if the student comes well prepared from school. A school without extensive apparatus cannot do much in the way of preparation for physical science.

After all, we are thrown back upon the question, what is a university? Is it a place of intellectual training or is it a mart of knowledge? In their origin the universities were certainly marts of knowledge, such knowledge as there was in those days. The object of the eager swarm of students who filled Oxford and Cambridge in the thirteenth and fourteenth centuries was not intellectual gymnastics but acquisition of that which they thought would bring them profit or power, and which before the invention of printing they could learn only from a professor. Afterward the university took the form of professional education in the several faculties of theology, law and medicine with a preliminary course of general training comprehending all the liberal knowledge of the day under the designation of Arts. Law and medicine afterwards migrated to professional centres. Theology, as a mediæval science, shared in great measure the fate of the school philosophy, though at Oxford and Cambridge, as the fellowships of colleges were almost all held by clergymen, clerical studies continued to be pursued. Nothing was then left but the general or arts course. It thenceforth became the fashion to regard the universities and justify their existence, not as marts of knowledge but as places of culture, a function which they really discharged only for the elite, doing little or nothing intellectually for the mass of the students, whatever may have been their social use to a leisure class like the English gentry. Now it is demanded that they shall once more become marts of useful knowledge. This new or revived view of their functions is carried sometimes to great length, as reactions are sometimes apt to be. Not only is the study of modern languages accepted as academical, but I have heard a university congratulated on having adopted the study of roots more succulent than Greek roots; to wit, potatoes and turnips. While the end of an institution is unsettled, uncertainty and confusion as to the proper means must prevail. A voice is now heard crying that universities were creations of the middle ages, a period in which there were hardly any books, and that they are now anachronistic and obsolete. It will be found difficult, however, to dispense with great centres of instruction, especially in science, for which costly apparatus as well as first-rate teaching is required; to say nothing of the benefits derived from academical influence by the man and the citizen. If the extreme utilitarian view in the end prevails there is no saying what the fate of classical studies may be; if culture continues to be an object we can scarcely think that they will be entirely displaced.

THE NEW EDUCATION AND THE OLD.

AT one time the schools have tended almost excusively to memory culture, with very little attempt at verification by original research and observation. This was the case with what is called the old education, and if we are to believe the critics this ought to be called the prevailing system of our time also. But Pestalozzi exploded the theory on which it rests and substituted another. He laid stress on sense-preception, verification and original research. The practice of our time may not correspond to its theory, but certainly all writers uphold the Pestalozzian doctrine of instruction by object lessons. But while this reform is progressing toward its extreme, another tendency has begun within a few years, and it promises to force a new departure on our zigzag line. This is the doctrine of Herbart, which holds that it is not so much sense-preception that is wanted in education as apperception—not so much seeing and hearing and handling things, as recognizing them and understanding them. This doctrine of apperception stands opposite to that of perception, but is not a return to the standpoint of memory. On the contrary, it is rather a more inclusive doctrine, that combines perception and memory in a higher faculty.

Figuratively speaking, we may truly say that it is what we inwardly digest or assimilate of what we memorize or preccive that nourishes our minds, just as it literally true that it is not what we eat, but what we digest that nourishes the body. The process of mental digestion and assimilation is called apperception by the recent reformers. It is well enough to have a new technical term when we form an idea that contains many old ideas united in a new concept. This process of mental digestion is partly expressed by each of several words, such as identify, recognize, explain, interpret, comprehend, understand. In fact, to classify the new under some already known species, to subsume a particular under a general, are parts, but not the whole of apperception. It is the adjustment of the new idea to the stock of ideas which already form our intellectual wealth. It is what we sometimes call thinking instead of mere seeing or mere memory. We say: "Teach your pupils to think, and that is better than to acquire information by perception or memory." Here we mean that it is better to apperceive than to preceive or remember. The interaction between the new idea and our stock of old ideas is the essential thing for education. This interaction, we see, is called apperception, and it is a twofold process. For the new modifies the old and the old the new. The new object adds something, however, slight, to my stored-up knowledge of the class to which it belongs. On the other hand, what I bring to it with the wealth of my experience throws light on it or explains it. I see its differences from others of its class, and know it to be only a partial realization of the possibilities that belong to the species. It is perhaps only a partial development in some of its features and an overdevelopment in others. I look for the explanation of these defects and superfluities and learn to know the causes. Thus takes place mental digestion.

Prof. Ludwig Noire has illustrated this operation of apperception wherein we add to a new idea a train or series of remembered ideas, and project beyond it another series of ideas or ideals formed by the imagination. He has taken the object preceived, a piece of bread, and connected with it

a train of presuppositions which our apperception at once supplies to it from experience already stored up, thus: grain, rye, flour, dough—bread. Or, connecting the processes; planting, harvesting, threshing, grinding, kneading baking—bread.

What an immense series of ideas a piece of bread calls up to us! By our activity of apperception we think of the materials out of which the bread is made, and of the processes by which they have been produced. But this is only one-half of the mental apperception of the object, a piece of bread. Professor Noire makes a diagram with the presuppositions just named placed before the whole bread, and follows it with the objects and uses which our apperception associates with the piece of bread to explain its existence. These are, first, the ideas of food, organic tissue, life, etc., and the processes of eating, digesting, nourishing the strength, supplying the heat, etc. Again, each of these ideas, as before, has its several collateral series of ideas. This example indicates to us the scope and bearing of the new pedagogy as related to the course of study. It will give its attention to the relations of things, and especially to the causal relations—endeavouring to think the object in the totality of its existence. When we see a thing in all its relations we comprehend it. We may apprehend it in one, or a few, of its relations. It brings the new object perceived into connection with all that has been formerly experienced; it is naturally led to undertake new investigations, to verify conjectures and probabilities which previous experience suggests as likely to exist.—*Prof. W. T. Harris, in the Educational Review for May.*

PROFITING BY CRITICISM.

HOW much we may profit by the criticism of others, depends in part upon the spirit and purpose of that criticism; but it depends in still greater measure upon the temper in which we receive it. If criticism is intelligent and kindly, it may always be useful to us, if we know how to use it. How to profit by the criticisms which others make upon our efforts and conduct, is an important question for every person to consider.

A very little observation serves to show some of the ways in which people are accustomed to lose the profit which the criticisms of others might have for them. One of the commonest ways is seen when the person criticised turns upon his critic, and passes a similar criticism upon him. In cases like this, the criticism that is offered, however kindly and well meant, is received in a spirit akin to that of revenge. It is treated, not as the council of a friend, but as the thrust of an enemy. A person who thus habitually treats the kindly judgments of others upon his faults and deficiencies is almost beyond the possibility of improvement by criticism. In resentful selfishness he refuses to look at the defect to which attention is called, and seeks a sort of revenge upon the one who has mentioned it by resorting to counter-criticism. This species of retort commonly springs from anger at the presumption which dares to mention any of our faults; in other words, it springs from that blind self-satisfaction with one's self which is one of the most unseemly forms of confirmed selfishness.

Another way—closely akin to that just mentioned—in which the profit of

criticism is forfeited, is seen when one resents kindly criticism as if it were an insult. An insult is a hateful and contemptuous imputation; criticism is a judgment concerning our character or action which purports, at least, to be a just moral estimate. To treat a criticism as an insult, is to indulge the very spirit which gives rise to insult, and thus to lower one's self to the level of the action which he so earnestly resents. There is no profit in criticism for any person who in these ways refuses to treat criticism for what it is, and to try to estimate it for what it is worth.

We shall never profit by criticism unless we are willing to accept and consider it. To persist in assuming that whatever we do and think and are, is right any way, and is not to be challenged, is to shut out of our lives one of the greatest aids to our improvement. The person who is indifferent to criticism, or defiant of it, at length sinks down, not only into the practice, but into the justification, of faults which mar his character and make him less of a man than he might have been if he had been less narrow and selfish in his estimates of himself.

The ability to profit by criticism will depend largely upon our self-knowledge. If one has developed the rare power candidly and justly to criticise himself, he will have the ability to estimate the criticisms of others, and the disposition to profit by them, while by comparing his own self-judgments with the criticisms of others, he will test his own estimates, and will be enabled to render them more clear and just. Here, as in so many spheres of life, the power to use external things depends chiefly upon inner condition and capacity. Better than "to see ourselves as others see us," is to see ourselves as we really are. Then we shall be able to appreciate and profit by the way in which "others see us." Without judicious and candid self-knowledge there is no profiting by criticism.

It is always interesting and important to observe how the simple lessons and plain duties of life are bound up with the deepest and most essential elements of character. To know how to take and use what the world has to offer us, is to have the true knowledge and the right control of ourselves and a just estimate of what will conduce to our best growth. Our best development depends not so much upon the outward conditions in which we are placed, or the events which take place around us, as upon the way in which we look at life and the spirit in which we take its opportunities, its duties, and its trials. Every task, every burden, every hardship, is a new test which we are called upon to sustain. Perhaps none of these tests is more severe than the test which criticism imposes. To meet it in a spirit of candor and with a sincere desire for self-improvement is a real achievement in the formation of character and an evidence of just and wise views of life.

It should always be remembered that criticism makes us neither better nor worse than we are. "This wise world is mainly right" in its estimates of us, and no individual criticism which is palpably unjust in its severity can do us any permanent harm. When it is certain that strictures made upon us are baseless and unjust, we can afford to treat them as powerless to harm us, and should be able to rise above them. It is the truth in criticism which has most power to help or to harm us—to help us if we accept it and seek to remedy the defect which it has disclosed, to harm us if we rebel against it, and refuse to accept the lesson which it is able to teach us.

All our education is a process of practice under criticism. The student who is eager to discover and to correct the faults of his knowledge and thinking, and who thus learns to exercise a critical judgment upon his own in-

tellectual work, is the man who is making a right use of criticism. He knows that in the long run his work will be estimated at its true worth by his teachers and associates. Fulsome praise need not elate him, because, if undeserved, it will not be ratified by the general judgment. A merciless exposure of faults will not dishearten him, because he wants to know his faults that he may correct them; and he knows that the critic is a true friend who sets them in the clearest light. Too many men grow up with only a boy's naive and flattering estimate of their own performances, either because they have never been subjected to a rigid process of criticism, or because they have not been wise enough to profit by it. Many a man can remember the time when he got a more true, though very humbling, view of his gifts as a writer or thinker under the searching criticism to which he was subjected by his teachers or other friends.

There are few things in life from which we can derive more profit for mental and moral growth than from true, right-spirited criticism. That person is truly unfortunate who fails to avail himself of its benefit.—*The Sunday School Times.*

If our virtues did not go forth of us
'twere all alike, as if we had them not,
—*Measure for Measure, i. 1.*

HERBART.

BY L. SEELEY, LAKE FOREST UNIVERSITY.

JOHANN Friedrich Herbart was born in 1776 and died in 1841. He early showed a bent for philosophical studies, having the advantage of studying under Fichte at Jena. He began lecturing as *Privat Docent* Göttingen, was called to Königsberg, to the chair formerly occupied by Kant, but returned to Göttingen where he ended his days. He carried his research into the field of philosophy, æsthetics, theology, psychology and pedagogics. It is with Herbart as pedagogue that we have to do. Rousseau started new lines of thought as to the proper method of educating the child, teaching that nature's laws must be observed in training the child. Pestalozzi, catching the spirit of the great French philosopher, gathered children about him and gave a practical illustration of the method. Both did great service to the cause of education, both instigated new reforms, both started mighty influences which will never cease to be felt in every school where there is intelligent teaching. But neither Rousseau nor Pestalozzi founded a system of pedagogics and it was left to Herbart to do this service to the world. To him we are indebted for the enormous advance in psychology in these later times, especially in its bearing upon and connection with pedagogics.

Herbart gave the earliest impulse to secure a scientific foundation to pedagogics. He began as early as 1810 to lecture on the subject, gathering students about him into a pedagogical seminary and forming a practice school with children. He says that his investigations were chiefly due to the settled conviction that very many of the tremendous gaps in our pedagogical knowledge are attributable to defects in our psychology, and that these must be remedied before a science of education is possible.

Herbart holds that there are no faculties of the soul in the sense that most philosophers claim; he says that all notions, or ideas, are stored in the mind where they lie dormant until association or some external activity calls up an idea and brings it forward prominently into the consciousness, while other ideas retire into the background. Hence the important place that he gives to association in his system of pedagogics.

Much is said in these times about educating the individual. Herbart makes his pedagogics center around this thought, and if he had done nothing more for education than this, he would still have rendered incalculable service. Neither family, nor state, nor humanity is the end of education, but the development of the individual. Everything but the individual is an abstraction, and valueless excepting so far as it advances his interests.

With Herbart the work of education has three offices: *discipline*, *instruction*, and *training*. The child has no control over himself; he is the prey to lawless inclination, and the office of discipline is to overcome this and teach self-control. Much of discipline is furnished by society and by the family, but not enough; there must be the systematic discipline of the school. Discretion must be exercised as to when discipline shall cease. It must not be carried too long nor relaxed too soon. It must cease as soon as the child has reached a condition in which he can control himself.

The aim of instruction is to cultivate the will to impart an insight into ethical relations, and to create an ability to realize ethical ideas. It has for its end the building of character. The imparting of knowledge in instruction has a far wider purpose than the fixing of the particular knowledge so as to fit for an examination, or even the accumulation of facts. It will surely give the facts, but the end is not the facts, but the growth, the development of the child into well-rounded character. Pedagogics, therefore, is a department of ethics, or rather the method by which ethics secures its aim, the perfection of the individual. Recognizing the importance of proper instruction, Herbart gives very careful directions in regard to it in his *formal steps*, which I shall discuss later.

Training aims to fix the moral lessons into abiding forms of character, and to bring the student to a point where he can undertake the work of self-culture. The *formal steps* are not exclusively for the purpose of instruction, but must of necessity assist in the matter of training.—*The School Journal* (*N. Y.*)

Asbestos was discovered at a very remote period of history. It was known to the Greeks in the time of Herodotus, and the Pompeiians left samples of it entombed in melted lava. In 1850 experiments were systematically made in Italy as to its fire-resisting properties. It is now used in the manufacture of cement, rubber-cloth, felt, twine, wicking, yarns, roofing, rope, mats, stove linings, boards, tubes, etc. It is found in nearly every part of the globe.

The death rate in Munich from typhoid fever alone used to be 24.20 in 10,000. Under Petenkofer's lead the city has been provided with water from an unquestionably pure source, and a complete but very costly system of sewers has reduced these deaths to 1.75 in the 10,000. The gradual minifying of the disease, *pari passu* with the progress of the "works," first to 13.35, then to 9.26, and lastly to the 1.75, is in itself a short and pithy sermon on Pasteur's dictum: "I believe it is within the power of a man to drive these (germ) diseases from the face of the earth."—*New York Independent.*

TEACHING AS A PROFESSION.—III.

BY HON. A. S. DRAPER, SUPT. OF SCHOOLS, CLEVELAND, O.

INDISCRIMINATE LICENSING.

ASSUMING, as the necessities of the case oblige us to do, that a State cannot at once, or perhaps, for an indefinite period, exact the proficiency we have in view on the part of all teachers in the schools, let the others be certified or licensed upon an intelligent and rational basis. The State should take the whole matter into its own hands if it would secure general results. Establish a minimum standard of intellectual qualifications which all must attain or not teach in the schools. Require all candidates to show at least this standard of scholarship by means of a general system of examinations held at stated times in public places and under competent professional supervision. Let the examiners withhold certificates for other reasons than lack of scholarship whenever they think proper. Retain all papers for reference in case of controversy, and make full public records of all the proceedings. Require that certificates shall always antedate employment, and show upon the face of each just what the holder did in order to earn it. Grade the certificates, and make it to the interest of teachers to advance from the lower to the higher, by making the examinations less frequent and by limiting the number of lower grade certificates which may be issued to the same individual. All this will not take the place of a professional education in an institution maintained for that purpose, but it will set all at work, it will give a proper direction to effort, it will fill up the training classes and the Normal schools, it will make the teaching service more respectable and more respected, and it will stimulate all of the educational work of the commonwealth in more ways than can easily be enumerated.

But be sure to discriminate, and find a way for leading the public to discriminate, between teachers who have taken a professional course, or have gained a professional position through long study and honorable experience, and the novitiates who are given authority to teach, pursuant to a mere exanination, because it was necessary to let them teach in order to supply the schools. This is only just to one class and it is not unjust to the others. The encouragement which it will give to professionals is vital to the growth of a professional spirit and the development of an expert teaching service. This can easily be done by regulating the form and appearance of the certificates by relieving from subsequent examinations, by permanent tenure except for cause, by forbidding the employment of amateurs in the positions which are the most exacting or the schools which are the most important, and by innumerable honors or advantages which may be readily conferred in the practical operations of the schools.

EMPLOY PROFESSIONAL TEACHERS.

Again, the State should not only pursue a policy which will supply well-educated and professionally trained teachers to the schools, so far as possible, but it should also prohibit the employment of any others where such are available.

While thoroughly competent teachers are not paid as well as similar talent is paid in other professions, it is still true that persons without qualifications get more credit and better pay in this work than they could get in any other way. So the supply of candidates is greatly in excess of the

demand. Holding the view, which cannot be successfully controverted, that the school system is not a district, village, town, city or county system, but a State institution, maintained and controlled by the State for general purposes, and administered through local officers and agents, only for convenience; and because that is the American plan for the administration of affairs, it follows that it is the business of the State to pursue a course which will result in the greatest number of teachers who are specially qualified for the service, and discriminate in their favor when filling positions.

It is not only proper, but it is entirely feasible to do so. Before candidates have commenced teaching they will willingly pursue a required course of instruction and training, if it is afterward to prove of any advantage to them. Why does not the legislature pass a bill, providing that after January 1, 1894, no teacher should be employed in any city or village, having a superintendent of schools, who had not completed a high school course, and had at least a year of training in a normal school or a training class? There is but one reason and that is, because the opportunities for professional training are not generally available when they ought to be. This principle is being uniformly and invariably observed in Cleveland and some other large cities, where the circumstances are certainly trying and the obstacles are great and innumerable. It is entirely feasible. If we are to have good schools everywhere it must have more general recognition, and if teaching is to be classed with professional employments it must be upheld and enforced by every one who would make it so. This then is the next step, namely, that all teachers must be liberally educated and then specially and professionally trained and that no others shall be employed so long as such are available.

PUBLIC TREATMENT OF TEACHERS.

Teachers are *quasi* public officers. They are in the public service, carrying on the public business for the attainment of a public end. They are employed by and are amenable to public officers. Their social and professional standing is largely determined by the treatment which the public accords to them. There are, of course, exceptions to this rule. Individuals sometimes possess the qualities which are stronger than circumstances and which enable them to break through the barriers which encompass them. But the great mass will occupy just such relative position as merit compels, or as public sentiment, regulated by public law, accords to it. The merits of the teaching force, the right to increased social and professional respect, will be likely to advance as there is opportunity and incentive. When the public encourages more liberal attainments, by rewarding them as similar attainments in other lines of mental activity are rewarded; when it makes it advantageous to men and women to devote their lives to this employment, by making employment permanent during competency and good behavior, not by the grace of a board or a committee, but by right, there will be a teaching profession which will not suffer seriously in contrast with the other professions.

I once asked a school superintendent of twenty years' standing in one place, how he managed to hold his place so long. He facetiously replied: "When I have managed to be elected one year I immediately set about seeing where the votes are coming from to elect me the next year." All are not driven to this; many would not resort to it if they could, but the extent to which school officers have to be coddled and are coddled by teachers, in order to maintain their situations, is enough to materially interfere with

the efficiency of the schools and drive self-respecting people out of the teaching service.

ADMISSIONS TO A TEACHING PROFESSION.

In addition to general scholarship and professional training it may be broadly asserted that before teaching can attain the dignity of a professional employment, professional teachers must control the gateway of approach to the employment of a teacher, and once in, the teacher must find that his professional attainments are of moneyed value which will be recognized by the public, and of legal value which may be enforced in the courts of law. Theologians pass upon the qualifications of candidates for the ministry. Who else can do it? Physicians and lawyers determine the conditions of admission and control the doors to their respective professions. They alone can do it with intelligence. So it is with any expert or professional service. Who can determine the qualifications of a would-be expert but an acknowledged expert? We say that before one can be proficient and successful in teaching and successful in managing schools he must not only have general scholarship but he must have studied psychology, the principles which have been shown by investigation and experience, to govern the development of the human mind, he must understand the science of pedagogics, he must have investigated the principles of school economy and management, and the history and philosophy of education, and the like. We are all wrong in our theories or this is expert knowledge of the highest kind. We are not wrong. Knowledge of the laws of mind is higher than knowledge of the laws of matter. Knowledge of the laws of thought, of the secret springs of human feeling and action, is higher than knowledge of the parts and functions of the human body; or than the laws which are found to be necessary to secure justice, deter crime, or prevent revolution and disintegration in the social organization, indeed higher than that speculative philosophy which has gone to far in taking the place of the simple faith our mother taught us on her knee and which deals with the furnishings of heaven and divides upon the question, whether little children who were never baptized or pagans who never knew, will ever get there. No we are not wrong. Our science is higher than any other and our calling, when fully met and fulfilled, is more thoroughly expert and prosessional than any other. Then the general principal must obtain and teachers and not laymen must control the avenues to the teaching profession.

The medical, legal and theological professions are well established. They are the outgrowth of generations of study and experience. They are hedged about by rules and codes of governing bodies, by old customs and established usages, by honorable history and proud traditions, by fraternal regard and public respect. These things have resulted from conditions and causes and not from accident or chance, and similar conditions and moving influences must here exist or there will never be a teaching profession.

PROFESSIONAL GROWTH.

There is another principle which demands notice: that is, development and growth. It is the invariable and inexorable law of all healthy professional life. Indeed, this is the chief thing which distinguishes professional life from the mere employments or vocations. A physician who does not grow through unceasing exertion ceases to be a physician; a lawyer who does not broaden and strengthen by labor and by experience cases to be a lawyer. So it is with a teacher

One who does not continue to read, who does not gain strength through experience, who does not feel the professional spirit, who does not have the desire for expertness and then for still greater expertness and usefulness, who does not find in himself the strength of mind and the power of thought which can and will move outward and forward on its own motion, who does not grow kindlier, richer and stronger with the advancing years, has no proper place in a teaching profession.

A MATTER FOR CIVIL SERVICE REFORMERS.

There are great numbers of people who are so much interested in the movement for the improvement of the civil service, as to be commonly called Civil Service Reformers. Some of us do not agree with all they advocate, but I apprehend none of us are wanting in respect for their purposes. Probably all of us would go with them more than half way. The principal things for which they contend, are that all appointments in the public service shall be made upon a merit basis, and when once appointed the tenure shall be permanent. There are thirty thousand teachers in the public schools of New York. They are paid twelve millions of dollars annually. I know that the number is far greater than that of all other employees of the state taken together. The character, the competency, the manly and womanly independence of these teachers is of incomparably greater consequence to the state, than that the clerks in the public offices shall not change with a change in the dominant party, although as to the greater number of clerical positions, that is probably not without consequence. For ovious reasons, it seems to me that the principles for which the reformers of the civil service contend, apply to teachers in the public schools more forcibly than to any other class of public employees. I cannot, therefore, withold an expression of surprise that gentlemen who have given so much intelligent thought, and so much disinterested effort to the improvement of the public service, by advancing the character and protecting the interests of the public employees, should have done so little to protect, elevate and dignity the position of teachers in the public schools.

CONCLUSION.

My limits of time force me to an early conclusion, although I have not covered the ground contemplated at the outset. Possibly I have gone far enough for my purposes.

Teaching in the common schools of the country cannot be advanced to the standing of a professional employment, so as to justify its classification with the learned professions until the conditions which obtain in many of our states are materially modified.

It is absurd to think of reaching that consummation so long as competency is placed in ruinous and destructive competition with incompetency; so long as the best qualifications are scarcely able to earn a living or maintain independent self respect, while boys and girls not yet mature physically or mentally, and older persons, who are unable to succeed in other vocations, are permitted to secure better pay for alleged teaching in the schools than they can obtain in any other way.

It is idle, and I think, censurable, to temporize with the matter. There is no cross-lot road to a teaching profession. Even in this age of wonderful inventions we are not likely to discover any new process for constructing one. Without a scholarship which is at home in any intellectual center, without special training which can readily prove its utility, and force the necessity of its recognition, without

public discrimination between professionals and amateurs, without an entire cessation of indiscriminate licensing, without putting the school doors in the charge of professionals, without an entire elimination of favoritism, without social position and moneyed rewards commensurate with merits, without an interest which is more than pecuniary, without entire and life-long devotion, without personal pride and mutual respect, without zealous care for the rights and prerogatives of all, without alertness which discerns or creates opportunities for the advance of the whole line, without legend and tradition, without song and story, without the strength to jostle the crowd and wrest honorable positions from the selfish, the unthinking or the unscrupulous, there can be no teaching profession.

If I were to withhold another word you would draw an inference which I should regret. As exacting as these conditions are, it is by no means impossible to comply with them. The signs of the times are auspicious. There is a manifest educational awakening throughout the country. If we survive twenty years we shall witness advances in learning more marked and far reaching than the country has ever before known. This will bring added interest to the work of the schools, and it will aid the intelligent regulation of their affairs. The multiplication of professional superintendents with continually increasing powers, the extent to which the business affairs and the professional interests of the schools are being separated and committed to entirely distinct authorities with some intelligent reference to their most successful administration, is most encouraging. No less significant and encouraging is the magnificent movement now sweeping the country with irresistible velocity for the liberal education of women. With the work of the elementary schools almost exclusively in the hands of women, the collegiate education of women is a matter of the highest moment. It must not only become manifest in the work of the school-room, but must also give impetus and force to the movement towards professionalizing the teaching service. Indeed there are many things to encourage and few to discourage those who are engaged in the noblest of all callings and are jealous of its good name and standing. But they must not forget that they are also responsible for its future in large mesure. If teachers of standing and experience, teachers who have had the advantages of the advanced schools, teachers who are jealous of the public esteem, teachers who meet in state conventions, will exercise discernment and act in concert, secure all available assistance, seize upon all opportunities, formulate principles and lead the way, without doubt or hesitation, but with self-possession and confidence, we have no right to doubt they will reap rewards worth their efforts, and coming generations of teachers will bless their names in grateful remembrance.

All general reforms have their inception in public sentiment and their fruitage in legislation. It is hopeless to attempt to accomplish things in which the public is beneficially interested except through legislation, and legislation which is so framed that some one must execute it. Remedial measures are frequently met with rank indifference if not gross ignorance. Legislation not prepared by expert hands is ill-considered and ineffectual. Then, it is modified, added to and taken from, patched and blotched until it is almost meaningless. There is no more conspicuous illustration of all this than the legislation of the country affecting the schools. Nor is there any more conspicuous illustration of the non-professional character of the teachers of the country,

than the submissive way in which they have removed their shoes and stood with their hats in their hands and their chins on their chests, in the august presence of the law-makers of the country.

When the teachers of the land, those who are entitled to be called such, shall have become experts; when they shall have clear conceptions of what to do and how to do it; when they shall demand it at the proper place, with a determination to have it, know the reason why, or smash some legislative crockery, the way will be opened and there will be a perceptible advance toward the evolution and the recognition of a teaching profession.—*The Educational Gazette.*

THE TEACHER AS A PROFESSIONAL EXPERT.

BY ALBERT BUSHNELL HART, HARVARD UNIVERSITY.

THIS paper will consider three points: 1. How far teachers actually practice a profession. 2. How far they are recognized as experts. 3. What may be done to improve their professional status. The teachers' profession is less permanent than others because a large number of young men take it up as a stepping-stone to other callings, and because so many women are members af the profession and cannot make it their life-work. Again, the technical training is inferior; only recently have opportunities been opened for the preparation of teachers, comparable to those offered to students of law, medicine, or military science. Normal schools have felt obliged to do two things at once and have done neither with complete success: they find it necessary to furnish at least a part of the general basal education of their students, for which they have not a sufficient plant; and they attempt to instruct in the practice of teaching, without opportunities for practice. Nor do the college courses in pedagogy entirely fill the requirement of higher professional training. They have done a great deal as to the historical side of teaching, and in suggesting the proper way of developing the mind; but they do not usually furnish the personal contact with the problems of his calling which is absolutely necessary for a good teacher. A third element in professional training the teachers more and more enjoy, viz., association, meetings, and professional organizations.

2. The members of our profession are usually looked up to by the community as men of learning. But this estimate is confined to literary subjects. What we desire is that school boards should recognize us as experts in school matters. It seems impossible to reach this result in the public schools, where education is part of the system of government. The organization of the school seems quite out of our reach, but we might have some voice in the admission of teachers to their calling. Here we are betrayed by our higher institutions of learning. There are but few universities in which the faculties decide on their own methods and apparently but two—Yale and Cornell—in which the faculty selects its own members. Nevertheless, there might be a much greater feeling of co-operation among teachers in a building, or in a city.

Another field in which the influence of teachers should be more strongly felt is that of the selection of studies. Here, if anywhere, experience and observation ought to tell, and new methods should be brought forward by the teachers themselves. Again, the profession suffers from itself; there is a good deal of school cant, a collection of stock phrases about the "grandeur of the profession" and the "elevation of the race." Many of the educational periodicals which have a wide circulation must give outsiders a low opinion of the profession; the founding of new journals of a high grade is therefore encouraging.

3. It is clear that the professional status of the teacher is improving. Normal schools and the pedagogic instruction in the colleges are both better organized than formerly; a third method from which much may be expected is the establishment of courses of study for teachers who are actually in the work, such as those offered by the Lowell institute in Boston and by the corporation of Harvard university to the teachers of Cambridge. The colleges and better schools are demanding a regular course of systematic preparation of its teachers, and they are compelling young men and women to educate themselves carefully. We should have more influence, also, if we talked less about the greatness of the profession and the magnitude of our sacrifices. We are not highly paid, and are subject to vexatious uncertainties; but we have long vacations, fixed salaries, and unusual control of our time. The profession must avoid also the notion that it is its duty to reorganize the universe. The position of the profession would be much improved if we could reach the foreign system of a rigorous state examination, without which no person could be appointed as teacher in an advanced school. Another improvement would be the introduction of some kind of faculty system of joint discussion and responsibility in large schools. The great fault of our city schools is too much uniformity and too little development of the individual, either of teacher or of pupil. As a teacher, to teachers, I can only say that if we wish to be held as experts we must prepare for it; we must not boast about it; and we must persuade the public that we know more than they about our subject, by constantly raising our own standard in the schools and in ourselves.—*The School Journal* (*N. Y.*)

NOTES FOR TEACHERS.

CLEARY v. BOOTH.—This was a case stated by justices for the borough of Southampton on the point of law whether a Board schoolmaster is entitled to inflict corporal punishment on a pupil for misconduct to another pupil when both are on their way to, but outside and at a distance from, the school premises.

Mr. Poland, Q. C., and Mr. P. H. White appeared for the appellant, a schoolmaster of the Board school, who had been convicted of assault and fined 20s. and costs for caning a boy whom he thought had been guilty of throwing some putty at another pupil when they were both on the way to the school.

Mr. Poland cited "R. v. Hopley" (2 F. and F., 202) to show that a master might inflict reasonable punishment; and "Fitzgerald v. Northcote" (4 F. and F., 656) for the proposition that the master's authority was

the same as that of the parent. He also referred to the Code for 1892. No counsel appeared for the respondent, but Mr. Poland called attention the case of "Hunter v. Johnson" (13 Q.B.D., 225) as being an authority rather in favour of the respondent.

The court remitted the case on the question whether the punishment inflicted by the master was excessive, but held that he had authority to corporally punish the pupil for his misconduct.

Mr. Justice Lawrence said,—The case was not an easy one. There was no distinct authority on the subject. The question was whether the headmaster of a Board school might administer corporal punishment for something done outside the limits of the school. The facts were these—Booth, a pupil at the Board school, was on his way to school when he came across another boy of the same school, and it was complained that Booth threw a piece of putty, and with it hit the other boy. For this he was promptly caned by the master on his arrival at the school, on evidence brought before him by a witness. The learned Judge was of opinion that a school master had authority delegated to him from the father, who must have been taken to have delegated the authority exercised by the schoolmaster here. The Education Code of 1892 contained a clause allowing a "grant for discipline and organization of 1s. or 1s.6d.," which provided that "all reasonable care" was to be taken in the management of the school" to bring up the children in habits of punctuality, of good manners and language, of cleanliness and neatness, and also to impress upon the children the importance of cheerful obedience to duty, of consideration and respect for others, and of honour and truthfulness in word and act." How could this be carried out if the authority of the master was said to apply only to treatment of the children in school. If, for instance, a cleanly boy at a distance of a yard outside the school were to roll in the mud and make use of bad language, should not the master have authority over him and be able to inflict punishment at once. It was not reasonable to hold that the parent's authority ended at the house door and the schoolmaster's did not begin till the school door. There must be authority in the schoolmaster to punish, especially for misconduct to another pupil.

Mr. Justice Collins said,—It was clear that a father might administer these little personal punishments and that he might delegate the power to the schoolmaster. This was a very ancient practice. It was well known as early as the time of Juvenal, who referred to the practice of caning on the hand. Every one, also, would remember "flagosus Orbilius." It was clear that where the relation of pupil and schoolmaster existed, a right of corporal punishment was conferred. This being a day school, should it be said that a parent had delegated the right of punishment for misconduct on the way to the school or that he had only delegated the authority for what the pupil did within the four walls of the school. It could not be that the latter was the right view. The limits of the four walls must be exceeded; the question was how far. It would not be possible to carry on education if the exclusive authority of the father lasted right up to the door of the school and the master did not begin till then. The result would be that the boy might be impudent to the master or even assault him just outside the school, and the master's only remedy would be to go to law as if it were the case of ordinary griev

ances between citizens. This would be quite unworkable. The Code of 1892, which had the force of an Act of Parliament, in dealing with grants for discipline and organization, provided that the inspector, in recommending the grants, should have special regard to "the moral training and conduct of the children." Could that be properly attended to if the master had no authority beyond the limits of the school? If the master had no control over his scholars outside the school in their relations to each other, his power would be too limited; he would be unable to take "all reasonable care" to bring up the children in "habits of punctuality and good manners" and to impress on them "consideration and respect for others." Here, instead of showing consideration and respect for others, the boy hit another boy in the eye with a bit of putty. Respect for others was best to be secured by punishment. It would be idle to leave the correction for this misconduct to the chance of the boy being at some subsequent day convicted by justice. That would be the result if this conviction was upheld.

(Solicitors Baker and Nairne, for the appellant.)—*Times Law Reports.*

The boy who is only mischievous, and who loves fun better than he loves books, he should not be forced to go. That is not what the school is for, to turn him out. To be sure he is a burden, but he is a burden to be borne rather than thrown in the ditch. To dump him is an easy way out of the trouble, for the time being, but it is the coward's way, the lazy teacher's way, the shrink's way, the sneak's way. It is not the way of the teacher who is called of God to teach, and who believes in himself as God's minister among the children!—*Public School Journal.*

A letter has been received from Professor J. B. Harris, of Cambridge, who is now in Egypt, announcing the discovery at the convent on Mount Sinai of a Syriac palimpsest manuscript, containing the fnll text of the Four Gospels. The discovery was made by two English ladies, Mrs. Lewis and Mrs. Gibson, both conversant with Oriental languages, and speaking Arabic and Modern Greek fluently. Although the convent had often been searched for written treasures since Tischendorf's great discovery there—and even by Professor Harris himself only three years ago—the present discovery remained hidden from former investigators. When Mrs. Lewis first saw it, it was in a dreadful condition, all the leaves sticking together and being full of dirt. Professor Harris, on hearing of the discovery, set off for Mount Sinai, and for forty days he and the two ladies sat in the convent deciphering the the palimpsest leaves. The whole manuscript has been carefully photographed.—*The Publishers' Circular.*

There is a spirit of unrest taking possession of the entire world; it penetrates to the school-room and shows itself in both teacher and pupil. The teacher steadily questions whether he is not a fool to spend his time with children; the pupil insists that only such things be taught him as will advance him in life—that is aid him in making money. There is great need of rest—spiritual rest. No one can read the newspapers without seeing that he is surrounded by unhappy people. Certainly this is not the happy era—the golden age. The need of a solution of the problem of rest must be felt by those in charge of the school-room.—*The School Fn'l.*

Any life that is worth living must be a struggle.—*Dean Stanley.*

PUBLIC OPINION.

THE FUTURE OF ELECTRICITY.—In all the fields of human endeavour there is none in which the promise and potency of future achievement is greater than in that of the development of that wonderful form of energy which we know as "electricity." In this field progress is advancing in two paths; the one leading to the produc- of the force cheaper than by known means, and the other towards new devices and ways for applying it to the practical needs of mankind. The first path is the least attractive; but it leads to by far the most momentous discoveries as effecting it our everyday life. The current which now supplies our lamps and motors is obtained by revolving a coil of wire in the field of the magnet. The steam engine does this just as it turns a coffee mill, or a churn, or a lathe. Therefore, coal is burned under the boiler to produce steam, and steam drives the engine, the engine turns the dynamo, the dynamo delivers its current on the wires which lead to the lamps. Hence the efficiency of the whole system depends mainly upon the efficiency of the engine and boiler which furnish the power. The best engine and boiler does not utilize more than ten per cent. of the energy locked up in the fuel; and this is due, not to faulty construction or bad management, but chiefly because of natural laws mainly dependent upon the temperature in which we live. To improve the dynamo or the lamps simply means greater economy in the utilization of the obtained ten per cent. It does not effect the problem of how to get more than ten per cent., and that is the great discovery of the future—so great, that the man who finds the way to convert, not eighty or ninety, but even twenty per cent. of the stored energy in fuel into electricity will do more for human civilization than all the inventors of all the marvelous applications of that force put together have done since electricity was discovered.

Present indications point to the voltaic cell as the probable means of attaining this result. Not to a cell consuming zinc, of course; for electricity thus produced is about twenty-five times dearer than that obtained from the steam engine and dynamo; but to a cell directly consuming carbon, not by hot combustion, but by cool, chemical combination with the boundless store of oxygen in the air. Carbon is cheap, and air is cheaper; and if they can be made to combine at low temperature by means perhaps no more costly than the grate or furnace in which we make them unite at high temperature, than we shall get very much more than ten per cent. of the available energy. It is not necessary to seek any further reason for the end of the reign of steam. When people can get a machine which wastes even eight, or seven, or six dollars out of ten, they will no longer use an apparatus which wastes nine. All along the frontier of the science, open innumerable paths with endless vistas fascinating in their invitations to the student and to the inventor. Even in the oldest of our electrical marvels (the telegraph) the possibilities are still wonderful. A pen guided in in Chicago will now write in New York the autograph of the operator, so that a bank might safely pay the check to which it is appended. We are multiplying the number of dispatches which can be sent simultaneously; and we are rapidly approaching the time when unlimited messages can be transmitted at perceptibly the same instant in opposite directions over a single wire. We have contrived systems of communicating time which will possibly enable a thousand clocks at once

distributed all along the continent, and perhaps from one end of the world to the other, to work in synchronism and with a current less than is required for ordinary telegraphing. Whether this will result in the establishment of absolute time throughout the world and the final deposition of the sun as a timepiece remains to be seen. We have found substances which are so sensitive to light that they will modify an electric current in accordance with the intensity of the light gray which strikes them—and there is the germ of the picture-telegraph. Before the next century expires, the grandsons of the present generation will see one another across the Atlantic, and the great ceremonial events of the world as they pass before the eye of the camera will be enacted at the same instant before all mankind. The use of the high-frequency electrical current, with possibly screens from outside inductive influences, is believed by many to offer at last a solution to the difficulties which prevent telephoning over long submarine cables. If this be realized, and with the transmission of images and possibly of colors over the wires likewise achieved, then the nations of the earth will indeed stand face to face and speech to speech.—*Park Benjamin, in the New York Independent.*

ANNEXATION.—Canadians who dishonor their name and flag and country by prating annexation should peruse the ringing sentences of Hon. Joseph Howe's speeches. The great Nova Scotian spoke from a heart and head that were Canadian through and through. Upon one occasion he said:

"Could we join in the celebration of American festivals, every one of which is a disgrace to the arms that have protected us, and not oppressed us, ever since we had a hut or a foot of land to defend? Could we throw up our caps on the 4th of July, and hail with triumph a day that made our forefathers outcasts and wanderers on the earth? Could we join heart and hand with a republic which fell upon the rear of Britain when her front was presented to hostile Europe in a struggle for the liberties of the world? Were we to permit the American flag to float over our soil, if the bodies of our fathers did not leap from the graves, their spirits would walk abroad over the land and blast us for such unnatural violation."

So much for the views of an Eastern statesman, as expressed to Canadians on our Eastern frontier; and though there is sometimes flippant talk among those who, thank God, are few in our midst, about the trade advantages, etc., we would have, were we to sink our nationality and become a laughed at part of these 'United States,' yet any feeling of desire for annexation is as dead in Central and Western Canada as Julius Cæsar; and to those who pretend that England would only be too glad to cut the tie which binds us, we commend the fact that Esquimalt is to be made the strongest fortress on the Pacific, as Halifax is on the Atlantic. Apart from loyal and patriotic considerations, why should we give up this Canada of ours just when the hard work of nation-making is over, and we have been equipped for a national career as no nation of our population has ever been equipped before; with hundreds of thousand of virgin acres of soil easily accessible by railway and water; countless leagues of pine lands; a mineral wealth unequalled on either continent; coal of the best on our eastern, western and indeed northern seashores? No, indeed, old Joe Howe was right; we want no Fourth of July celebration; we have a better one on the first of that month; and God, helping us, we will continue to honour it while one Canadian is left alive to do it.—*The Manitobans.*

GEOGRAPHY.

THE LARGEST TREES IN THE WORLD.—A recent article in *Science* (No. 523, Feb. 10, 1893. p. 76) repeats the old idea, which has been frequently refuted, that the *Sequoia gigantia*, or Big Tree of California is the largest tree known. It has been shown many times that these trees are surpassed in both height and girth by the gum trees of Australasia. A large number of species are known, and many of them are mentioned in Baron von Mueller's "Extra Tropical Plants," recently reviewed in these columns. An extract from this book will be of interest as giving the dimensions of some of these immense trees. Of *Eucalyptus amygdalina* it is said:—

"In sheltered, springy, forest glens attaining exceptionally to a height of over 400 feet, there forming a smooth stem and broad leaves, producing also seedlings of a foliage different from the ordinary form of *E. amygdalina*, which occurs in more open country, and has small narrow leaves and a rough brownish bark. The former species of variety, which has been called *Eucalyptus regnans*, represents probably the loftiest tree on the globe. Mr. J. Rollo of Yarragon measured a tree which was 410 feet high. Another tree in the Cape Otway ranges was found to be 415 feet high and 15 feet in diameter where cut in felling, at a considerable height above the ground. Another tree measured 69 feet in circumference at the base of the stem; at 12 feet from the ground it had a diameter of 14 feet; at 78 feet a diameter of 9 feet; at 144 feet a diameter of 8 feet, and at 210 feet a diameter of 5 feet. [Thus, at a height in the air exceeding the height of almost every North American forest tree, this specimen had a diameter equal to most of our largest forest trees at the ground.] Other trees are known with a stem circumference of 66 feet at 5 feet from the ground. Prof. Wilson and Colonel Ellery obtained at Mount Sabine a measurement of 21 feet 8 inches in diameter of a stem, where cut, the length being 380 feet. Colonel Ellery had repeatedly reports of trees seven axe-handles in diameter, and he met a tree on Mount Disappointment with a stem diameter of 33 feet at about 4 feet from the ground." Other species also attain enormous size. *Eucalyptus diversicolor* is known to grow 400 feet high, and trees have been measured 300 feet long without a branch! Boards 12 feet wide can frequently be obtained. *E. globulus* grows 300 feet high and furnishes ship keels 120 feet long. *E. obliqua* also attains 300 feet in height and 10 feet in diameter. A note in a recent number of *Garden and Forest* mentions a tree in Victoria 471 feet in height.

The colossal size of the trees of this genus is not the only peculiar feature they possess. Some are of exceedingly rapid growth, and are at the same time very durable. *Eucalyptus amygdalina*, for example, grew to a height of 50 feet in 8 years in the south of France. *E. citriodora* grew 20 feet high in 2 years in a district subject to protracted drought; and a trunk 40 feet long and 20 inches in diameter only broke after a flexion of 17 inches, under a pressure of 49 tons. *E. corymbosa* is very durable, fence posts that had been in the ground for 40 years showing hardly any decay. *E. globulus* grew 60 feet high in 11 years in California, and in Florida 40 feet in 4 years, with a stem a foot in diameter. The writer has seen trees in California, two years after planting the seed, 20 feet high; and the wood, although easily cut when green, becomes almost as hard as iron when dry. In Guatemala it grew 120 feet feet in 12 years and had a stem diameter of 9 feet. Railway sleepers made

of *E. leucoxylon* were quite sound after being laid 24 years. Piles driven for a whaling jetty in 1834 were taken out in 1877 perfectly sound, although the water swarmed with Teredo. This was *E. marginata.* Still more remarkable is the fact that some species withstand excessive heat and also a considerable cold. *E. microtheca,* for example, resists a temperature of 18° F. in France and 154° F. in central Australia. Besides serving as a timber tree, many species of *Eucalyptus* are used medicinally, producing a volatile oil very useful in treating various infectious diseases, like scarlet fever, especially when applied externally. Grown in malarious districts, they possess the power of purifying the air. Altogether, the genus may be classed as one of the most remarkable in the whole world.—*Joseph F. James, M.Sc.*

Prof. Edward Hill read a paper before the Victoria Institute recently, on "How the waters of the ocean became salt." From an inquiry into the character and affinities of the organic forms of past geological ages, the conclusion was justified that the waters of the ocean must have been salt from very early geological times, but it by no means followed that they were as fully saline as those of the present day. There were two ways by which they might account for the salinity of the ocean waters from very early periods of geological time. First, by supposing that the primeval waters were saturated with acid gases which were held in suspension in the vapor surrounding the incandescent globe; or, secondly, that the salinity resulted from a process resembling that by which salt lakes of the present day had been formed. He thought that they must concur with Dr. Sterry Hunt, that from some cause or other chlorine largely abounded in the waters of the primeval ocean, as by far the greater proportion of the salts were chlorides, and chlorine was but very slightly represented in river waters at the present day.

From the examples of closed lakes they could determine the process of salinification with the utmost certainty. Throughout greater or shorter periods these lakes had been receiving the waters of rivers, bringing down both mechanically suspended sediments and chemically dissolved salts, silicates and carbonates. The sediments were precipitated over the bottoms of the lakes, and the water being carried off into the atmosphere in the form of vapor as far as it entered, left behind the dissolved ingredients. These necessarily augmented in quantity, and ultimately the waters of the lakes became saturated with salts and carbonates, which were then deposited. The ocean was a closed lake of enormous magnitude, and they were thus brought to the conclusion that the saltness of the sea might have originated in very much the same way as had that of the Dead sea, lake Oroomiah, or the Great Salt lake of Utah, and many others which possessed in common the characteristic of having no outlet. When the great envelope of vapor which surrounded the incandescent globe began to condense upon its cooling surface, the resulting waters, though containing, as Dr. Sterry Hunt supposed, acid gases, were destitute of saline ingredients. The process of salinification began with the first streams which entered the seas from the bordering uplands, and this process carried on throughout the long ages preceding the silurian period, brought the waters to a condition suited to sustain the life of forms of inhabitants representative of those which inhabited the ocean at the present day. These long ages might be supposed to include, not only the archæan and azoic periods, but that during which the first crust was in course of formation over the incandescent globe.—*London Standard*

ASTRONOMICAL NOTES.

SATURN has been the most interesting object in the heavens for some time and continues to delight the observer as the rings come more plainly into view; quite moderate optical power will show the space between the ball and the inner edge of the ring. The planet after passing, with retrograde motion to the south of the beautiful double star *γ virginis* is now taking up direct motion, and passing north of the star, will have shortly described a loop around it. The loop is formed at every opposition of the planet, but such a noticeable one as this is an extremely rare phenomenon. Saturn crosses the meridian now about 7 p.m., and sets shortly after midnight.

Jupiter, having emerged from the sun's rays, may be now seen in the early morning twilight. The giant planet will probably be an object of great interest to astronomers this year, as certain peculiarities in his system were recently recorded by Prof. Pickering stationed at Arequipa, Peru; notably, the fact that Sat. I, although having the shape of a prolate spheroid, in consequence of the great tidal influence of the planet upon it, yet rotates upon its axis several times in a revolution. This is directly against the theory of retardation of axial rotation and is the more remarkable when it is noted that the gravitating force of Jupiter upon the satellite is nearly 300 times greater than the force which, exerted by the earth upon our moon while it was still plastic, has gradually retarded the axial motion of the latter till it corresponds with the period of revolution.

When to this is added that two of the other satellites do not rotate on their shorter axis, there would seem to be abundant field for the mathematical astronomer to work upon, if theory and observation are to be reconciled. The innermost satellite of Jupiter discovered last year by Barnard will be forever associated with his name, but it may be seen only in the noblest instruments; it is much more difficult for the telescopist than the moons of Mars, and these are beyond any instrument mounted in Canada, unfortunately.

A Toronto observer has expressed the opinion that there is a satellite yet to be found between Sat. I and Barnard. A certain harmony in periodic time would probably be satisfied if such a one were seen, but its existence may be discussed on other grounds to which we may again refer.

Certain it is that we do not yet know all that is to be known of the solar system. The constitution of the sun itself—the maintenance of its heat—these are still in the field of hypothesis; and it is interesting to note here that certain solar phenomena hitherto supposed to have some connection with terrestrial events, so far from being remarkable, are of such frequent occurrence that almost any given result may be coincident with them. Prof. Hale, of Kenwood observatory, has brought to light some facts which completely darken the prospects of the prophets who would associate solar outbursts with peculiarities of rainfall and the rise and fall of markets! The cause of the Aurora, however, a phenomenon with which we are all familiar, and which seems to have a distinct connection with activities in the sun, has been widely discussed, and a mass of records of observations taken in various parts of the world have to be carefully analysed. Mr. Arthur Harvey recently called attention to the fact that geological formation has

something to do with the appearance of the Aurora in certain localities, and in a series of systematic observations now being made in this country and northern Europe, special reports on this point will be given.

It would seem that, notwithstanding the advancement of the present age, the secrets we wrest from nature are the secrets only of what her storehouse contains—causes lie far beneath.

The weight of a molecule of hydrogen, as given by an eminent authority, is approximately 0.000,000,000,000,000,000,000,04 of a gramme; by multiplying this inconceivably small number by fifty-five, the atomic weight of iron, we ascertain the weight of a molecule of iron—0.000,000,000,000,000,000,000,002,2 gramme. In the sulpho-cyanide test we were able to detect the presence of thirty-three ten-millionths of a gramme of iron: dividing this number by the weight of one molecule of iron, we find that this apparently delicate test is unable to indicate to our senses a less number of molecules than 1,500,000,000,000,000,000. When we consider that most of our so-called tests are much less accurate than this, it is evident that in our determinations it is impossible to reach the absolute truth.—*Scientific American.*

ENGLISH POETRY AT MATRICULATION.

To the Editor of the EDUCATIONAL MONTHLY.

Sir—While I agree with much of what Prof. Alexander says in his article in the March number of the MONTHLY on "English in the High Schools," I must emphatically dissent from his implied suggestion, that the prescribed poetry for the matriculation and junior leaving-examination should be limited to selections from Scott, Longfellow, and Tennyson. I have a very high opinion of Tennyson's poetry for this purpose, and though Longfellow's is by no means equal to it, a fairly good selection can be made from his also. Scott's poetry, so far from being, as Prof. Alexander seems to think, pre-eminently suitable, ranks in my judgment comparatively low, certainly far beneath that of Wordsworth, to whom he so strenuously objects.

I have no desire, however, to argue with any one what must after all be largely a question of taste. I have voluntarily spent many hours this year in going over the prescribed selections from Wordsworth with a class that fairly represents the average junior leaving-classes in our high schools. I have done it for the purpose of testing the correctness of my own opinion, strongly and successfully urged when the selections were made some five years ago, and I am now quite sure that no mistake was made in prescribing Wordsworth's poems. I am equally sure that the majority of our English teachers will, after next year's experience agree with me that Wordsworth is to be preferred to Scott for school purposes.

My present object is to direct the attention of high-school teachers to the necessity of making their wishes in this matter known to the Senate of the University of Toronto. That body is by statute clothed with virtual power to dictate what high school work shall be, and it is now asking teachers what they would like. It is to be hoped that the response will be clear and general so that there need be no after fault finding. For this and similar purposes the high school masters have been asked to elect

representatives to the Senate, and these representatives should be placed in a position to speak with authority in the matter. If they are left uninformed as to the prevailing wish of the teachers they must be left to express and act upon their own views as masters, and the rest of the Senate must be left to determine what weight should be attached to their individual opinions.

Let me add here a plea, as strongly urged as brevity will permit, in favor of continued variety in the texts selected for matriculation. The teaching of English poetry will never be what it should be until our English masters have a wide acquaintance with poetry outside of the prescribed work of the year. This is the most important and indispensable of all qualifications; how is it to be obtained? It is easy to say that the teachers should privately read widely in poetical literature, but I know enough of high school work to be quite sure that we need not expect, and ought not to assume that men and women, overworked as our English masters are, will to very great extent devote their leisure time to this purpose. Their natural inclination will be to resort to some other form of recreation as a means of counteracting the evil effects of nervous tension, and the impulse to do so is right as well as natural.

A better way of solving the difficulty is to keep changing the English authors from year to year so long as fairly good selections can be made. If I have my way this year, not one of the poets of the current quinquennium will find a place in the next one. Just think of the difference in qualification between a teacher who in ten years has taught the poetry of ten different poets and one who has been kept going the round of three, even if those three are indisputably pre-eminent. By affording the maximum of variety to the teachers we are doing the very best thing for the pupils, even if we admit that the texts selected are of varying degrees of excellence. I know of nothing so likely as an uncultured teacher of English to keep the class-study of poetry from rising into something higher than the merest common-place —so unlikely to create in the minds of pupils an enthusiasm for poetry as a means of recreation for after life.

I intend to propose, as a member the Senate's committee on the matriculation programme, that the work for the next few years be selected from Bryant, Whittier and Lowell, in America, and from such British poets as Cowper, Burns, Goldsmith, Gray, Campbell, Byron, Moore, Coleridge, Shelley, Keats, Arnold, Browning, and Mrs. Browning. It may be found expedient to select from two authors for one year's reading, but a little variety in that matter may do no harm. I know, as a member of the Senate committee which first suggested the one-author-a-year system, that the aim then was to minimize biographical and bibliographical side reading, but to prescribe selections from two authors in one year would not open a very wide door for injudicious treatment by either teachers or examiners, and it is moreover quite apparent that the tendency to attach undue importance to side reading is not at present very pronounced. Much progress has been made during the past few years in the treatment of English poetry in schools. It is important that the reform so well begun should be allowed to develop, and it is just because I think continued variety of selections is the best means of securing progress in this direction that I have resolved to oppose such a limitation of choice as Dr. Alexander hints at.

WM. HOUSTON.

Toronto, April, 1893.

EDITORIAL NOTES.

THE SITUATION.

OUR country is a country of vast possibilities. The wide domain which wisely and intelligently perpetuates the imperial government of Great Britain on the American Continent, is a land fertile in all the resources which invite human energy to display its highest achievements for the lasting improvement of mankind.

The extent of Canada, its lakes unequalled for size and productiveness, its rivers ranking among the largest and the richest upon the earth, its scenery, unsurpassed if indeed equalled by that of any other country on the round globe, and especially the law-abiding spirit of its people, challenge, incite, excite the hardy, daring and adventurous spirit of Britons and all kindred people to make Canada a safe home of noble enterprise in all lines of human effort.

Confessedly, the most important part in the building of this home is the education of the country. At present there is much activity in the English educational world. The greatest changes are taking place in Great Britain and Ireland caused chiefly by the effective aid, nearly $4.00 per pupil, given by the government to the elementary schools; by the persistent efforts made by teachers of all grades to have a teaching profession recognised as such by public authority, and by the necessity felt by all educators to have the secondary education differently organised. These questions, involving many personal interests, and also affecting many issues of prime importance to every English speaking country, are engaging the attention of the ablest in the empire. Hitherto the attention of most men has been given to what is called "secular education" meaning by this, the part of education which deals with the seen and tangible in human life. But as such systems of education are developed and rounded off, the part of the community, nearly the whole of the community, which we call the Christian Church, is beginning to ask What have we got? We speak advisedly, when we say, that the universal conclusion is, that that part of education, "the church part" which the Christian is in the earth to emphasise specially, is almost totally neglected. The part of our lives related to the "unseen world," that part of human life which is dealt with in the Bible, and of which we will take the Bible as the symbol, is quietly ignored. We have not the slightest intention of reviving the discussion of the Bible in the school. But we ask our readers to look at the position of this question to-day. Every one who will take the trouble to enquire, knows that there is dissatisfaction among us with the amount of attention given in our schools to Bibical knowledge. It is true that the Bible is read, more or less, and prayer is offered to our God in most of our schools each day. The schools would be false to the people of Canada, if this were not so. But our schools do not convey any positive knowledge of the history of the manner in which God deals with men here upon earth.

This being the state of matters in Ontario, what are the people of Ontario going to do with it? Allow the historic narrative of God's dealings with men to disappear from amongst us as a people? Some persons will say, leave all that part of our education to the Sunday School and the home. That is not Britain's answer to the question; it is not the answer of a very large number of people in the United States of America. And we

know that this solution of this problem of all problems in educational systems, does not satisfy a great many people, not only in Ontario, but in Canada. We ask attention to this side of the question. Can we not have a narrative of Scripture history, as we had for years during the time of the chief Superintendent of Education, Rev. Dr. Ryerson? It seems to us that such a summary could be prepared for use in all our schools. Our public schools are doing good work; no one has any intention of ignoring or denying this important fact, but with all this, in its widest sense, in their favour we are simply voicing the sentiment of the people, when we say that the whole trend of the instruction in our public schools, is nearly, if not exclusively concerned with the present life, as if there were no life beyond the present. It is unworthy the sober, enterprising, sensible people of Canada to leave this important question of education in this weak unsatisfactory position. We must arise and build.

FORBEARANCE.

Nay! let it pass!
'Twas but a hasty word,
Unthinking uttered as unwilling heard—
Although upon my ear it strangely jarred,
A lifelong friendship shall not thus be marred;
Nay! let it pass!

Nay! let it pass!
I will not answer so,
Lest words on words to greater diff'rence grow;
Unguarded moments come to all—to me;
Oft needs the trust of loving charity
Then let it pass!

Then let it pass,
And not a thought remain
To pain my heart or give another's pain;
Let hearts be true, and let the friendship end
That bears not with the failings of a friend.
Yes! let it pass!

—*James Rock in Chamber's Journal.*

SCHOOL WORK.

BRITISH NORTH AMERICA ACT.

By PETER MCEACHERN, B.A., Coll. Inst., Toronto.

HOUSE OF COMMONS.

Corrections of misprints in the March number:

The Quorum of the Legislative Council of Quebec is $\frac{1}{24}$, not $\frac{2}{24}$, of the councillors.

In the last note on p. 119. for *individual* read *dual.*

40. "Until the Parliament of Canada otherwise provides, Ontario, Quebec, Nova Scotia and New Brunswick shall, for the Purposes of the Election of Members to serve in the House of Commons, be divided into Electoral Districts as follows:—

1.—ONTARIO.

Ontario shall be divided into the Counties, Ridings of Counties, Cities, Parts of Cities, and Towns enumerated in the First Schedule to this Act, (*a*) each whereof shall be an Electoral District, each such District as numbered in that Schedule being entitled to return One Member.

2—QUEBEC.

Quebec shall be divided into Sixty-five Electoral Districts, composed of the Sixty-five Electoral Divisions (*b*) into which Lower Canada is at the passing of this Act divided under Chapter Two of the Consolidated Statutes of Canada, Chapter Seventy-five of the Consolidated Statutes for Lower Canada, and the Act of the Province of Canada of the Twenty-third Year of the Queen, Chapter One, or any other Act amending the same in force at the Union, so that each such Electoral Division shall be for the Purposes of this Act an Electoral District entitled to return One Member.

3.—NOVA SCOTIA.

Each of the Eighteen Counties of Nova Scotia shall be an Electoral District. The County of Halifax shall be entitled to return Two Members, and each of the other countries One Member.

4.—NEW BRUNSWICK.

Each of the Fourteen Countries into which New Brunswick is divided, including the City and County of St. John, shall be an Electoral District. The City of St. John shall also be a separate Electoral District. Each of those Fifteen Electoral Districts shall be entitled to return One Member.

NOTES:

(*a*) The Shedule referred to, defines the 82 constituencies of Ontario at Confederation.

(*b*) Parliament may change the limits of the Electoral Districts of Quebec. Although hitherto the number of members for Quebec is 65, section 52 of this Act seems to give authority for increasing that number "provided the proportionate Representation of the Provinces prescribed by this Act is not thereby disturbed."

After each decennial census the limits of the constituencies are liable to be changed.

41. "Until the Parliament of Canada otherwise provides, all Laws in force in the several Provinces at the Union relative to the following Matters or any of them, namely,—the Qualifications and Disqualifications of Persons to be elected or to sit or vote as Members of the House of Assembly or Legislative Assembly in the several Provinces, the Voters at Elections of such Members, the Oaths to be taken by Voters, the Returning Officers, their Powers and Duties, the Proceedings at Elections, the Periods during which Elections may be continued, the Trial of controverted Elections, and Proceedings incident thereto, the vacating of Seats of Members, and the Execution of new Writs in case of Seats vacated otherwise than by Dissolution,—shall respectively apply to Elections of Members to serve in the House of Commons for the same several Provinces."

Provided that, until the Parliament of Canada otherwise provides, at any Election for a Member of the House of Commons for the District of Algoma, in addition to Persons qualified by the Law of the Province of Canada to vote, every male British Subject, aged Twenty-one Years or upwards, being a Householder, shall have a Vote.

NOTES.

In 1874 the Dominion Government passed a ballot act to provide for secret voting.

The Dominion Franchise Act passed in 1885 made the qualification for voting for members of the House of Commons uniform throughout the Dominion. Under this Act, a voter must be a British subject twenty-one years old, who is (*a*) the owner of real estate worth $300 in a city, $200 in a town or $150 in other places, (*b*) the son of an owner for each additional $300, $200 or $150 as above, that the father or mother's estate is worth, (*c*) a tenant paying $2, a month or $20 a year of rent, (*d*) the occupant of real estate worth $300, (*e*) the recipient of wages, salary or income equal in value to $300 a year, (*f*) the recipient of a life annuity of dele $100. A fisherman or an Indian is qualified to vote on any kind of property worth $150.

GREY COUNTY PROMOTION EXAMINATIONS.

Arithmetic—Time 3 hours.

LIMIT OF WORK.—Practical applications of the four simple rules continued. Factoring continued. Reduction and the compound rules. Cancellation. Bills, averages, sharing, and measurements. (Authorized Text-book to page 91.)

1. One hundred and ninety-two miles of a road were constructed at a cost of $100,567-89. Find the average cost per mile:

(*a*) by long division.

(*b*) by factors. [6]

2. When a bag of wheat (2 bushels 30 lbs) is worth $1.75 find the value of five loads each weighing 3450 lbs. [12]

3. A field 48 rods long 40 rods wide was bought at $40 per acre and sold at the rate of a cent per square yard. Find the gain. [12].

4. A cistern eight feet in diameter is deep

enough to contain 352 cubic feet. How many barrels of water will it hold (1 cub., ft. =25 qts.; 2 barrels=63 gallons). [12]

5. 1 ton 3 cwt. 71 lbs. of butter is packed in 29 tubs each weighing 54 lbs. 8 oz. and in 17 smaller tubs. How much does each of the smaller tubs contain? [12]

6. William White bought of Messrs Geo. Black & Co. June 23 1892, 45 yards linen at 38c. a yard; August 13th 89 yards flannel at 39c. a yard; Sept. 10th 69 yards of calico at 13c. a yard; Oct. 8th 100 spools at 24c. a dozen; Nov. 5th. 36 yards silk at $1.42 a yard. On August 13th Wm. White paid $18 and the balance on Nov. 12th. Make out the bill and receipt it for Geo. Black & Co. [18]

12 marks for calculation and 6 if the ruling, arrangment and receipting are perfect.

7. Find the cost of the wall-paper at 19c. the single roll and bordering at 7c. the yard for a room of ordinary height, 26 feet by 15 ft. 6 in, allowing for 2 doors each 4ft. 2 in. wide and 4 windows each 3 ft. 10 in. wide. [12]

8. At $13 per thousand find the cost of the 2-inch plank required for a 3-foot wide side walk 20 rods long. [12]

Maximum 102 marks; count 100 marks a full paper; 33 minimum to pass.

A maximum 10 marks for neatness and style of work may be allowed on this paper if the steps and denominations are correctly and neatly written; exclusive of these require 33 marks as a minimum for promotion. Allow nothing for mere answer without the work. If the work is put down carelessly, the results of the different questions not explained or stated, and the denominations not written, deduct one-twentieth to one-fifth of the number of marks obtained. Report the marks for style of work as directed at the foot of the Arithmetic Paper for Class II.

Literature—Time, 2½ hours.

LIMIT OF WORK.—The meaning of words' phrases, sentences and paragraphs in the reading lessons of the Third Reader. Studying the peculiar beauty, force or construction of certain stanzas, paragraphs, or expressions, noting the method of the author. See note at head of literature for 2nd Class.

With books open write the answers of these questions in complete sentences.

Lesson LIX., page 156.

1. Line 8. What is meant by the "light of his boyhood's grace?" Why is it said to *linger?* [6]

2. Line 9. Explain "curls of gold kissing the snow." Why is the expression poetic? (6)

3. Lines 13 and 14. What two sounds are repeated in these lines? What is the author's purpose in choosing so many words containing the same sound? Why are the waves of gold said to be *wandering?* (6)

4. Lines 23 and 24. What is meant by the question about "baptizing lips in waves of light? (4)

Lesson LXV., page 173.

5. Line 1. The author might have said "The crocodile is one of the most sly and wary of creatures." Why is his arrangement of the words better. (3)

6. Lines 2 and 3. What words does he use to strengthen the idea of the number of birds? Give reasons for your answer. (4)

7. Why do the small birds visit the bushes? Quote the author's words in this first paragraph that answer the question. (4)

8. Line 5. To what thought does *then* carry back the reader's mind? (3)

9. Give reasons for preferring:

Sails to *swims* in line 8.

Deceiver to *crocodile* in line 10. (6)

Lesson LXXII., page 194.

10. Line 3. Write a sentence about *water* in which you use the words "thermometer" and "temperature." When is heat *sensible*? (6)

11. Line 13. Supposing you have a hot flat-iron and a tin cup containing snow. Show by a drawing (or by a written description) how you would arrange them to melt the snow:

(*a*) by conduction.

(*b*) by radiation. (6)

12. 4th paragraph. Describe fully (and use the word "transmission") why wooden handles are put on some toasting-forks. (6)

13. Page 196, line 7. Two lumps of ice of the same size, one of them wrapped in flannel, are lying in a pan in a warm room. Which one will melt more quickly? Why? (6)

Lesson LXXXI., page 227.

14. What question does the poet ask the waterfowl in two different stanzas on this page 227? Point out the differences in the way in which it is asked, comparing one stanza with the other. (3, 4)

15. Line 5. *Do the wrong;* in what way? (3)

16. Line 7. What preceding phrase is the equivalent of *On the crimson sky*? (3)

17. Line 9. What does the word *plashy* suggest? (3)

18. Line 10. Why *marge* instead of *margin*? (3)

19. Line 11. How does *rocking* describe the billows? (3)

20. Page 228, line 15. "Hath sunk the *lesson.*" What lesson does the poet mean? Tell it fully in your own words. (6)

Lesson XCIII., page 272.

24. Use words as different as you can from those in the book and avoid the use of the 1st personal pronoun to tell the statements contained in the 2nd, 3rd and 4th stanzas.

Maximum 103 marks; 100 marks a full paper; 33 minimum to pass.

Full value ought not to be given for any answer unless it is carefully written in a correct, complete sentence, correctly spelled.

ALGEBRA.

Solutions by S. A. MITCHELL, Queen's Col.

1. Given the expression $\frac{\triangle}{2}\left\{2+\frac{a}{s-a}+\frac{b}{s-b}+\frac{c}{s-c}\right\}$ as the area of the triangle whose vertices are the excentres of the triangle with sides, a, b, c, where $2s=a+b+c$, and $\triangle^2=s(s-a)(s-b)(s-c)$; if $4\triangle R=abc$, show by algebraical reduction that this area is $2Rs$.

$$1.\ \frac{\triangle}{2}\left\{2+\frac{a}{s-a}+\frac{b}{s-b}+\frac{c}{s-c}\right\}$$
$$=\frac{\triangle}{2}\left\{2s^4-(a+b+c)s^3+abcs\right\}$$
$$=\frac{\triangle}{2}\left\{\frac{2s^4-2s^4+4\triangle Rs}{s(s-a)(s-b)(s-c)}\right\}=\frac{\triangle}{2}\frac{4\triangle Rs}{\triangle^2}$$
$$=2Rs.$$

2. (*a*) Explain and establish any two principles upon which we may proceed in endeavoring to factor an expression.

(*b*) The sum of the fourth powers of a number, of its reciprocal, and of 1, may be expressed as the product of four factors, each involving the number and its reciprocal.

2. (*a*) (i). If we can put the expression into the form of the difference between two squares, we can factor it directly, since $a^2-b^2=(a-b)(a+b)$ whatever a and b may stand for.

Thus: $3x^2-2x+4=\frac{1}{3}(9x^2-6x+12$
$=\frac{1}{3}\{9x^2-6x+1-(-11)\}=\frac{1}{3}\{(3x-1)^2-(\sqrt{-11})^2\}$;
$=\frac{1}{3}(3x-1-\sqrt{-11})(3x-1+\sqrt{-11})$.

(ii). We may test an expression for binomial factors by putting a supposed factor equal to zero, and substituting for one quantity in terms of another.

Thus, to try if $x-1$ be a factor of x^3-7x+6, we put $x+1=0$; or, $x=1$. This substitution causes the expression to vanish. $\therefore x-1$ is a factor. Dividing by $x-1$ gives $x_2+1-6=(x-2)(x+3)$.

(*b*). $x^4+1+\frac{1}{x_4}=\left(x^4+2+\frac{1}{x_4}\right)-1=\left(x_2+\frac{1}{x^2}\right)^2-1=\left(x^2+1+\frac{1}{x_2}\right)\left(x_2-1+\frac{1}{x_2}\right)$

similarly, $x^2+1+\frac{1}{x^2}=\left(x+1+\frac{1}{x}\right)\left(x-1+\frac{1}{x}\right)$;

and $x^2-1+\frac{1}{x^2}=x^0+2+\frac{1}{x^2}-3=\left(x+\frac{1}{x}\right)^2-(\sqrt[3]{1})^2=\left(x+\sqrt[3]{1}+\frac{1}{x}\right)\left(x-\sqrt[3]{1}+\frac{1}{x}\right)$.

$\therefore$ The factor expression is: $\left(x+1+\frac{1}{x}\right)\left(x-1+\frac{1}{x}\right)\left(x+\sqrt[3]{1}+\frac{1}{x}\right)\left(x-\sqrt[3]{1}+\frac{1}{x}\right)$.

3. (*a*) The acceleration a gravity "varies inversely as the square of the distance." Explain and illustrate the statement in quotation marks.

(*b*) A cubic block of lead has its weight varying as the cube of its edge. When the edge is 3 the weight is 36. Find the consequent relation between the weight and the surface.

3. (*a*) This means that if a denotes the accelaration of gravity, and d be the distance, $a \propto$ or a varies as $\frac{1}{d_2}$.

That is if $a = 1$ when $d = 1$, then $a=\frac{1}{4}$ when $d=2$, $a=\frac{1}{9}$ when $d=3$, and generally, $d=\frac{1}{n_2}$ when $d=2$.

(*b*). Let w be the weight, e be the edge, and s be the surface.

Then $w=m\,e^3$ where m is a constant.

$\therefore 36=27\ m$; or, $m=\frac{4}{3}$, and $w=\frac{4}{3}\ e^3$.

But $s=6\ e^2$ $\therefore e^2=\frac{s}{6}$, and $e^3=\frac{s}{6}\sqrt{\frac{s}{6}}$.

Whence $w=\frac{2\,s}{9}\sqrt{\frac{s}{6}}$;

or, $2+43\ w^2=2\,s^3$.

CONTEMPORARY LITERATURE.

Littell's Living Age for June 3, contains the conclusion of a short story by the author of "A Girl in the Karpathians," and a long and valuable paper on Taine, by Gabriel Monod, from the *Contemporary Review*. Other excellent articles are given, from *Blackwood's*, *The Cornhill* and *MacMillan's*.

The June number of the *Cosmopolitan* is an excellent one, containing poems by two of our Canadian poets, Roberts and Lampman. "Omega," the remarkable fantasy by Camille Flammarion, is continued in this number. "The City of Brooklyn" is described by Murat Halstead, and Herbert H. Gowen discusses "The Rise and Decline of the Hawaiian Monarchy." "A Traveller from Altruria," by Howells, cannot but hold the attention of any thoughtful reader.

An interesting series of reproductions of famous pictures, with accompanying descriptions, is at present appearing in the *Overland*. The usual short stories, poems and articles make up a good number.

Helen Louise Johnson has an article on "Electrical Cooking" in the June *Table Talk*. The Magazine abounds with the most valuable hints to house-keepers. "How to Manage Coal Fires" will be a godsend to many a perplexed manager.

The dainty magazine for small children, *Our Little Ones*, contains in its June number the usual charming selection of wee stories and interesting verses.

Sir Archibald Geikie is the subject of the usual sketch and portrait in the June *Popular Science Monthly*. The most important place is given to "Irrigation in the Arid States," by Charles H. Shinn, a subject which requires attention in the Western States. "Modern Miracles," by Prof. Evans, exposes some of the more recent phases of spiritualism. "Why Grow Old?" is an admirable article on a subject in which we must all at some time feel interested. "The Bay of Fundy Tides and Marshes" is an interesting article by Frank H. Eaton.

The May *Eclectic* contains an interesting article on "The French Canadian Habitaut," by Lady Jephson, from the *National Review*. "Poor Abel" is a paper by Ouida on the tendency of modern times to sympathize with the descendants of Cain. An interesting and novel short story is "The Search After Culture," from *Blackwood's*. Among other notable papers might be mentioned "The Private Life of the Renaissance Florentines," by Guido Biagi.

BOOKS RECEIVED.

Moffatt's Class Registers, 42nd Edition for New Code. London: Moffatt & Paige.

Droysen's Principles of History. Translateded by President Andrews of Brown University Boston: Ginn & Co. It is well to have an English translation of a work by so great an authority and so powerful a worker as the late Prof. Droysen. We have also to thank the Editor for a very interesting Biographical Sketch. After all it is much easier to have a knowledge of history, than to really understand what one knows, and that alone is a sufficient reason for this book.

The first volume of a very promising Series has just been issued by Messrs. MacMillan. It is a volume of extracts from the principal writers of English prose, from the fourteenth to the sixteenth centuries. There is not only a short biographical notice prefixed to the extracts from each writer, but also a most valuable literary and critical discussion of his style and his contributions to literature. Some of these are by the author, Mr. Henry Craik; others are by Mr. Saintsbury, Mr. Minto, Mr. Gosse. We have said enough to show that the book is a treasure.

The well known Music publishers, Messrs. Novello, Ewer & Co., of London and New York, have favoured us with copies of their *School Music Review*, for the past twelvemonth. This Magazine, which is published on the first day of each month, at the very low price of 1½*d.* It contains articles, notes of lectures, songs, glees, etc., and practical hints to teachers of music. The first number was issued just a year ago, and so great has been the demand for it, that some numbers are already out of print.

Messrs. D. C. Heath & Co., have added to the excellent *Modern Language Series*, "Histoire D'un Paysan par Erckmanu-Chatrian" and "Le Barbier de Seville par Beaumarchais." The former is edited by Mr. W. S. Lyon, M.A., and the latter by Mr. Spiers.

We have received a *Programme of the Sauveur Summer School of Languages*, to be held at Rockford College, Rockford, Ill., July 3rd to August 11th, 1893, and would advise any of our readers, who may be interested, to send for a copy of the Catalogue to Dr. Sauveur, Roxbury, Mass. The The Languages taught are: French, German, Spanish, Anglo-Saxon, Latin, Greek.

The *Day School Hymn Book*, with tunes. Edited by Emma Mundella. London: Novello, Ewer & Co. This is a collection of some eighty morning and evening hymns, intended for use in day schools. Great care has evidently been taken to render the collection suitable and acceptable. The printing, both of words and music is excellent, and the hymns seem very appropriate.

Books that have grown from experience are usually the best, and we can easily believe *The Normal Course in Number*, grew from experience. It consists of an "Elementary Arithmetic," (50c.) prepared by Miss Crossey, Asst. Supt. of city schools Indianapolis; and an "Advanced Arithmetic," (75c.) prepared by Pres. Cook, of Illinois State Normal School. These books are intended for use in Primary and Grammar Schools, and are published by Silver, Burdett & Co., Boston. The attention paid to details, to reviewing, and to practical problems, and the general excellence of these books, will be evident to anyone who examines them.

We have received from the publishers, Messrs. MacMillan & Co., London, Eng., through the Copp Clark Co., Toronto, the following new books.

A Short History of the English People. Illustrated Edition. Pt. 17. 1s.

MacMillan's Latin Course. Second Part. 4s.6d. By A. M. Cook, M.A.

Differential Calculus for Beginners. By Joseph Edwards, M.A. 4s.6d.

English Classics. Tennyson. *The Holy Grail.* Edited by G. C. Macaulay.

Primer of Horticulture. J. Wright, F. R. H. S. 1s.

The last mentioned is an admirable little primer on Gardening, containing a surprising amount of useful information, prepared originally to be delivered in the form of Lectures. The questions actually put to the Lecturer are given at the end of each chapter fully answered.

The numbers of the *English Classics* are always welcome and the *Holy Grail* is one of the best of the Series. The Introduction by the Editor is well-written and the notes brief and satisfactory.

Mr. Edwards' *Differential Calculus for Beginners* is to some extent an abridgement of his larger work, the parts usually considered unsuitable for those who are reading the subject for the first time being omitted. The examples given are selected with much care and will be found of the greatest service.

The second part of the *Latin Course* is now re-printed with corrections and additions, having been first issued in 1890. The book well deserved its favourable reception. It differs from many elementary Latin books in aiming at very gradual progress and the simplification of difficulties. Nevertheless a great deal of ground is thoroughly covered and the book is an excellent one. Complete vocabularies are given.

Among recent books from Educational publishers are the following:

(1) *Fifty Lessons in Wood-working.* By A. A. Upham.

(2) *Geography by Map Drawing.* By A. M. Kellogg.

(3) *Best Primary Songs.* Completed by Am. Kellogg. Published by E. L. Kellogg & Co., New York and Chicago.

(1) *Progressive Lessons in Needlework,* Illustrated. 95c. By C. M. Johnson.

(2) *Geometry in the Grammar Schools.* An Essay. By Paul H. Hanus.

(3) *Le Petit Tailleur Bouton.* Par M. Genin. Edited by W. S. Lyon, M.A. 25c.

(4) *Le Cure de Tours.* Par Honoré de Balzac. Edited by C. R. Carter. 25c. Published by D. C. Heath & Co., Boston.

(1) *Marcus Aurelius (Classics for Children.)*

(2) *A Reader in Botany.* Part II. By Jane H. Newell. Published by Ginn & Co., Boston.

We have been favoured with a copy of Mr. Frank Yeigh's "Ontario's Parliament Buildings," an exceedingly interesting account of matters connected with our Legislature from 1792-1892. It is a valuable addition to books on Canadian History, and being the work of an experienced journalist is well and pleasantly written. The illustrations add not a little to the interest of the book. (Toronto: The Williamson Book Co.)