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# THE CANADA EDUCATIONAL MONTHLY.

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MARCH, 1902.

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## SOME ASPECTS OF ELEMENTARY CHEMISTRY.

W. L. Goodwin, D.S. C. (Edin.), School of Mining, Kingston.

In looking over the smaller text books of chemistry one is struck with the large amount of space devoted to the description of the elements and their compounds, and the prominence of the atomic theory in the presentation of the subject. This is usually at the expense of the fundamental laws of chemistry and of the very idea of the chemical change. Dalton was led to the chemical atomic theory by his discovery of the law of multiple proportions but nowadays chemical students for the most part discover the law of multiple proportions by means of the atomic theory! It would seem advisable to return to Dalton's way. So persistently and, it would seem, generally, is the cart put before the horse in this respect, that it seems to be a not uncommon belief among junior students that if the atomic theory is rejected the laws of combination go with it. There would be a general smash!

It will be well to examine the laws of combination from this point of view, so as to reassure ourselves. The law of Definite

Composition or Fixed Proportions is a statement of the discovery that any particular compound is always composed of the same elements in the same proportions. For example, calcium carbonate is never found to vary materially from the following composition:— Calcium, 40 per cent.; carbon, 12 per cent.; oxygen, 48 per cent. This is a deduction from innumerable analyses and is evidently as independent of the atomic or any other theory, as observations, like the rising of the sun, or the melting point of ice. Hundreds of thousands of distinct chemical compounds are known, and without exception they have this constancy of composition.\* The law of Multiple Proportions was discovered by John Dalton in 1802 by investigation of olefiant gas and marsh gas. It was obvious from the experiments which he made upon these, that the constituents of both were carbon and hydrogen, and nothing else. He found further that, if we reckon the carbon in each the same, then carburetted hydrogen gas (marsh gas) contains

\*This statement does not cover isomorphous mixtures.

exactly twice as much hydrogen as olefiant gas does. This determined him to state the ratios of these constituents in numbers, and to consider the olefiant gas as a compound of one atom of carbon and one atom of hydrogen; and carburetted hydrogen of one atom of carbon and two atoms of hydrogen, &c. This is Dalton's own account of his discovery, and of the theory founded on it, as reported by Professor Thomas Thompson, who writes\* :— "In the year 1804, on the 26th of August, I spent a day or two at Manchester, and was much with Mr. Dalton. At that time he explained to me his notions respecting the composition of bodies. I wrote down at the time the opinions which he offered, and the following account is taken literally from my journal of that date." This is the account quoted from. If the historical order is taken in teaching this part of chemistry, it requires that before the theory is mentioned some calculation or calculations analogous to that mentioned by Dalton should be made to place the law clearly before the student. The atomic theory was deduced by Dalton not merely from the law of multiple proportions, but, as is seen from a careful examination of his own statement to Thompson, from the wider law of Reciprocal Proportions, the statement of which can at once be recognized as the generalization which the atomic theory attempts to explain. The usual statement of this law is somewhat as follows: If two elements combine in the proportions A to B, and if the first

combines with a third in the proportion of A to C, then the compounds of the second and third will be found to be in the proportions  $mB$  to  $nC$ , where  $m$  and  $n$  are small rational numbers. But a statement like this makes very little impression on a beginner unless it is followed up somewhat in this way :—

The composition of litharge is:— lead, 100 parts by weight; oxygen, 7.8 parts by weight, and of lead chloride:—lead, 100 parts by weight; chlorine, 34.3 parts by weight.

When the compounds of chlorine and oxygen are analysed it is found that the elements are in the following proportions by weight :

Chlorine monoxide:— Chlorine, 34.3; oxygen, 7.8.

Chlorine tetroxide :— Chlorine, 34.3;  $4 \times 7.8$ .

In fact there is no known compound of lead and oxygen, of lead and chlorine, of chlorine and oxygen, or of lead, oxygen, and chlorine, the composition of which cannot be expressed by these three numbers or by small multiples of them. A fourth element may be taken in, and the same law is found to hold; and so on until all the elements are included. It thus appears that, taking a certain weight of one of the elements as a starting point, a certain fixed weight can be found for each of the others, and that all compounds are in the proportions of these fixed weights or of small whole multiples of them. It is quite evident that these fixed weights or as they were formerly and perhaps more logically called, proportionate numbers, are properties of the elements, and independent of

\*History of Chemistry, Vol II, p. 259.

any theory of the constitution of matter. From the fact that in most cases pairs of elements combine in several proportions (in conformity with the law of multiple proportions) it is plain that for each element there is a choice among several numbers (as 8 and 16 for oxygen), any one of which may be taken as its proportionate number. But a set of these numbers has been found to be related in a uniform way to certain physical properties of the elements and their compounds; for example, to the specific heats of the solid elements, and to the gas densities of compounds. The final section of these numbers is also seen to be independent of theory. It is in fact simply an agreement among chemists to choose from the several numbers available for each element that which conforms

with the uniform relations already mentioned. It does not make any difference whether the atomic theory stands or falls—these relations are unaffected. For example, the numbers called atomic weights (the proportionate weights mentioned above) when multiplied by the corresponding specific heats of the elements will give a constant product of about 6.5, whether atoms exist or not; and, moreover, if the theory is shown to be false or insufficient, these numbers can still be used as the basis of chemical formulas and equations.

It is thus, not only unnecessary, but mischievous to introduce the atomic theory into the teaching of chemistry before the experimental meaning of the combining numbers has become quite familiar to the students.

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## SCHOOLS OF COMMERCE.

By David Hoskins, C.A.

The High School of Commerce, which has just been founded as a part of the Public School system of New York, is greeted as the first of its kind—a free public high school of commerce—in America. We must not, however, regard it as the first in the world. The New York Tribune says that there are many State schools of commerce, as also of industry, in other lands, while the fundamental idea of the institutions is an old one, having existed in this country for many years and in others for generations. Probably the first real

school of commerce was the "Aula do Commercio," founded in Lisbon in 1759. Ten years later the first in Germany was founded by J. G. Busch, and was conducted by him until his death, in 1799. The first in France was organized in Paris in 1820, and it was acquired by the Paris Chamber of Commerce in 1868, and has since that date been known as the High School of Commerce. Switzerland followed the example of Zurich in 1827, Belgium in 1837, and Austria in 1856. In the United States so-called business colleges

had their rise about 1840, while in late years—as in New York University in 1899—schools of commerce, finance, and accounts have been organized as legitimate university departments.

All these, however, were private or corporate undertakings. Only in recent years have commercial schools been organized under State auspices. We remember the noteworthy showing made by German commercial schools at the Centennial Exhibition of 1876, at Philadelphia, which gave a vast impetus to similar work throughout the world. Yet the schools represented there were all private, or at most municipal, institutions. As late as ten years ago only one school of commerce was maintained by the German Imperial Government, and only twenty-three were maintained by municipalities in that country, against eleven by chambers of commerce, twenty by mercantile guilds, and 110 by private corporations and individuals. The Government granted subsidies, however, to fifty-four of them. In France there are numerous commercial schools, both elementary and high, under State control or subsidy. Since about a dozen years ago practically all the commercial high schools of France have become State institutions, or at least have received State recognition so that their students are partially exempted from the military conscription and are made eligible to consular and diplomatic appointments. Switzerland has between fifty and sixty State subsidized schools of commerce, chiefly dating from or since 1891. Belgium has a veritable

commercial university in the Institute of Commerce at Antwerp, the three years' students of which have since 1897 been eligible to consular appointments; and the Government is now introducing commercial education into the common Public Schools. Austria's system of commercial schools was reorganized under State direction in 1888. Sweden has only private schools of commerce. Norway has some municipal ones, Denmark has private ones aided with small State subsidies; Holland has one partly subsidized by the State and one maintained by the municipality of Amsterdam. Italy has one subsidized by the State, and Japan has one fine State school of commerce at Tokio.

In the United States, as we have said, private "business colleges" are numerous, more than five hundred of them being officially reported. These range from mere schools of penmanship and bookkeeping up to such fine degree granting institutions as those of the New York University, the University of Pennsylvania, and other leading universities in various parts of the land. There has in recent years largely to afford preparation for these university schools, been a considerable development and extension of commercial instruction in the Public Schools. And now the radical "new departure"—for this country—is made in New York of establishing as part of the Public School system a high school of commerce. It is in all respects an interesting experiment.

Turning to Canada we may observe that bookkeeping had for

many years been more or less pre-functorily taught in the High Schools of Ontario, prior to the introduction of commercial courses in connection with Public Schools in some of the cities of the province. Private enterprise (dating from 1860, or thereabout, when the British-American Business College of Toronto was established) has done more for commercial education in Canada than Governmental initiative, and it is interesting to note the evolution of the "commercial college" of that day into the business school of to-day. Several of the more prominent business colleges (including Upper Canada College) are in affiliation with the Institute of Chartered Accountants of Ontario, for examination purposes, the instruction in accountancy being given by a certified member of the institute. There was, too, founded in 1897, through the efforts of Mr. McCullough, of Hamilton, an independent examining body, known as the Business Educators' Association of Canada, to whose periodical examinations the commercial and shorthand pupils of the various affiliated business schools submit themselves. Local certificates have been waived, and in lieu thereof the graduates receive the certificates of the Association. Business colleges in Ontario, New Brunswick, and Nova Scotia, are included in the membership. A properly qualified board of examiners, elected annually, with an outside man as registrar, constitutes the machinery of the examination system, and the tests are, keeping in view the limited time spent on a course, suf-

ficiently searching, judging by the percentage of those who fail. It is the desire of the more progressive among business college men to broaden and deepen the curriculum of the Canadian commercial schools, to discard the American texts used in so many of them, and to lengthen the period of attendance therein. In passing it may be remarked that the Government could go farther and fare worse than follow the example of one or two European countries and subsidize a few of the better private commercial schools of the provinces. Early in the year 1901, a corporation was formed with an authorized capital of one hundred thousand dollars to more systematically and effectually carry on the work of commercial education in Ontario, and to furnish business schools with texts suited to Canadian needs.

If Canada is to fittingly play her part in the international trade contest, her young men must be adequately trained for commercial pursuits. "Those," as Lord Salisbury says, "responsible for commercial education must not be afraid of the word 'utilitarian'."

It is to be observed here that the Provincial University has caught somewhat of the spirit of the times, and is laying the foundation of a course in commerce, the success of which, it is hoped, may demonstrate the wisdom of the step. But it is high time that those amongst us whose means are greater than their public spirit (with a rare exception or two) awakened to the opportunities and responsibilities of the times. The example of France and other

European countries could, with great advantage to Canada, be followed here by the awarding of travelling scholarship in commerce to young men who have distinguished themselves in commercial studies. (We would interject here this suggestion, that a travelling scholarships open to the pupils of business colleges of the Dominion would do more to develop breadth in them than tons of criticism, more or less illy-based.)

Just now representatives of the Canadian Manufacturers' Association are visiting the West Indies to enquire into trade conditions. In this, these gentlemen exhibit commendable foresight. Consider the accruing advantages to the Dominion, if from each university, banking corporation, and metropolitan board of trade, a well-qualified observer speaking the language of the country he journeyed to, were to have means and

leisure to study the economic, fiscal and trade conditions of that land!

Canada is not alone agricultural; her resources and her position make her commercial also. Three hundred and eighty-one millions of dollars indicate the volume of the export and import of our people last year. If barely six million of people are responsible for these large figures what may not Canadians trained in the science of commerce as Germans are trained, accomplish in a few years?

So far as I am able to judge the total annual attendance in the Province of Ontario is about 2,500, although, perhaps not more than 1,800 could be found in these schools at any one time. New Brunswick and Nova Scotia have about 600 and 800 respectively, Manitoba 350 or 400, British Columbia 400, Quebec (exclusive of Catholic commercial academies) about 1,200.

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## CURRENT PROBLEMS IN SECONDARY EDUCATION.

By Prof. John Dewey.

A slight amount of social philosophy and social insight reveals two principles continuously at work in all human institutions: one is toward specialization and consequent isolation, the other toward connection and interaction. In the life of the nation we see first a movement toward separation, toward marking off our own life as a people as definitely as possible to avoid its submergence, to secure for it an individuality of its own. Commercially we pursue

a policy of protection: in international relations one of having to do as little as possible with other nationalities. That tendency exhausts itself and the pendulum swings in another direction. Reciprocity, the broadening of our business life through increased contacts and wider exchange becomes the commercial watchword. Expansion, taking our place in the sisterhood of nations, making ourselves recognized as a world-power, becomes the formula for inter-

national politics. Science shows the same rhythm in its development. A period of specialization—of relative isolation—secures to each set of natural phenomena a chance to develop on its own account, without being lost in, or obscured by generalities or a mass of details. But the time comes when the limit of movement in this direction is reached, and it is necessary to devote ourselves to tracing the threads of connection which unite the different specialized branches into a coherent and consecutive whole. At present the most active sciences seem to be spelled with a hyphen; it is astro-physics, stereo-chemistry, psycho-physics, and so on.

This is not a movement of blind action and reaction. One tendency is the necessary completion of the other. A certain degree of isolation or detachment is required to secure the unhindered and mature development of any group of forces. It is necessary in order to waste them in their practical workings. We have to divide to conquer. But when the proper degree of individualization is reached, we need to bring one thing to bear upon another in order to realize upon the benefits which may be derived from the period of isolation. The sole object of the separation is to serve as a means to the end of more effective interaction.

Now as to the bearings of this abstract piece of philosophy upon our school problems. The school system is a historic evolution. It has a tradition and a movement of its own. Its roots run back into the past and may be traced

through the strata of the successive centuries. It has an independence, a dignity of its own comparable to that of any other institution. In this twenty-five-hundred-year-old development it has, of necessity, taken on its individuality at the expense of a certain isolation. Only through this isolation has it been disentangled from absorption in other institutions: the family, the Government, the Church, and so on. This detachment has been a necessity in order that it might become a true division of labor and thus perform most efficiently the service required of it.

But there are disadvantages as well as advantages. Attention has come to be concentrated upon the affairs of the school system as if they concerned simply the system itself, and had only a very indirect reference to other social institutions. The school teacher often resents reference to outside contacts and considerations as if they were indeed outside—simply interferences. There can be no doubt that in the last two centuries much more thought and energy have been devoted to shaping the school system into an effective mechanism within itself than to securing its due interaction with family life, the Church, commerce, or political institutions.

But, having secured this fairly adequate and efficient machine, the question which is coming more and more to the front is: What shall we do with it? How shall we secure from it the services, the fruits, which alone justify the expense of money, time, and thought in building up the machine?



It is at this point that particular conflicts and problems begin to show themselves. The contemporary demands—the demands that are made in the attempt to secure the proper interaction of the school—are one thing; the demands that arise out of the working of the school system considered as an independent historical institution are another. Every teacher has to work at detailed problems which arise out of this conflict, whether he is aware of its existence or not, and he is harassed by friction that arises in the conflict of these two great social forces. Men divide along these lines. We find one group instinctively rather than consciously ranging itself about the maintenance of the existing school system, and holding that reforms are to be made along the line of improvement in its present workings. Others are clamorous for more radical changes—the changes that will better adapt the school to contemporary social needs. Needless to say, each group represents a necessary and essential factor in the situation, because each stands for the working of a force which cannot be eliminated.

Let me now try to show how, out of this profound social conflict and necessity of social adjustment, the particular problems arise. Our first concern is with the articulation of the High School into the entire educational system. The High School looks towards the grades on one side and toward the college on the other. What are the historic influences which have shaped this intermediate position, and placed peculiar difficul-

ties and responsibilities upon the secondary school? Briefly put, it is that the elementary school and the college represent distinctly different forces and traditions on the historic side. The elementary school is an outgrowth of the democratic movement in its ethical aspects. Prior to the latter half of the eighteenth century the elementary school was hardly more than a wooden device for instructing little children of the lower classes in some of the utilities of their future callings—the mere rudiments of reading, writing and number. The democratic upheaval took shape not merely in a demand for political equality, but in a more profound aspiration towards an equality of intellectual and moral opportunity and development. The significance of such an educational writer as Rousseau is not measured by any particular improvement he suggested or by any particular extravagances he indulged himself in. His is a voice struggling to express the necessity of a thoroughgoing revolution of elementary education to make it a factor in the intellectual and moral development of all—not a mere device for teaching the use of certain practical tools to those sections of society before whose development a stone wall was placed. What Rousseau as a writer was to the emotions of the France of his day, Horace Mann as a doer was to the practical situation of the United States in his time. He stood and stood most effectively for letting the democratic spirit, in all of its ethical significance into the common elementary schools, and

for such a complete reorganization of these schools as would make them the most serviceable possible instruments of human development.

In spite of all the influences which are continually operative to limit the scope and range of elementary education, in spite of the influences which would bring back a reversion to the type of the limited utilitarian school of the seventeenth century, that part of the school system which stands underneath the high school represents this broad democratic movement. To a certain extent, and in many of its phases, the high school is an outgrowth of exactly the same impulse. It has the same history and stands for the same ideals; but only in part. It has also been profoundly shaped by influences having another origin. It represents also the tradition of the learned class. It maintains the tradition of higher culture as a distinct possession of a certain class of society. It embodies the aristocratic ideal. If we cast our eyes back over history we do not find its full meaning summed up in the democratic movement of which I have just spoken. We find the culture of the ancient world coming down to us by a distinct channel. We find the wisdom and enlightenment of the past conserved and handed on by a distinct class located almost entirely in the colleges, and in the higher academies which are to all intents and purposes the outgrowth of the colleges. We find that our high school has been quite as persistently molded and directed through the agencies

which have been concerned with keeping alive and passing on the treasure of learning, as through the democratic influences which have surged up from below. The existing high school, in a word, is the product of the meeting of these two forces, and upon it more than upon any other part of the school system is placed the responsibility of making an adjustment.

I do not mention the tradition of learning kept up in the universities of the Middle Ages, and the higher schools of the Renaissance, and refer to it as aristocratic for the sake of disparaging it. Eternal vigilance is the price of liberty, and external care and nurture are the price of maintaining the precious conquest of the past—of preventing a relapse in Philistinism, that combination of superficial enlightenment and dogmatic crudity. If it were not for the work of an aristocracy in the past, there would be but little worth conferring upon the democracy of to-day.

There are not in reality two problems of articulation for the high school—one as regards the grades and the other as regards the college. There is at bottom but one problem—that of adjusting the demand for an adequate training of the masses of mankind to the conservation and use of that higher learning which is the primary and essential concern of a smaller number—of a minority. Of course, elementary school and college alike are affected by the same problem. Part of the work of the grades to-day is precisely the enrichment of its traditional

meager and materialistic curriculum with something of that spirit and wealth of intelligence that are the product of the higher schools. And one of the problems of the college is precisely to make its store of learning more available to the masses, make it count for more in the everyday life.

But the high school is the connecting link and it must bear the brunt. Unless I am a false prophet, we shall soon see the same thoughtful attention which for the past fifteen years has characterized discussion of the relation of high school and college, speedily, transferring itself over to the problem of a more organic and vital relation between the high school and the grades. The solution of this problem is important in order that the democratic movement may not be abortively arrested—in order that it may have its full sweep. But it is equally important for the sake of the college and in the interests of higher learning. The arbitrary hiatus which exists at present reacts as unfavorably in one direction as in the other.

First, it limits the constituency of the college; it lessens the actual numbers of those who are awakened to the opportunities before them, and directed towards the college doors. Secondly, it restricts the sphere of those who sympathetically and vicariously feel the influence of the college, and are thus led to feel that what concerns the welfare of the college is of direct concern to them. The attitude of the mass of the people to-day towards the college is one of curiosity displaying itself from

afar rather than of immediate interest. Indeed, it sometimes would seem that only athletic exhibitions form a direct line of connection between the college and the average community life. In the third place it tends to erect dams which prevent the stream of teachers flowing from the college walls from seeking or finding congenial service in the grades and thereby tends automatically to perpetuate whatever narrowness of horizon or paucity of resource is characteristic of the elementary school. Fourth, it operates to isolate the college in its working relations to life, and thereby to hinder it from rendering its normal service to society.

I pass on now to the second main line of problems—that having to do with preparation for college on one side, and for life on the other. Ultimately this is not a different problem, but simply another outgrowth of the same question. A few years ago a happy formula was current: the proposition that the best preparation for college was also the best preparation for life. The formula was such a happy one that if formula ever really disposed of any practical difficulty, there would be no longer any problem to discuss. But I seem to observe that this proposition is not heard so frequently as formerly; and, indeed, that since it was uttered things seem to be taking their own course much as before.

The inefficiency of the formula lies in its ambiguity. It throws no light on the fundamental problem of Which is Which? Is it preparation for college which sets

the standard for preparation for life, or is it preparation for life which affords the proper criterion of adequate preparation for college? Is the high school course to be planned primarily with reference to meeting the needs of those who go to college, on the assumption that this will also serve best the needs of those who go into other callings in life? Or, shall the high school devote its energies to preparing all its members for life in more comprehensive sense, and permit the college to select its entrance requirements on the basis of work thus done?

I shall not attempt to solve this problem and for a very good reason. I believe that there are forces inherent in the situation itself which are working out an inevitable solution. Every step in the more rational development of both high school and college, without any reference to their relationships to each other bring the two more closely together. I am optimistic enough to believe that we are much nearer a solution of this vexed question than we generally dare believe. Quite independent of any question of entrance requirements, or of high school preparation, the college is undergoing a very marked development and even transformation, on its own account. I refer to such developments within the college course as the introduction not only of the Ph. B. and B. S. course side by side with the older classical courses, but also to the forward movement in the direction of a specific group of commercial and social studies; and to the tendency of all universities of broad scope

to maintain technological schools. I refer also to the tendency to adapt the college work more and more to preparation for specific vocations in life. Practically all the larger colleges of the country now have a definite arrangement by which at least one year of the undergraduate course counts equally in the professional course of law, medicine, or divinity as the case may be. Now, when these two movements have reached their fruition, and the high school has worked out on its own account the broadening of its own curriculum, I believe we shall find that the high school and the college have arrived at a common point. The college course will be so broad and varied that it will be entirely feasible to take any judicious group of studies from any well organized and well managed high school, and accept them as preparation for college. It has been the narrowness of the traditional college curriculum on one side and the inadequacy of the content of high school work on the other which have caused a large part of our mutual embarrassments.

I must run rapidly over the problems referred to under my third and fourth main heads—those having to do with adjustment to individual needs, and to the social uses of the school. I take it that these illustrate just the same general principle we have been already discussing. The school has a tradition not only regarding its position in the educational system as a whole, and not only as regards its proper curriculum, but also as regards the methods and ideals of discipline and

administration in relation to its students.

There can be no doubt that many of these traditions are out of alignment with the general trend of events outside the school walls—that in some cases the discrepancy is so great that the high school tradition cuts abruptly across this outside stream. One of these influences is found in the tendency equally marked in the family, Church, and State, to relax the bonds of purely external authority, to give more play to individual powers, to require of the individual more personal initiative and to exact of him a more personal accountability. There may be difference of opinion as to the degree in which the school should yield to this tendency, or should strive to counteract it, or should endeavor to utilize and direct it. There can be no difference of opinion, however, as to the necessity of a more persistent and adequate study of the individual as regards his history, environment, predominant tastes and capacities, and special needs—and please note that I say needs as well as tastes. I do not think there can be any

difference of opinion as to the necessity of a more careful study of the effect of particular school studies upon the normal growth of the individual, and of the means by which they shall be made a more effective means of connection between the present powers of the individual and his future career. Just the limits of this principle, and its bearings upon such problems as the introduction of electives, I shall not take up. We have no time for a detailed discussion of these disputed points. As I have just indicated, however, I do not see how there can be dispute as to the fact that the individual has assumed such a position as to require more positive consideration and attention as an individual, and a correspondingly different mode of treatment. I cannot leave the topic, however, without stating that here also I believe the ultimate solution will be found, not along the line of mechanical devices as to election or non-election, but rather through the more continued and serious study of the individual in both his psychological make-up and his social relations.—The School Review.

To be continued.

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## SCHOOL VENTILATION—II.

Edith M. M. Bendeley, Montreal and London, England.

In the preceding article I endeavored to explain the physiology of respiration and to emphasize the vital importance of good ventilation, specially in schools. We have now to consider the subject

in detail and practice, and to find out how the best results may be obtained with the minimum of expense. By following the initiative of natural laws, and using the means at hand, it has generally

been found possible to produce satisfactory results without serious expenditure.

The function of ventilation is to get rid of the products of respiration. These products, as we have seen, are carbonic acid ( $C O_2$ ), water and organic particles. In a lesser degree it is also concerned with the removal of the products of the combustion of gas, lamps, etc., and also of the dust and the exhalations from bodies and clothes not spotlessly clean.

The great problem of ventilation is to secure a sufficient interchange of air without perceptible currents or draughts. Wherever the temperature of the air is subject to changes, movements are constantly occurring. As draughts are objectionable for persons who are obliged to stand or sit in them, it is necessary to supply fresh air at a rate at which it will not be perceptible.

When a current of air at a temperature of 50 to 60 degrees Fahr. is moving at a rate of one mile per hour it produces no draught. Air passes more rapidly through a small than a large aperture, and windows or doors left an inch or two apart produce far more draught than if they had been wide open.

The amount of pure air that will be required to pass through a room in order that each person in it may have sufficient to remove waste and provide for renewal of the body has been determined by many careful experiments upon the air of prisons, barracks, etc., where the amount of fresh air supplied per hour is exactly known.

The amount of carbonic acid in

air is fairly proportionate to that of other respiratory products and may therefore be made a standard. Outside air should not contain more than 4 parts in 10,000; at sea and in high altitudes the amount is far less than in cities. Drs. Parkes and De Chaumont, after many careful experiments, found that when the  $C O_2$  was in the proportion of .06 per cent. (6 parts in 10,000) the air became perceptibly stuffy. To keep the  $C O_2$  at this limit they found that at least 3000 cub. ft. of pure air per head per hour were necessary. Sick people and children require more than this. In St. Thomas's Hospital, London, the space allowed to each ordinary patient is 1800 cub. ft. and for fever patients, 2500. Thus by changing the air in the wards twice an hour a maximum of purity is maintained. By allowing each individual 1000 cub. ft. of space the air can be kept pure if changed three times an hour. In relation to space it is important that sufficient floor space be allowed. A lofty room does not make up for deficiencies of that kind. There is nothing gained by having a room more than 12 ft. high and in reckoning cubic dimensions for the purpose of ventilation, a room, however lofty, should not be counted as more than that height. The expired air from human beings does not tend to rise above that height and the organic matter accumulates about the persons of those who exhale it.

In rooms and halls lighted by gas, a large amount of hot impure air collects about the ceilings. The tendency of air vitiated by human breath to rise is of course due

to the fact that it is warm and moist. Cold air being heavier than warm, and dry air, whether cold or warm, heavier than damp, it follows that in rooms occupied the foul air is found towards the middle and top rather than at the bottom of the room.

No system of ventilation is perfect that does not provide an outlet as well as an inlet for air. The relative size of inlets has been much discussed, but it is not possible to indicate here more than the main principles on which they should be constructed. They should bring air from a pure source and should be protected from wind. If large and single they should bring air in warmed to a temperature of from 55 to 60 degrees Fahr., and should be placed about half way up the wall. If small they should be well distributed about the room. Theoretically, the floor would be the best part for the entry of fresh air, but in case of its being cold this would be intolerable, and in any case some air is bound to come in under doors, etc. Tobius Tube is much used in England, and except in extreme weather is a very effective ventilating apparatus. It consists of a tube 4-6 feet high communicating at its base with the external air through a grating or perforated brick. The air enters the room in an upward direction and mixes with the warmer air, diffusing itself through the room. There is a lid which may be closed to a varying extent. It is quite usual to see two and even three of these tubes in English school-rooms and they are also often found in dwelling-houses. An-

other convenient way of ventilating through the wall is by Sheringham's valve placed six feet from the floor and introducing the air on the same principles as Tobius Tube.

The chimney forms the best means for the escape of foul air if openings are made above the fire place, and the fire, together with the aspirating action of winds, causes a regular upward current. When there is no fire a chimney acts as an inlet for outside air. There can be no doubt that natural ventilation, i.e., the introduction of external air by the most direct means, is the best; it is not always, however, possible. Artificial ventilation, or the introduction of fresh warm air, by mechanical apparatus can be very efficiently carried out provided the tubes are kept clean and the air uncontaminated with smoke and dust. Smead & Dowd's ventilating apparatus gives a good supply of warm air provided there are sufficient outlets for the vitiated air. There should always be several of these in the walls of school rooms, near the ceiling. Even if the air introduced into the room is as warm as the air expired by the occupants the dampness of the respiratory products inevitably causes them to rise. The plan of having the outlets at the base of the wall is unscientific and obviously inefficient. To be effective such a method requires many gratings and a strong current of air always drawing. This implies costly and elaborate apparatus. A very simple and easy way of providing an outlet for school-rooms would be to have a window over each door opening

outwards like a valve.. The cool currents of air in the passages would draw out the warm air of the room without causing perceptible draught or lowering of temperature. When all has been done to provide school-rooms with adequate ventilation while occupied, there still remains the need for thorough flushing with fresh air when vacant. Organic impurities are always present in school-rooms and wherever many persons congregate, and these can only be removed by a thorough draught blowing through the room. When the external air is cold the warm air rushes to the window if open, and a room may be thoroughly flushed even in a Canadian winter without causing a serious drop in the temperature. Much more goes out than comes in, and the outgoing current carries with it the deleterious matter. In schools attended morning and afternoon the doors and windows should be thrown open for at least ten minutes at midday, and also when the scholars have left. In crowded class-rooms and whenever it is possible to vacate the rooms for a few minutes, this should be done also in the midmorning recess. If the incoming current of warm air is continuous and sufficient, no harm can possibly follow.

By introducing a system of perfect ventilation into our schools a precedent is set which will bear fruit as so many school influences do, in the homes of children. Not only this, the pupils themselves will benefit in health, and will grow to like airy surroundings and sunshine. All children love to be out

of doors. Let them see the blessing of pure air and sunshine introduced into their schools, and it will not be long before the same influences will be allowed to work in the homes. The taste for sanitary surroundings will grow with the experience of their benefit, and the homes of the next generation will as a matter of course be purer and healthier than those of the past.

Dwellers in cities cannot escape the ubiquitous microbes which medical science tells us we are bound to inhale every day. Immunity from their dire destruction is only to be purchased by healthy living. Pure blood and sound organs are the only armor we can have, and they are invulnerable. We cannot eradicate the infectious diseases, and chief among them consumption, immediately, nor yet while such great ignorance of sanitary science prevails, but we can lessen enormously the liability to contract them by improving the constitutions of the community.

The battle of physical life in which so many of the past and present generations have been laid low may be made certain victory to the coming generation if we will! but make the children healthy and strong to resist the attacks of disease.

It is a national and an Imperial duty to try and shorten the long and dismal procession of funerals due to preventible diseases. From the vast plains and silent forests of the Dominion, from the wide South African veldt, from distant Australasia the same cry goes forth to the Old Country for more



settlers. Emigration agents do their best, but we can, at least, do as much as they can, by strenuous and well planned efforts to keep

those we have out of the grave, and by raising a healthy race of children to be the population of the future.

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CHARITY.

Then gently scan your brother man,  
Still gentler sister woman;  
Tho' they may gang a kentin wrang,  
To step aside is human;  
One point must still be greatly dark,  
The moving why they do it;  
And just as lamely can you mark  
How far perhaps they rue it.

Who made the heart, 'tis he alone  
Decidedly can try us;  
He knows each chord, its various tone,  
Each spring, its various bias,  
Then at the balance let's be mute,  
We never can adjust it;  
'hat's done we partly may compute,  
But know not what's resisted.

—Robert Burns, Died July 25, 1796.

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EDITORIAL NOTES.

Deliver not the tasks of might  
To weakness, neither hide the ray  
From those, not blind, who wait  
for day,  
Though sitting girt with doubtful  
light.

That from Discussion's lips may fall  
With Life, that working strongly,  
binds—  
Set in all lights by many minds,  
So close the interests of all.

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**The Passing of Dufferin.**

In the 77th year of his age, Lord Dufferin was called to his final home. British subjects in Canada, have many good reasons for remembering with gratitude the services rendered by him while he held the position of Governor-General of British North America. Before being sent to Canada, in 1872, the late Lord Dufferin held several subordinate offices under the Crown, in all of which he gave much satisfaction. It was his lot to be Governor-General in Canada at a very trying time. The turmoil, known as the Pacific Scandal was in the early days of his administration. At this time party spirit was most unreasonable

and fierce. Dufferin acted with fairness, tact, and consummate ability. Though strongly urged, he refused to dismiss the Premier, Sir John A. MacDonald, and allowed the House of Commons and the country to deal with the trouble, a course which even his critics afterwards approved. Good service was rendered by him to the Dominion by his visit to British Columbia, when our brethren on the Pacific were troubled in their minds over the outlook regarding their isolation. The Governor-General assured our fellow-subjects by act and word, that we were all citizens of the same Empire, knit together by cords stronger and more lasting than those of steel. Peace thereafter settled on

the Pacific Province. After leaving Canada, in 1878, he served his Queen and country in St. Petersburg, Constantinople, and in India, Italy, and France; he filled all these onerous posts with great ability, and was rewarded with brilliant success. He was one of the most graceful speakers and writers of his day; the mantle of the Sheridans was his by heredity. We all mourned with him in his financial troubles, and rejoiced to learn that there was no crookedness connected in any way or degree with our honored Viceroy. We bowed the head with him in grief at the loss of his son in South Africa. But Canadians will choose to remember the Marquis of Dufferin, not as he was in his late days and time of sorrow, but as he was in his prime, the gifted speaker, the ready writer, the genial host, the enthusiastic and patriotic Canadian.

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#### Educational Report—II.

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Last year we felt it necessary to give special attention to the number of pupils reported in the different reading books. This year the same difficulty appears. The number of pupils reported in First Reader, Part I., is 107,908; the number in First Reader, Part II., 69,706; the total number therefore in the First Reader during 1900 was 177,614, an increase over 1899 of 3,172. The number of pupils reported as being in the 2nd Reader, is 88,836, less by 4,240, than the number reported in the 2nd Reader last year. In 1900 there were in the First Reader

177,614, and in the Second Reader, 88,836; only a few more than half the number that are reported in the First. Can any person of average intelligence and ordinary knowledge of school affairs, believe that statement to be correct? Impossible! We do not forget that some of our readers suggested to us, when writing about this same mystery last year, that, if we divided the number of pupils in the First Reader in two classes, the difficulty would disappear. We have all acted upon the well-known truth, "that the whole is equal to the sum of its parts"; therefrom the division does not assist us; because the scholars in the First Reader would still be in the First Reader. The only way we can explain the difficulty, is that many of the pupils in the First Reader are counted twice. Thus a pupil in the First Reader, Part I., is counted in the First Reader, and then on being promoted into Part II., same reader, he is counted again. This explanation will solve the difficulty, but it is at the expense of the intelligence of the teachers, and especially of the inspectors of the schools; hence our reluctance to suggest or to accept it. If this is the true explanation, the correction can easily be applied, and next year we shall all rejoice at the beauty of a correct return of the children of school regard to the number of pupils in age in the First Reader. With the other readers, the noteworthy feature is that the number is smaller this year in each than it was last year. The largest num-

ber of pupils in any reader is found in the Third Reader; more than in the Second, by 5,233. The number of continuation classes is given as 431, but the attendance in these classes is not given. Why?

The attendance at our Secondary Schools during the year 1900 is less by 737 than in 1899. This to us is unsatisfactory, for the higher life of the province is very largely dependent upon the Secondary Schools of the province. Therefore, every symptom connected with them should be most carefully considered.

Does the programme of study for the public school need revision? We are constantly being met with such statements as these: My child is not going to college, and therefore, he need not waste his time on such as &c, &c, or my boy is preparing for college, and therefore I want him to give all the time he can to learn only such branches as will fit him for his college course. The source of all this divergence of view, is the belief that the course of study best adapted to prepare a pupil for the course of study at college is not the best adapted for the general affairs of life. This is the case not only as regards the college, but even as regards the high school.

When the present programme of study for the public schools was adopted, some years ago, the opinion prevailed that the subjects of study leading to a course at college were the best also to prepare for performing the duties of a citizen, though he should never have opportunity of entering college. Is this the opinion now? Parents who wished their sons to

have the advantage of a college career objected mostly to such branches of study as bookkeeping, drawing and science, as then taught. We may now eliminate science; for the science branches of learning have become so important, and especially so in a new country like Canada with its illimitable resources of all kinds of minerals, that nature studies are very much sought after in all our schools. For the same reason, drawing must be withdrawn, on the ground that it is necessary in the study of science. Quite recently in Ontario the University of Toronto has organized a department of Commerce in which bookkeeping, of course, appears. From the above it is manifest that the objections from the parents' side have all been removed by extension of studies at the colleges.

How does the case stand as between the public school and the high school? We know of no subject which per se, is a public school subject for study, and not a high school subject also. If we have made a mistake in this we shall be glad to be corrected. Therefore we hold strongly the opinion that pupils should enter the high school as soon as they can be prepared for entrance. In many ways boys and girls can benefit by attendance at the high school even if they never attend a college. Not only the children lose by being restricted to the public schools, but the whole country suffers an immense loss by such short sighted policy. These things, we write from the most intimate personal knowledge of what we are writing and earnestly beg our fellow

workers in the public schools to aid us in stimulating the children of Canada, at least to secure the advantage of a full high school course. It is vain for Canada to hope to hold her place, or to get there, in the commercial and industrial world unless she educates her sons and daughters for the relentless war which is being forced in all quarters.

What says the Minister's Report about the attendance of the pupils in the more advanced classes in the public schools? Last month we expressed our disappointment with the unsatisfactory character of these figures regarding the attendance in the public schools.

Instead of 177,641, the number given in the Report for the First Reader, we take 107,908 as the least number in this Reader, without repetition of names. Then we have: First Reader 107,908, Second Reader 88,836, Third Reader, 94,069, Fourth Reader 84,507, Fifth Reader 17,468. Between the number in the first and second readers we have a difference of 19,072. What has become of these children? Here we have a loss of nearly 20 per cent. in the two lowest classes, and not a word about it! The report shows that with the exception of the first reader class, there are more pupils in the third reader than in any other. It is gratifying to find so large a number in the third book, but it would be pleasant to hear a word of explanation. Of the 84,507 in the fourth reader, only 17,468 are accounted for in the fifth reader! That is 20 out of every 100. And our readers will please remember

this includes all those in "continuation" classes. Let not the people of Ontario deceive themselves by taking for granted that a large number of the fourth reader pupils are found in our high schools. Punch's criticism on the British fleet is pertinent in this case; "the fleet should be there, but it is not"; so these pupils should be in the high schools, but they are not. Why not? Is it the fault of the programme of studies in the public or high schools? Is it the undue number of examinations? then lessen the number. But in this connection we wish to say that pupils in both public and high schools ought to be taught how to answer examination questions: how to do themselves and their schools justice with pen and ink. Such trials as are found in examination halls are constantly met with in daily life. These statistics do not support the contention of those who hold that the present programme leads to the college: for few of the pupils of the public schools are found even in the high school, and fewer still in the college. What is the Minister of Education going to do with these things? What the House of Assembly? Who are to take charge of the mining, the railroads, of all the enterprises of this auxiliary nation of the British Empire? Experts from the United States, from the Continent of Europe: foreigners? And the British-Canadian take third or fourth place in the development of this Dominion? This solution of the problem is not British.

**Imaging.**

Attention and habit are the fundamental units of Modern Psychology. According to this view Imagination is not an isolated faculty requiring special training per se. It is a phase or factor of the attentive act. It is the adaption of former habit to the building up of a new habit which we desire to have. The image is the instrument through which the learner realizes ideas, relations and facts which are beyond the immediate comprehension of the senses.

It is only through images, visual, auditory, tactile, motor that we get beyond mere symbols to the true significance of things. Thus the image is the connecting link between the new and the old. A presentation is of value in direct proportion to the extent in which it symbolizes or stands for something beyond itself.

One characteristic of the truly educated man is that he can bring to bear upon each new experience a vast amount of interpreting machinery. He can think of the right thing at the right time, he has had a valuable experience and knows how to call them up and apply them; in other words, he has formed the imaging habit. The individual who has simply memorized a mass of unassimilated facts does not possess such power of interpretation.

There is a static conception of a teacher's training course which holds that the student is to enter with a fixed quantum of knowledge and experience which can be accurately measured, and that then the business of a Normal School

is to give a certain amount of additional knowledge of methods and experience in teaching, much as one might add more books to a half-filled library, or walk the last two miles of a five-mile journey.

Such a view is based upon false philosophy and has much to do with the failures of some who have passed professional examinations.

What the teacher requires is an insight which will enable him to meet new situations and deal with new problems in the most satisfactory manner.

To gain such power it is necessary (in a sense) for him to become a child again, to reconsider his ideals, to widen his horizon, to take a new view of life.

Every thoughtful teacher must realize how firmly the chain of fixed habit fastens itself upon one with each succeeding year of teaching experience, until at length one desires to remain in the same grade, teach the same subjects under the same conditions, dreading to attempt anything new.

The chief value of a Normal School course is to afford opportunities for culture in the highest and truest sense—a culture which combines discipline and knowledge, which means mastery over self and a power of control which fits the teacher for efficient service in the future.

Such power can be gained only by a firm determination to break the chain of vicious habit and by long continued and wisely directed effort in the solution of well selected life problems.—S. B. Sinclair, Ph. D., Normal School, Ottawa.

## COMMENTS.

No school is a good school that educates the children away from work, says a recent issue of a Pennsylvania School Journal. No boy should be taught that it is better or more respectable, to be a lawyer than to be a farmer. A good carpenter or blacksmith is as good and useful and respectable as a good doctor, and infinitely better than a poor one. It is just as honorable to shoe a horse as it is to edit a paper. The banker is no whit better than the mechanic. Any honest calling is worthy the best efforts of an honest man. The humblest, most lowly calling can be dignified by following it worthily and efficiently. Every good school will help the children to see, understand, and appreciate this fact. The school that does not do this much is not doing the most or the best for the children.

The little kingdom of Holland has started on a career of conquest (says the Leisure Hour), but in a manner which every other nation must approve. Holland has made up its mind to dry up the Zuider Zee, and add 2,500,000 acres of fertile land to her territory. Proposals for shutting out the sea from this inland bay have engaged the attention of Dutch engineers since 1849, but they all proved impracticable, and the expense too great. But lately the States-General have sanctioned a more modest plan which will be carried out and perfected within the next twenty years, and will materially alter the appearance of Holland on the map.

A broad causeway will be built from the northern Dutch coast and from the island of Wieringen to the opposite Frisian mainland at Piaam. There will be two great sluices, one at Piaam, and the other at Wieringen, and through these sluices the connection with the sea will be maintained. It is proposed for the present to dry four extensive areas, two in the west, one south, and one east. The beginning will be made with the two western areas, called respectively the Wieringen and Hoerner Polder. "polder" being the Dutch name for territory reclaimed from the sea. The government believe that they will be able to settle forty villages on this area, each village with 100 houses, and on the two areas south and west, eighty villages. The entire cost of the work is estimated at 57,000,000 gulden (4,800,000.) for the dykes and causeways and an additional 38,000,000 (3,200,000.) for drainage works. In nine years the dykes are to be finished. In addition to this large extension of her territory Holland will have the advantage of improved railway communication, as the causeways shutting in the sea from Wieringen to Piaam will be broad enough to run a railway across it.

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**American Misinformation.**


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We are often amused at the lack of the Englishman's knowledge of things in America; but for real, solid, downright ignorance of what the world—outside the boundaries

of their own country—is doing, the great American is easily champion. The Chicago Record-Herald is a first-class American newspaper, yet it prints this piece of misinformation:

“The United States has the cheapest, most extensive and most efficient postal system in the world. England, it is true, has penny postage, but the area of the British isles is less than that of Illinois and Wisconsin. For two cents the United States government carries a letter from Portland, Me., to Portland, Ore. So far as the railway fast mail is concerned there is nothing in England or the continent of Europe to be compared to it. The railway postal car, which is in reality a moving postoffice, going the rate of 40 miles an hour, is a development of the United States postal service. Europe does not know what a fast mail service is.”

From Portland, Maine, to Portland, Oregon, is a right smart distance for penny postage; but the “English” penny postage stamp carries a letter from Vancouver, British Columbia, to London, England, or to any part of the United Kingdom, and another penny stamp will carry the reply. It is quite true that the English postal car is not like the American postal car. In Britain the “T.P.O.”—Travelling Post Office—does not travel at the rate of 40 miles an hour, but 60 miles, and it was in use in England before it was “developed” by the American postal service. The average American imagines that John Bull still remains where he was when Uncle Sam left the old man and started

housekeeping for himself.—Free Press, London.

For the enlightenment of our cousins across the line and for others, who may not know, to the above add the following additional information: That any English penny postage stamp will carry a letter to any part of the British possessions, and protectorates, Bechuanaland excepted.

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#### What Kind of Teacher?

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One becomes somewhat a-weary of listening to the numerous descriptions of what the teacher ought to be, when teachers are and will continue to be just ordinary mortals like other mortals, with more frailties and foibles than virtues. Nevertheless, the normal teacher is honestly trying to improve in all respects so far as in him lies, so that an occasional description of what he ought to be is worth quoting, especially one so excellent as that published in the current number of the Educational Journal.

We need teachers, says the editor, whose touch and look, whose voice and word bring to each child a rich assurance of genuine, abiding interest in his well-being; whose very presence will inspire and help the child to grow and be the strong, self-contained, helpful man or woman, he or she is meant to be. The public school must do this in order to make up for the manifold disabilities of the family coming from poverty, ignorance and frivolity. Many of us say that this belongs to the family and not to the schools. We may close our eyes as vigorously as we choose to this great responsibility, but we shall not be relieved of it.

Experience over a considerably wide range of school work convinces us that ways and means of the highest teaching are ample. In the first place, let the atmosphere of the schoolroom in its neatness, cleanliness, and cheerfulness, in its perfect adaptations to the duties of the hour, be a constant expression of ethical tendency; let the teacher, in dress, manner, movement, bearing, and speech, be a living example of self-reliance and goodwill of justice and love of the sweetness and serenity that come from all-sided faith. Let her avoid in look and speech all that borders on pride and a vain display of superiority; let her shun sarcasm and irony, bitter and cutting reproof, scornful and vindictive accusation, similar manifestations of incompetency; and let her be ever ready with encouragement and help for the better self that struggles for recognition and supremacy in the life of every child.

It makes all the difference between success and failure, ethically, whether a teacher does her work with the warmth and enthusiasm of inner conviction on the basis of life principles, or with the spiritless stolidity of a menial who lives by doing chores.

Now, the teacher is tested for fitness almost wholly on the basis of a shallow school scholarship, to which may be added testimonials of good reputation.

In addition to this it would be necessary to institute inquiries into the nature of his life principles. With their attention habitually directed to these things, men and women would not find it difficult to arrive at safe conclusions, as these life principles are written in

clear and indelible character in the bearing, the expression, the walk and talk, all the little things of our daily life. A day, even an hour in school, when the teacher can be observed in actual intercourse with the pupils, will be more efficient in revealing the teacher's fitness, even with reference to scholarship, than the most searching written examination.

No one can become a good disciplinarian by reading books or hearing lectures. Nevertheless, books, and lectures, have their proper uses. An effort has been made in the preceding pages to define and analyse certain elements which good discipline always contains and to indicate some devices which have been successfully employed by good disciplinarians. The first step in learning the art of government consists in the recognition by the teacher that the disorder which he attributes to the depravity of the children, is in most cases due to his own lack of skill. He must learn to trace wholesale disorder to a defect in himself—a defect of method, or of manner or of character. A large majority of the children in any school will behave well if they are properly handled.

Let the poor disciplinarian begin his improvement by a searching self-examination. The following catechism may serve as a guide in this test:

1. Do I know the difference between order and discipline? What have I done to make my order the effect of my discipline?

2. Have I developed a class



spirit? Has my room any individuality that attracts my pupils?

3. Do I render to my superiors the obedience which I exact from my pupils?

4. Am I just? Have I ever been capricious? Have I punished children because I was angry? Have I ever been guilty of inflicting class punishment?

5. Have I relied upon myself as much as possible? Have I acquired the habit of threatening children with the principal?

6. Am I in the habit of detaining my class after school? Does it pay?

7. Do I enjoy the solid respect of my pupils? If not, why not?

8. Do I teach so faithfully and successfully that every pupil must feel that it is worth his while to come to school?

9. What have I done to encourage children? Have I ever encouraged my bad boys? Do I recognize and reward fidelity as well as success?

10. Have I an honor class? What happens when my back is turned or when I am out of my room?

11. Do I allow "tattling"?

12. Am I deficient in executive ability? Am I on time with my records? Is my closet in order?

13. Am I drilling my children enough in their studies?

14. What is the tone of my class? What have I done to improve it?

15. Are my punishments kind, fair, without revenge, and approved by the public opinion of the class?

16. Have I carefully studied and graded punishments? Do I realize that it is not the severity so

much as the certainty of punishment that prevents offenses?

17. Do I have a cheerful atmosphere in my room? Do I scold or/lose my temper? Am I glum most of the time? Have I employed sufficiently the sense of humor?

18. If I joke, are my jokes coarse or refined? Genial or harsh?

19. Is my class-room as pleasant as I can make it? What can I do to make my personality more winning?

20. To what extent is my class self-governing?

Joseph S. Taylor, Prin. (N.Y. City.)

#### **A Rural School Board in America.**

Educationists who have had experiences of some of the smaller rural School Boards will appreciate the following extract from Max Adeler's new novel, "Captain Bluitt."—

"I should like," said Director Robinson, "to ask what is this metric system that I find some of the children trying to learn?"

The principal explained the metric system.

"Nothing to do with hymns, with long metre and short metre and hallelujah metres?" asked Director Robinson, who sang in the Baptist choir.

The principal said it had not.

"Did I understand you to say," inquired Mr. Matlack, "that the system came from France?"

"Yes," responded the principal.

"There's another queer move," said Mr. Matlack, with strong emphasis. "You start in with an Italian poet, Dant, and then you fetch along a French system with

names nobody can understand, and after a while I reckon you'll be fly-ing the British flag in the front yard and singing 'God Save the King.' There's a good deal too much foreign influence. This country's good enough for me. I'm an American, and this is an American school. I say fly the American flag and sing American songs, and have American systems and shove the foreigner's out. We can run our own business. Why don't you get a bust of General Washington?"

Director Ferguson asked if he might be permitted to interrogate the principal, and having obtained permission he asked:

"Don't you think we are going just a little too fast?"

"In what particular?" inquired the principal.

"Well in putting in this metric system, just at this time, for example."

"I think myself," interposed the president, "that the movement is somewhat premature."

"And then," continued Director Ferguson, "I found my boy last night rassling with algebra and nearly crying over it. I told him to drop it, and I'd have it dropped in the school if I run the school. I never knowed no algebra, and I'll be satisfied if my boy makes out as well as I did."

The principal attempted briefly to indicate the nature and purposes of algebra.

"That is all very well, Mr. Brown," said Director Ferguson. "It's your business, of course, to care for such things, but we are practical people, with no nonsense about us. Figgers is for figgerin'

and letters is for letterin'. There's no use of tryin' to figger with letters while there's plenty of figgers to figger with. Now is there?"

"You see-----" began the principal.

"I don't care to argue about it," said Mr. Ferguson, interrupting him, "but the fact is, you can't any more subtract 'a' from 'b' like my boy was tryin' to do last night, than you can subtract the dinner-bell from the poker. It ain't in the nature of things."

The principal did not reply.

"My boy also says," continued Mr. Ferguson, "that his teacher won't allow him to say 'knowed.' Why not?"

"Knowed?" asked the principal. "K-n-o-w-e-d?"

"Yes, knowed. He said his teacher tried to make him say 'knew.'"

"Of course," said the principal, "Know, knew. That's right, there is no such word as 'knowed.'"

"I guess there is," answered Director Ferguson, with a scornful laugh.

"I guess so, too," echoed Mr. Matlack, "and it's a good deal better to say 'knowed' than to be putting Dant (Dante) up on the shelf and bringing the children's minds under European influences."

"Knowed is rot good English," said the principal.

"Maybe not," said Mr. Matlack, "but it's good American, and that's the best there is."

"You say mowed," asked Mr. Ferguson, "and rowed, and show, showed, and stow stowed, and glow, glowed, don't you?"

"Yes."

"Very well, then, you say know,

known, and grow, growed, and hoe, hoed?"

And Director Ferguson tipped back his chair, and looked around him like a man who has just won a great victory.

### **The Problem of Order.**

The teacher is constantly given to understand that he is responsible for order in his school; if there is disorder it is because of what he does or neglects to do. He should at the outset have a correct ideal of an orderly school. Stillness is not to be regarded as an equivalent of order. A school where each is actively and cheerfully engaged in carrying forward according to a plan the needed work and yet not interfering with others presents the essentials of order to one who is merely looking on. To the thoughtful teacher this would not be enough; the question of motives would present itself to him; he would ask: Why are they orderly?

The aim of the teacher must be something larger than to produce a still school, valuable as that may be; it must be to produce a self-governing being. Let one who is "good at keeping order" ask himself: "Is the order good when I leave the room?" If not there is something wrong with his aim.

When we enter a school-room and find it orderly we naturally conclude that it is due to something in the teacher; that he has done something, said something, has plans, rules, methods, or modes of operation that produce the condition we find. It is probable that one who was not suc-

cessful would, on visiting such a school ask: What do you do that causes this order? The belief would exist that the teacher was the cause of the order. If this enquirer is a thoughtful student, capable of carrying on an analytic process, he will conclude, after some days spent in such a school, that the production of its order is not dependent on one single quality in the teacher, but on several.

It is believed that one who is not successful in maintaining order may acquire the power if he will devote himself to a thoughtful analysis of the problem. Where there is an absence of order the teacher is apt to charge it to the pupils. But his human opinion notwithstanding, the source of order is in the teacher. Observe the order-producing teacher and endeavor to understand him, to find those qualifications he evidently possesses that operate on others and bring about the condition we term order.

To begin with, he has arrived at a just idea of what order is. This is essential. Many a well-meaning teacher has a very nebulous conception of the orderly state of a school-room. We define it here as a condition of progress in the school, to which each pupil contributes cheerfully and actively by doing or not doing; it is the result of a moral and physical co-operation.

An analysis of the order-producing teacher will show that he possesses these elements or characteristics:

1. A decided but pleasant manner.

2. Self-possession and self-confidence.

3. Perceives and employs the natural leaders among the pupils.

4. Follows a plan known to the pupils.

5. Considers school management; drills to form habits of obedience, paying strict attention to details.

6. Evokes public opinion to support his course.

7. Aims at the imaginative side of child life; idealizes the school

8. Aims to elevate, refine, harmonize and delight.

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#### Graded vs. Ungraded Schools.

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A graded school is one in which the number of pupils in attendance is so large that the work of teaching them cannot be performed by one teacher, and is divided among a staff of two or more as the requirements of the school necessitate. Every member of the staff takes charge of a grade, and teaches all the subjects taught the pupils in his grade. This is the custom in our public schools that are not taught by one teacher. Of course, another division of the work of instruction may be adopted, as in high schools, where the subjects taught (instead of the pupils) are divided among the teaching staff, every member of the staff teaching the subjects specially assigned to him, and teaching his subjects to all pupils in the school pursuing them, whatever form, or grade they may belong to.

As to the respective merits of graded and ungraded public schools: 1. It may be stated the graded school is cheaper, con-

sidering the number of pupils educated. The principal must be a superior teacher, and paid a fair salary. But the assistants, shall we say, are cheaper teachers, grading downwards in scholarship, teaching ability and salary, most of them aspiring to become nothing more than assistants. A staff comprising a principal and nine assistants may teach as many pupils as would be found in ten strong rural schools, each under the management of one teacher. But the ten teachers of these ten ungraded schools would need the scholarship and teaching skill of the principal in the graded school, and nearly, it not quite, his salary, and thus, for instructing an equal number of pupils, cost their school patrons approximately the salaries of ten principals, instead of the salaries of one principal and the nine assistants on his staff.

2. On the other hand, the character of the instruction given in each class of these schools is important. The assistants in the graded school cannot reasonably be expected to teach with the efficiency of the principal. The deviation from him in this respect may be, and frequently is, extreme. But the pupils of the graded school are for six years out of seven of their school life undergoing training at the hands of the assistants, spending, if they ever reach it, one year in the principal's department. The same pupils, if taught in a strong rural school, would, from start to finish, have been under the tuition of one, and perhaps the same, superior teacher, equal in all respects to the principal.

3. The amount of teaching received by the pupils in each: Many competent to judge believe in all graded schools of, say, more than six grades, the children get too much teaching, being under the manipulation of the teacher all day long; six hours of feeding, but none for digestion. In the ungraded, the teacher, having a large number of classes and a greater diversity of subjects to teach, takes under his personal manipulation and direction every class less frequently, is driven to economize time and energy in the bestowal of assistance, and to inculcate in his pupils the severe but wholesome lessons of self-application and self-reliance. An experienced collegiate principal once pertinently remarked in this connection, "My entrants from the rural schools on entering the collegiate get right down to work and do it, while those from graded schools generally sit down with folded hands waiting to be told, shown, helped, pushed, many of them spending one or two years of their high-school life learning how to study, while some, owing to the years of spoon-feeding they have undergone in the graded school, are beyond help, and in time leave us accomplishing no success."

The departmental entrance examination as an academic test has, ever since its introduction, brought into annual contest both classes of pupils. Do the results show that those from graded schools have the advantage? Wherein the test is mere memory work they have the advantage, if at all. But follow both classes of pupils as they work shoulder to

shoulder through their high-school course of study. Who then gain the mastery? One more pertinent question may be suggested: To which class of pupils do the stronger men and women in future life belong?

By W. Carlyle, Inspector Public Schools, Oxford County.

These are the weights of the American coins now in circulation:—

Gold Coins—The twenty-dollar gold piece, or double eagle, weighs 516 grains; the ten-dollar gold piece, or eagle, weighs 258 grains; the five-dollar gold piece, or half-eagle, weighs 129 grains; the three-dollar gold piece (authorized February 21, 1853, and discontinued September 26, 1860), weighed 77.4 grains; the two-dollar-and-a-half gold piece, or quarter eagle, weighs 64.5 grains, and the one-dollar gold piece (authorized March 3, 1849, and discontinued September 26, 1890), weighed 25.8 grains.

Silver Coins—The silver dollar weighed originally 416 grains, and then it was reduced to its present weight of 412.5 grains. The Trade dollar (authorized Feb. 12, 1873, and discontinued February 19, 1887), weighed 420 grains. The silver half-dollar weighs 192.9 grains; the "Columbian" silver half-dollar weighs 192.9 grains; the common silver quarter-dollar weighs 96.45 grains; the silver twenty-cent piece (authorized March 3, 1875, and discontinued May 2, 1878) weighed 77.16 grains; the silver dime weighs 38.58 grains; the silver half-dime (authorized April 2, 1792, and discon-

tinued February 12, 1873) weighed first 20.8 grains, then changed to 20.625 grains, and finally to 19.2 grains; and the silver three-cent piece (authorized March 3, 1851, and discontinued February 12, 1873) weighed first 12 5-8 grains and then 11.52 grains.

Nickel Coins—The first five-cent nickel piece (75 per cent. copper and 25 per cent. nickel) weighs 77.16 grains; the three-cent nickel piece (authorized March 3, 1865, and discontinued September 26, 1900) weighed 30 grains (75 per cent. copper and 25 per cent. nickel); the one-cent nickel piece (authorized February 21, 1857, and discontinued April 22, 1864) weighed 72 grains (88 per cent. copper and 12 per cent. nickel).

Bronze or Copper Coins—The old-fashioned copper cent (authorized April 2, 1792) weighed first 264 grains; it was then changed to 208 grains, then to 168 grains, and its coinage was discontinued

February 21, 1857. The copper (or bronze) two-cent piece (authorized April 22, 1864, and discontinued February 12, 1873) weighed 96 grains (95 per cent. copper and 5 per cent. tin and zinc); the present copper cent was authorized April 22, 1864, and weighs 48 grains, of which 95 per cent. is copper and 5 per cent. tin and zinc; and the copper half-cent (authorized April 2, 1792, and discontinued February 21, 1857) weighed originally 132 grains; then it was changed, first to 104 grains and finally to 84 grains.

The human body of average weight contains three pounds thirteen ounces of calcium. Calcium at present market rates, is worth \$300 an ounce, so that the amount of it contained in one human body has a money value of \$18,300. Few of our fellow citizens realize that they are worth so much intrinsically.—American Analyst.

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## CURRENT EVENTS.

By the kindness of Professor Robertson we have before us full memoranda of Sir William Macdonald's plan "proposed for the improvement of education at rural schools and for the establishment of courses of instruction and training in Domestic Economy at the Ontario Agricultural College."

In addition to provision for a Nature Study and Domestic Economy School at Guelph, as reported in our last number, the gift makes provision for two experi-

ments or object lessons in each of the five Eastern Provinces of Canada, of the following character:

No. 1.—The consolidation of five, six or more rural schools into one central graded school, to be equipped with a school garden and a manual-training room.

No. 2.—The appointment of a travelling instructor to visit and spend one half-day per week in each group of eight or ten rural schools for a term of three years, to train the teachers and pupils

of these schools in nature study and the making and proper using of school gardens;

No. 3 is supplementary to the two mentioned, and consists of the establishment of evening continuation classes, either at the central graded school or at one or two convenient schools in group No. 2, for advanced instruction in agriculture and horticulture of the youths employed during the day on the farm.

### **The Part of Women in Education.**

Sir Joshua Fitch, LL.D., was present on Saturday at the annual business meeting of the Association of University Women Teachers, held at the Women's Institute, 92 Victoria Street, Westminster, S. W., under the presidency of Mrs. Henry Sidgwick, principal of Newnham College, and gave an address on "The Part of Women in National Education." In commenting on the great and momentous changes in the position of women in the reign of Queen Victoria, he said that in no one department of our national life had these movements been more potent than in their effect on the profession of teaching. A larger proportion of women than of men might be said to be born teachers, and it would seem that women had been predestined and qualified to be teachers, especially of the young. The changes of the last thirty years, and especially the facilities for University training now existing, enabled a woman to take as high an academic rank as her brother, and, all her natural advantages having full scope, she

took without question the highest rank in the teaching profession. This was thoroughly understood in America. An interesting return appeared in the last official report of the United States Bureau of Education. Including all the teachers in schools of all ranks there were 131,750 men and 277,443 women engaged in the profession of teaching, and during the last thirty years the disproportion had steadily increased. The returns of our own Education Department showed there are now in the service of the public 23,439 certified masters and 30,435 certified mistresses, with 4,165 young men and 22,671 young women engaged as assistants. Of teachers recognized by the Education Department, women represented 75 per cent. This increasing share taken by women in the business of education was certain still further to increase as, in the progress of time, the means of obtaining a truly liberal education and scholarship became more generally available. It was as well that this should be so, for women were less likely than men to take a purely mercenary view of the meaning and value of learning.—  
The Schoolmaster.

In submitting the thirty-first annual report of the Ontario Institution for the Deaf and Dumb at Belleville, it is very gratifying to me to be able to state that the past year has been in every respect one of the best, it not the best, in the history of the Institution. The officers, teachers and pupils have vied with each other in placing every department a

step in advance of its standing of former years. The number of pupils for the year 1890-91 was 300—157 males and 143 females—varying in age from seven to twenty-seven years. Of these, about one-half were congenital, or born deaf-mutes, the others becoming deaf after birth; and they came from every county in the Province, and from the districts as well. The present session opened with the attendance of thirty-three pupils who had not previously attended a school for the deaf and dumb. Speaking generally of the pupils, in the Institution, one can truthfully say that a more attentive, diligent, hard-working and well-behaved body of pupils cannot be found in any school where the pupils possess the faculties of hearing and speaking. It is not surprising, therefore, that the proficiency of the pupils in the various classes was highly commended by Mr. Duncan Walker, Inspector of Public Schools for the Town of Peterborough, who made the annual examination before vacation as will be seen by his report. While every care has been given and every effort made by the teachers to advance the pupils in their studies, moral training has not been neglected. Every scholastic day in the Institution is begun and ended with religious exercises, and on the Sabbath Day regular religious services are conducted. At meals the pupils are taught to ask a blessing in the sign language, and the orderly manner of their behaviour at table is deserving of praise. They are cleanly in their habits, neat in their dress, and diligent in the

school-rooms and in the workshops.

In addition to literary instruction pupils enjoy the advantages of industrial training in the carpenter shop, where from time to time a number of boys are taught to make tables and other articles, repair furniture, etc., thus fitting them in this respect for earning a livelihood after leaving the Institution. Boys are similarly employed in the shoe shop, barber shop, bakery and printing office. A most interesting department has been added, in which the Sloyd system of training in the art of drawing, modelling, and the making of many kinds of useful articles is practically taught. This department, under the direction of an experienced instructor, was introduced last year, and it is doing excellent work. Some of the boys in a class of twelve have turned out during the year as many as twenty models each, which would be considered a creditable record for two years' work in schools whose pupils can speak and hear.

The girls are given systematic instruction in sewing, knitting, fancy work, etc., and this year it is hoped that domestic science for teaching cooking and household work will be introduced. I hope also soon to be able to establish a department of photography, an art in which deaf-mutes can become proficient, and by which they may be enabled to earn a livelihood when they leave the Institution.

Of over 1,200 pupils—boys and girls—who have taken a course in this school and graduated, all,



with scarcely an exception, have done well, many of them successfully occupying responsible positions as merchants, agriculturists, mechanics, printers, etc.

Reference to the doctor's report will show that the health of the pupils has been exceptionally good during the year. There were no deaths to record among them. The hospital in connection with the Institution has become indispensable, making the successful care and treatment of those attacked with illness a much easier matter.

A break in the teaching staff was caused by the death of Mr. McKillop, a teacher of thirty years' standing.

During my visits of inspection I had frequent opportunities of seeing the pupils at their work in the class-rooms, in the shops, at meals, in chapel and at recreation, and was much pleased with their uniformly good behaviour, attention to work, and the excellent feeling existing between them and their teachers.

The officers, teachers and pupils were delighted during the year with a visit from the Honorable J. R. Stratton, Provincial Secretary, who presides over the department charged with the administration of this, among other provincial institutions. He made a minute examination of every department, and showed a warm interest in the means employed to promote the advancement of the pupils in their studies and improvement in their condition. At the conclusion of his visit he made a brief address of sympathy with, and of encouragement to, the pupils, which was highly appreciated.

The farm work has, as usual, been conducted to the best possible advantage. The stock is in thriving condition, the implements well cared for and the buildings in good order. The main buildings and grounds have been maintained in good order, the usual needful repairs having been made from time to time as became necessary.

The expenditure for the past year amounted to \$47,523.29, an average per pupil of \$184.92 for the year, or a weekly average of \$3.58, but as about \$2,500.00 of the expenditure mentioned above is properly chargeable to the previous year (being deferred payment for coal), the expenditure for the past year would thus be placed at \$45,023.29, which would reduce the annual per capita cost to \$174.38. The appropriation which I consider the Legislature should make for the requirements of the institution for the coming year is \$45,324.00. The expenditure of this institution has been kept well within the appropriation voted by the Legislature from year to year.

As usual, my thanks are due to the superintendent, the mafter, teachers and other employees of the Institution for their courtesy and for the information supplied me during my several official visits.

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"I look upon commercial colleges as an admirable part of our system; a work that cannot be done in our Public Schools, and, in fact, cannot be well done anywhere but in such institutions."—  
Hon. G. W. Ross.

Half a century ago a boy intended for business life became an

apprentice in the counting-room at such an early age that no time was left him in which to acquire a general education. By slow steps he learned every detail of the office in which he was employed, but such knowledge was not readily adaptable to another office in the same line of trade. He was trained rigorously in methods, but lacked that knowledge of principles which alone fits men to grapple successfully with the ever-shifting conditions of business life.

There are here and there conservative establishments where the old apprenticeship plan still obtains, but these are few. The revolutionizing of business methods within the past decade, the vast scale on which business is conducted, the necessary attention to details and the division of responsibility call for a degree of intelligence beyond that required in years gone by. Tested knowledge must be carried into the business establishment by the youth just as the lawyer, the doctor, or the clergyman must carry into his profession the acquisitions of his scholastic course. Hence the need of the business school to equip young men and young women for business life.

The extraordinary growth of German trade and commerce is to be attributed to the superior education of the German youth. His education is general and special. If in Canada we may hope to occupy a respectable place in the family of commercial peoples we must see to it that our young men are trained specially as well as generally for their life work.

Some parents think that an Arts

course is ample preparation for a young man entering commercial life. In this they err. The possession of a liberal education to a young man beginning business life is great, but a specialized training in the theory and practice of business is much greater. The ideal would be realized in the union of the two. In some countries three or four years are spent in acquiring a commercial education, while a few Canadian business schools require attendance for as many months.

To broaden commercial education and to raise its standard in Canada there was formed in the City of Hamilton some three or four years ago, by the leading men in the profession, an association known as the Business Educators' Association of Canada. The functions exercised by the organization are akin to those of a university. A standard is set by the association and examinations are held under its authority in a score of affiliated colleges, each of which must provide standard commercial and shorthand courses and submit its students for final examination to a board elected annually by the general association. No school is permitted to issue its own certificate and retain membership. The association reserves to itself this right, and candidates are at stated periods sent up from all parts of Canada to write for the diploma of the association. A board of examiners, composed of the principals of representative business colleges, prepares the examination papers and examines the candidates' work. These examiners report to the registrar (an inde-

pendent man), who thereupon compiles the marks and forwards results to the candidates.

One important result of the work of the association has been to extend and strengthen the work being done in the commercial schools of Canada, and another to lead observant parents to choose for their sons and daughters schools affiliated to the association.

So successful has been the work of the Canadian association that the business college fraternity of the United States is studying its methods and in particular, business educators of the State of Ohio, where a body modeled on Canadian lines is being organized. The provincial educational authorities of Nova Scotia have recognized the shorthand diploma of the association as a certificate of competency to teach phonography in the schools of that province.

The business course embraces bookkeeping, arithmetic, rapid calculations, commercial law, business forms, business correspondence, penmanship, spelling, business practice and banking. The shorthand course includes the theory and practice of shorthand, typewriting, business correspondence, spelling and penmanship.

In the evolution of the Canadian business college the Business Educators' Association of Canada is playing an important part. Progressive educationists will find in the association's work much that will repay their careful enquiry, and the mercantile community will, as time goes by, stand more and more under a debt of grati-

tude to the associated business schools now laboring in the cause of sounder commercial education.

C. R. McCullough

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### **What Becomes of a Million Boys and Girls.**

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Confining ourselves to British babies, we find that out of our million, 511,000 will be boys and 489,000 girls. We will be ungallicant enough to take the boys first, and see what callings they will follow, and what the law of averages says will become of them. We had better begin by putting aside those who will, for any reason, not contribute their share to the national wealth, either because they are physically incapacitated, hopelessly criminal, or because sufficient fortunes have descended to them. For the last-named reason, only 87 out of our 511,000 will announce their intention of remaining drones. Three thousand will probably be the total tale of the drones. Of these, physical infirmities will incapacitate 800. They will be blind, deaf mutes, paralysed, or cripples. Seven hundred of these will pass their time constantly in prison, six of whom are unhappily destined to end their life on the gallows. To these must be added another 1,400 who become tramps, loafers, the upper fringe of the criminal class, the sort of men who usually describe themselves to the census taker as "laborers out of work."

To pass away from this unpleasant and, fortunately, small minority, let us consider what the other 508,000 boys will do for a living. Britain is, before all things, a manufacturing country, and we shall

find the chances are that 150,000 of our boys will learn to make something; 330 of these will be wheelwrights, 560 tinworkers. No fewer than 12,000 will have to do with cotton and wool manufacture. Boiler-makers, cabinet-makers, plumbers, jewelers, all these and a hundred other trades are included in this industrial army. One hundred and twenty thousand will be clerks, shopkeepers, or assistants, and 80,000 will live on the land. They will not all drive the plough. Some of them will be gardeners, or nurserymen, woodmen, fruit growers, graziers, or the like. This is a section, however, which has sadly diminished of late years. Forty thousand will wield pick and shovel deep in mines or quarries, and a similar number will work in brick, or stone, or other branches of the building trades. Only 5,000 less will be the number of those who will drive cabs, vans, waggons, or be engaged as porters, guards, engine-drivers, in the employ of our vast railway system. Domestic service accounts for another 13,000 of the number, 25,000 will engage in what are commonly called the professions. This number includes clergymen, barristers, and solicitors, doctors, artists, authors, and all the ever-growing army of teachers. Navy and army will absorb another 3,000 of whom 2,200 are likely to enter the latter service, and 800 to defend their country afloat, and we fill our number with 2,000 who will be fishermen, or will enter our merchant service.

The work which the 489,000 girls will engage in is just as varied as that of the men; but, as women rarely continue to follow any

money-making profession after marriage, it will be better to deduct from the number at once the 344,000 who will wed at an average age of twenty-five years and six months. Then there must be deducted another 1,000 who are classed as infirm. Women thus incapacitated form rather a larger proportion than is the case with men. On the other hand, in the matter of criminality, women shine superior. Only 100 out of all these 489,000 girl babies will spend their time under lock and key, and, roughly speaking, 900 will represent the tramping class. Fifty-seven thousand of our unmarried women will earn their living in manufacturing industries, and 48,000 are likely to become cooks, housemaids, ladies'-maids, or "generals." Sixteen thousand will live on the land, most of these doing hard work on the farms, but others keeping poultry, or acting as dairy-maids. Shops swallow up 14,000 who range from the smart Bond Street milliner, who makes a favor of putting a bonnet on the head of a duchess down to a poor, tired girl, who stands fourteen hours out of the twenty-four behind the counter of an East End sweat shop. The professions claim the goodly number of 1,800. We are left with 6,200 whose occupations will be so many and varied that they cannot be more than glanced at in this article. They include 800 hospital nurses, 1,100 typists and stenographers; also seventy who will give their employment as "baby minders." Probabilities point to eighty-seven turning detectives, and another ninety-three becoming professional packers.—*Cassell's Saturday Journal.*

## SCHOOL HYGIENE.

Helen MacMurchy, M.D.

**The Density of Population** in foreign countries has recently been computed. Great Britain takes the lead with 132 inhabitants per square kilometer, which is equal to 0.3861 per square mile; then come Japan, 144.4; Italy, 106.6, the German Empire, 104.2; Austria, 87; Hungary, 59.6; France, 72.2; Spain, 35.9; the United States, 8.4; and Russia, 5.9.

**Insanity in Women Teachers** has been investigated by Professor Zimmer, of Berlin, who has derived his information from all the asylums in Germany, Austria, Switzerland and Russia, and found that in every 85 female patients there is one school teacher. In Prussia there is one school teacher to every 350 women of the population.

**The Journal of the Sanitary Institute**, published quarterly in London, contains (Jan., 1902) the full report of the conference on Water Supply and River Pollution. The proceedings are interesting and highly important. At the next sessional meeting of the Institute, Feb. 12, 1902. Mr. A. W. Blyth, M.R.C.S., Barrister-at-Law, and Medical Officer of Health, St. Marylebone, will open a discussion on the timely subject of "The Prevention of Smallpox in the Metropolis."

**Compulsory Vaccination.**—The Board of Health of Boston has recently ordered that all inhabitants who have not been successfully vaccinated since January 1, 1897, "shall be vaccinated or revaccinated forthwith." This is done to effectually control the present epidemic of smallpox. A few months ago an average of twenty cases a day were

reported; this led to free vaccination stations being opened in all sections of the city, and as a result about 400,000 people were vaccinated. This wholesale vaccination proved so effective that for some time past the average number of cases reported has not been more than five a day. If the present law is enforced about 170,000 people will have to be vaccinated.

**The cleansing effect upon the atmosphere of snowfall** is illustrated by a report of the Chicago Board of Health. On January 18, shallow glass dishes containing the usual preparation favorable to the growth of atmospheric germs were exposed to the air for three minutes in ten different localities within a half a mile, bounded by South Water, State, and Adams Streets, and fifth Ave. After seventy-two hours' incubation these showed an average of 630 colonies of growing germs, the greatest number, 1,050, being found at the northeast corner of Dearborn and Washington Streets, a few feet above the street level; the least, 330, in the south court between the City Hall and the County Building; and the next fewest, 835, on the roof of the City Hall, about 130 feet above street level. On the 21st snow fell to the equivalent of 0.28 of an inch of rain, and the experiment was repeated on the 22nd. The average colonies from these latter exposures numbered sixty-six, ranging from nineteen at the southeast corner of LaSalle and South Water Streets, to 180 at the southeast corner of Washington and Fifth Avenue. The atmosphere was nearly 90% purer on the 22nd after the snowfall than it was before.

## BOOKS AND MAGAZINES.

To accommodate readers who may wish it, the publishers of THE CANADA EDUCATIONAL MONTHLY will send, postpaid, on receipt of the price, any Book reviewed in these columns.

Home and School Library. Edited by Laurin Magnus, M. A., Oxford. First Makers of England, Julius Cæsar, King Arthur, and Alfred the Great. London: John Murray. Price, 1s 6d.

Would our readers just look at these three names, Julius Cæsar, King Arthur, King Alfred. As first makers of England, what a field of story opens to the scholars memory? What attractive short stories can be easily collected round these illustrious names. Lady Magnus, in this small book, has given us many beautiful, true short stories; gems they are. Teachers in our public schools get the book, it shows you how to begin history in the best way.

Psalms: Books IV. and V. by A. F. Kirkpatrick, D. D. Cambridge: University Press.

This is the third volume of Professor Kirkpatrick's short commentary on the Psalms in the well-known Cambridge Bible for schools and college series. In every respect it is fully up to the high standard of the series in accurate scholarship and in usefulness. There is a very complete introduction to the Psalms, one hundred and twelve pages in length, which sums up concisely yet very fully the present state of knowledge concerning the Psalms, the psalm-writers, their dates, titles, uses, and other information very necessary. The notes on the

individual Psalms are also wonderfully exhaustive when we take into account the brief space allotted to them in the book. They are most suggestive and helpful. Being short, they are never tedious. For teaching purposes we might say this book is a *sine qua non* as far as Books IV. and V. of the Psalms are concerned. Psalms XC-C-L. 150.

MacMillan's Colonial Library. "The Benefactress," by the author of *Elizabeth and Her German Garden*. London, Eng., MacMillan and Co. \$1.50.

Anna, the benefactress, sister of Sir Peter Estcourt, is an interesting young Englishwoman of an independent turn of mind, which makes her dependence on her relatives very uncomfortable to her. Her sister-in-law did the best she knew in trying to secure a home for Miss Anna, by introducing her to society, etc. This common plan failed, and failed all the more completely, owing to Anna's cordial co-operation that it should fail. Anna was most willing to do anything to make a living for herself, even to sweep a "crossing." The sister-in-law told her that she (Anna) had not money to buy a "broom." But the deliverer appears in the shape of a German uncle, who bequeaths to her a small estate on the Baltic, near the historic Town of Stralsund.

Under the generous impulse of seeking to relieve others who, like herself, had been driven almost to despair by her dependence upon others, and who had made her life miserable by ill-judged kindness, invited a dozen of this class of ladies to come and freely spend their days with her on the estate near the Baltic. The narrative of this experiment in real love is most amusing. "The Benefactress" is clever, ingenious, and entertaining.

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Another book for Mr. Murray's Home and School Library is *A First Course of Practical Science*, with full directions for experiments and numerous exercises, by J. H. Leonard, B. Sc. Price, 1s 6d. These lessons are taught on the heuristic method, with a view to stimulating the learner's powers of observation and experiment.

Bell's *Illustrated Classics*. The *Tristram*, Book I., edited by A. E. Roberts, M.A., with a vocabulary and many illustrations. A timely edition.

*Scenes From Sophocles' Antigone*, edited with introduction and notes, by C. E. Lawrence, M.A., Pembroke College. Henry Frowde, M.A., publishers to the University of Oxford. London: This work in all parts is well done and worthy of the University Press.

Phaedrus, *The Fables*, Book I. and II., with vocabulary; edited with introduction and notes, by I. H. Flatherall, of Emmanuel

College, Cambridge, at the University Press. The editor has furnished valuable assistance by his excellent notes.

De Belio Gallico, Liber I.; edited with notes and vocabulary for beginners, by E. S. Shuckburgh, M.A., Emmanuel College, Cambridge. The *Anabasis of Xenophon*, Book I. Edited with introduction, notes, and vocabulary, by G. M. Edwards, M.A., Sidney Sussex College, Cambridge.

The last three books belong to the Cambridge Series for schools and training colleges. We had the pleasure of speaking favorably of the volumes of this series in the past, and it is sufficient praise to say they are the equals of any which have appeared heretofore. The price of each is 1s 6d.

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An item of interest to the Canadian book trade and book buyers is the news that Messrs. George N. Morang and Company, Limited, of Toronto, will hereafter be the sole agents in Canada for all books published by the Macmillan Company, of New York. Messrs. Morang and Company will sell the books at the same prices in Canada as those at which they are sold by the Macmillan Company in New York, and the same discounts will also be given to the Canadian booksellers and dealers as are given in the United States. Messrs. Morang and Company have now in the press a complete catalogue of the Macmillan Company's publications which will be issued by them immediately.

One material gain to the book-buyer by this arrangement will be the saving of the two or three days time which is now taken up in the transmission of orders to New York.

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The list of contents for the January number of *The Studio* contains accounts of "The Art of Fantin Latour," by Antonin Proust; the second part of "The First International Studio Exhibition"; "The Twenty-Seventh Exhibition of the New English Art Club"; and the "Darmstadt Artists' Colony." The various reproductions in color and black and white which accompany the articles are as usual very fine.

The long story, complete in one number, which appears in the February *St. Nicholas*, is "Through Fairyland in a Hansom Cab." by Bennet W. Musson. It is charmingly illustrated by Fanny G. Cory.

"The Fish," written and illustrated by E. W. Kemble, is one of the most interesting contributions to the February *Cosmopolitan*. Bret Harte's story, "Mr. McGlowrie's Widow," is most interesting and characteristic, and contains yet another appearance, although as a minor character, of Colonel Starbottic.

The *Atlantic Monthly* for February contains an article signed "B. P." on "College Professors and the Public." It is no secret that these initials belong to Mr. Bliss Perry, the gentleman who is so successfully continuing the best traditions of the *Atlantic*. His

contribution is characterised by a thorough understanding of the subject, and by the gracefulness of diction which seems to belong only to the man who has read for years with his first motive a pure love of reading. The Contributors' Club is, as usual, excellent.

The *Living Age* for February 8, contains two articles above the average, both in subject and style: "Biography," by H. H. Asquith, from the *National Review*, and "Why Be a Lady?" by Menie Muriel Dowie, from the *Pall Mall*.

Mr. Elbert Hubbard informs his readers in the January *Philistine*, that he desires to radiate life. It seems to be proper to say a great many similar things in such a personal publication as the *Philistine*.

Among the more important contributions to the February number of *Scribner's Magazine* are: "Flickersbridge," by Henry James; "Paul Troubetzkoy, Sculptor," by William Jarvis; "Crowned by Honor and Glory," by Mary R. S. Andrews; and an interesting instalment of Mr. Hopinson Smith's serial, "The Fortunes of Oliver Horn."

"John Winter Strange" writes the complete novel which appears in the February *Lippincott's*. It is called "The Standings," is English in its setting and contains a most thorough indorsation of what the author evidently considers the convenient law of divorce. The hero, when he finally secures the sister of his divorced wife for his next venture is "piously" thankful



that the dispensed-with lady is not dead, since in that case he would not have been able to marry her successor. This inglorious reference to the deceased wife's sister bill is evidently regarded by the author as a telling conclusion.

Mr. Julian Ralph contributes to the February number of The Book Buyer a review of Mr. Slasson Thompson's "Life of Eugene Field." The article contains an agreeable account of Mr. Ralph's personal relations with Field.

The February Century contains, amongst other contributions of importance, a delightful story by

Albert Bigelow Paine, "The Don't Hurry Club," a humorous monologue by Beatrice Herford, called "The Book Agent"; "The Salon of the Princess Matilda," by Victor du Bled; "Browning in Venice," by Mrs. Bronson; and a short contribution in verse of much beauty, written by Rennell Rodd, and entitled "I Shall Not Go as Others Do."

The Ladies' Home Journal for February contains the announcement of a new department on books and authors, which is to be conducted by Mr. Hamilton Wright Mabee.

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## THE TORONTO GRAMMAR SCHOOL, OLD BOYS' ASSOCIATION.

### UNVEILING OF ARCHIBALD MACMURCHY'S PORTRAIT.

More than usual interest was taken this year in the Annual Reunion and dinner of the "Old Boys" Association of the historic "Blue School"; now represented by more than one Secondary School in Toronto; but more particularly by the Collegiate Institute, Jarvis Street. The additional interest being the fact, that many of the "Boys" knew that a portrait of him who, for so many years, had been connected with the School, was to be unveiled upon this festive night. During the absence of the President, T. C. Irving, Esq., on special business, David Carlyle, Esq., presided. The Secretary, Mr. W. C. Michell, B.A., regrets that he is unable to give a complete list of all who were present, but submits the following partial list:—

T. C. Irving, David Carlyle, Arch. MacMurphy, M.A., Principal Manley, M.A., L. V. McBrady, LL.B., Alfred Baker, M.A., A. Dickson Patterson, Prof. Mavor, H. B. Spotton, M.A., L. E. Embree, M.A., Wilbur Grant, W. P. Ryrie, J. H. Horsey, Angus MacMurphy, B.A., Jas. Acton, C. P. Brown, F. C. Luke, R. A. Gray, B.A., H. W. Gundy, B.A., R. G. McLean, D.D.S., Chas. P. Muckle, B.A., David Davis, H. P. Irving, Harry C. Irving, Cuthbert Woodhouse, C. S. Acton, S. G. Mills, H. G. Willson, B.A., C. W. Trotter, D.D.S., Carl Lehmann, B.A., A. C. Michell, D.D.S., G. Addison, Charles Lazenby, Charles H. Snider, Edmund F. Gibson, G. S. Macdonald, Walter H. Blight, James Constable, W. C. Grand, W. C. Crawford, Chas.

Marriott, Robert McKay, J. C. Langton, J. G. Caven, M.D., A. H. Gregg, D. Donald, Geo. H. Fensom, E. H. Adams, M.D., Alfred Johnston, Chas. Gilchrist, A. T. Hunter, B.A., D. A. Rose, M.D., G. E. Shaw, B.A., Fred B. Featherstonhaugh, Francis J. Roche, B.A., J. C. MacMurphy, B.A., C. S. Cleland, M.D., R. C. Fowler, W. H. Doel, B.A., H. H. Dewart, B.A., J. G. Lye, Hector Maclean, Wm. C. Michell, B.A., A. S. Cadow, A. Sinclair, R. B. Harcourt, W. C. Fischer, C. R. Cuthertson, M.D., R. F. Segsworth, R. J. Reade, D.D.S., I. Standish, B.A., H. M. Torrington, A. S. Purdy.

In unveiling the portrait of Mr. MacMurphy, Prof. Baker spoke as follows:—

Mr. Chairman and gentlemen:—  
Our dinner this year has a unique character,—it is associated with the first unveiling of the portrait of a Principal of the Old School. The administration of Mr. MacMurphy might have been commemorated in some other way. Indeed, when we expressed our wish to mark the period, we found that he preferred the founding of a scholarship. It was characteristic of the man that he thought only of advantage to the school and its scholars. We felt, however, that something was due Mr.

MacMurchy. Besides, the preservation of a strong and striking personality is one of the best contributions to the traditions of an educational institution, and so we came to decide on the portrait as best meeting this view.

Mr. MacMurchy became Rector of the Jarvis Street Collegiate Institute in 1872, having for thirteen years before that date been its mathematical master. This period of forty years was a period of great changes in Ontario's educational system. At its beginning there were the old school houses, the old teachers, the old methods; at its close, the system as we know it to-day. In all this process of evolution our honored ex-principal played a conspicuous part, helping to eliminate the bad and to make the good better still. Yet in talking with him of the old days in the old dilapidated building at the corner of Lombard Street, he has more than once said to me: "There was good work done in that old school." And so there was. Mr. MacMurchy's sympathies have through life been conservative. I do not mean that he has voted Conservative. I do not know how he has voted, or that he has voted at all. I do not even mean that he has clung to the past with its traditions, accepting innovation with a certain reservation. The conservative spirit in him has been something subtler than this. I mean that he has placed his confidence in men, rather than in methods. The good man will prosper under the poorest system, the weak man will fail un-

der the best. There is a vitalizing, inspiring force in man that can never be found in the dull mechanism of an institution; and this is especially true in educational work. Mr. MacMurchy's conservatism would say by all means improve your methods, improve your system, improve your institutions, but, above all things, strive to perfect your men—human character. To one who so regards the phenomena of life, especially of educational life, the need for continually experimenting with fresh systems, for endless innovation is, very naturally, not apparent.

Our ex-Principal was one of the first of Canadian-trained teachers to take part in "Grammar School" work. Before his time the work had been largely done by Old Countrymen, who too often had been failures in the old land. He thus helped to form our Canadian educational ideals, as he has helped to realize them.

As a man, one of the most distinguishing qualities in Mr. MacMurchy is the absence of egotism. I have already referred to this in his preferring a scholarship to a portrait. He has been content to live in his work; I may almost say to efface himself in it, though his personality was too strong to permit of this. He sought in what he did the approval of his own conscience. There was never a desire to advertise himself: indeed, I take it, such a desire would have appeared to him intensely vulgar and not able to exist in any one, with even elementary self-respect. He reminds me of those mediæval artists who la-

bored in the great cathedrals of Europe. They were content to spend a lifetime on even an out-of-the-way piece of detail, satisfied that they wrought in a great cause, and if they thought of fame at all, it was fame for their work, and not for themselves.

For all with whom he has been associated, whether professionally or otherwise, he has always shown the most delicate consideration. His steadfastness has been of the most enduring kind. One always knew where to find him. He was no weathercock. His high sense of honor showed itself in all matters to which he turned himself, and everywhere appeared the conviction that a man's religion should be his life—a conviction which, let me say, he realized.

If we think of him as a scholar it is to recall that he is a distinguished graduate of the University of Toronto, and a medallist in mathematics. A mathematician myself I know how high he stands in his specialty, and how wide and deep his acquaintance with his subject is. But his sympathies have not been limited to mathematics. He offered unstinted encouragement in the institute to all branches of scholarship. In literature his judgment is fine, and his taste only for that which is most solid and substantial.

As a teacher he ever struggled for high ideals. I may illustrate this by an incident that belongs to my own days in the old Toronto Grammar School. The class to which I belonged had got over and indeed beyond the honor matriculation work in mathematics, and

the question arose to what should we next direct our attention. Newton's Principia and Analytical Plane Geometry were discussed—both at the time belonging to the honor mathematical work of the second year in the university. Analytical Geometry was decided upon, and I received my first lessons in it as a school boy in the old Toronto Grammar School. Mr. MacMurchy made the Toronto Grammar School the mathematical school of the province. The large number of honors and scholarships won in the university by his pupils sufficiently attests this. In teaching his method was to offer the needed explanations and to leave so much unsaid that the intelligence and originality of the scholar should have opportunity to develop themselves. I have always congratulated myself that I started my mathematical studies with one who was too thorough to teach a subject threadbare.

Mr. MacMurchy always took the deepest personal interest in his scholars. A remarkable consequence of this is his clear recollection of almost every one of the thousands who, during his years of office, pursued their studies in the school. This power to recall faces and names comes not so much from a good memory, though he has that, as from a deep personal interest in, and sympathy with, all by whom he was surrounded. Teaching with its countless opportunities for good has been to him not a mere profession—rather a mission almost sacred in its character. When I became an undergraduate in the university I not infrequently call-

ed to see him, and always felt the magnetism of his sympathy with and interest in me. I always left him with a lighter step and lighter heart, and with more courage for my work.

No notice of our guest of to-night would be complete that did not refer to his patriotism. When the Fenian Raid occurred he left wife and family, and the school which was next in his heart after them, and hurried to the frontier to defend our country. And I believe that did occasion arise to-day there is no one amongst us that would sooner shoulder a rifle in defence of Canada and the Empire than Archibald MacMurchy.

Take him all in all, as a man, as a scholar, as a teacher, as a citizen and patriot, considering his long term of office, his devotion to his work, I feel I am justified in saying we "shall not look upon his like again"; and we all feel as we think of him and his life-work, that on him will be pronounced the verdict "well done, thou good and faithful servant."

In the matter of the selection of an artist for the portrait we had the benefit of Mr. MacMurchy's judgment. A well-known Toronto art critic has pronounced the picture one of the best that has come from the studio of Mr. Dickson Patterson, and in saying that, he pronounces it one of the best that have been executed in Canada.

I shall now ask two of the gentlemen at the other end of the room to remove the curtain from the portrait.

As the well-known face and features revealed themselves in the portrait, the entire company rose, and the cheering for Mr. MacMurchy continued for some minutes.



PROF. BAKER.

Mr. MacMurchy spoke in part as follows:—

Mr. President and Boys of the Toronto Grammar School:—

Allow me to thank you all most heartily for the trouble you have taken to perpetuate the memory of your connection and mine with the school, which began its course in this community in 1807. This seemed to you the best mode of doing so; to me, as some of you are ware, another mode appealed more strongly; but it is doubtful which is the better, and I cheerfully accept your decision, and earnestly hope that your highest expectations may be realized.

After we published the Year Book in 1897, a friend of mine, an Old Boy of 1836, sent me several messages, requesting me to call upon him. I refer to Mr. A. McLean Howard, Clerk of the First Division Court of York County, resident of this city. Upon seeing him, he asked me how it happened that in the Year Book for

the old school, I left out the name of his old master, the Rev. D. MacAulay. I explained to Mr. Howard that I had never heard of the name in connection with the Home District Grammar School. Mr. Howard said he had also spoken to Dr. J. G. Hodgins about the same man, and Dr. Hodgins told him he had no record of such a man, either in the Home District School or in any other school. To put the matter beyond controversy, Mr. Howard showed a receipt, tuition fees, for first half of the year 1836. The receipt is, signed by D. MacAulay, Principal, Home District Grammar School. He showed me other evidence corroborative of the fact that the school was in operation at that date.

During some years I had been waiting for information concerning the years, from 1831, when Upper Canada College moved to its own building in Russell Square, and the year (1836) Mr. Cozens was appointed head master of the school. Fortunately, my friend, Mr. Howard, supplied the clue. In looking for information in the Public Library, happily the following was found:—"The District School of the Home District, situated in New Street, City of Toronto. This Institution was ably and successfully conducted by the Hon. and Venerable Archdeacon of York. For a few years after his resignation it had no teacher, as it was thought unnecessary that it should be continued any longer. In consequence of the growing population of the city, a number of respectable individuals, impressed with the value of such an institu-

tion, presented a petition to the Lieutenant-Governor, Sir John Colborne, praying that it might be reopened, which was done in May, 1834, by the appointment of the Rev. D. MacAulay, as Principal. Since then the school has flourished, and the average attendance of pupils is from 90 to 100. The branches of education taught are Hebrew, Greek, Latin, French, English, and English Composition, the use of the globes, mathematics, writing, bookkeeping, drawing, etc. Masters, Rev. D. MacAulay, Principal; Wm. Brethour, B. A., Second Master; Alexander MacKay, Assistant-Teacher; M. Mancarte, Teacher of French; A. Young, Teacher of Drawing. Mr. MacAulay takes young gentlemen to board in his house, whose education he superintends. The above I take from the directory of the City of Toronto, printed by Mr. T. Dalton—author,—Mr. George Walton, Secretary Board of Education, County of York; printed 1837 for the year 1836."

The following note should appear in the next issue of the Year Book:

"Duncan MacAulay was a Master of Arts, University of Glasgow, and Minister of the Church of Scotland. He came to Canada in 1833 and preached in Lower Canada, County of Megantic for a short time. Some trouble arising in his congregation, he came to Upper Canada and was appointed principal of the Home District Grammar School in May, 1834. While here he was one of the chaplains of the St. Andrew's Society, and also had charge of a mission at York Mills. In the

autumn of 1836, for some unexplained reason, he moved to the United States of America."

In 1860 the good fortune was mine to welcome the first band of scholarship boys from the Public Schools of Toronto to the Toronto Grammar School. The same pleasure was mine every year, as long as these scholarships were given, during a period of more than thirty years. The original number was seven, but after we fixed our abode on Jarvis Street the number was increased to twelve, and girls shared in the privilege equally with the boys. It was a cause of regret to me when this helpful (as it appeared to me) connection between the primary and secondary schools of the city was allowed to drop.

It seems plain to me that every community is entitled to know what the capabilities of its children are at the earliest possible period of their lives.

The first serious trial in this respect, for the children, comes at the examination for admission to the secondary or High School. This should be attempted at the age of between twelve and thirteen years. Those candidates who show, by their superior performances, that they are, mentally, or otherwise richly endowed, should be encouraged in every legitimate way, to proceed with their studies. Give each one an equal opportunity to profit by the endowment bestowed upon him. The institution best fitted to discover these "superior" ones is the Secondary School. There the pupil works with all his powers coming into play, and for the first time he has

the opportunity of showing to himself and others what wealth of mind or hand is his. The Secondary School lays its hand on the Public School and reaches on to the university. Let it do its work; be kind to the scholar, and also let him work. The least number of scholarships, free tuition for two years, should be thirty, subject to increase in number and length of time.

I need scarcely say to you that I did not reach the decision of retiring from the old school lightly or inadvisedly. I could not contemplate leaving the school, in which I did service for more than forty-two years, without soberness akin to solemnity. My separation from the young, alert, buoyant, enthusiastic life of the scholar is a source of deep regret. Many a time the morning prayers and a look at the young fresh faces in the assembly hall, proved a well-spring of inspiration to the depressed strength and spirit of the principal, by which the work of the institute sped onwards, day in, day out, smoothly and successfully.

I was the servant of the city and school in Nelson Street, Dallousie Street, the Queen's Park, and finally, Jarvis Street. Our annual enrollment for years, before any other Secondary School was built, was between 600 and 700, and our daily average attendance over 450.

I thank the city for its sympathy with the school during all these years. I thank the Board of Trustees for its approval and generosity. I thank the fathers and mothers of the boys and girls who

attended the school for their good nature in passing by my shortcomings in doing my best in behalf of their sons and daughters.

I hope I shall be held blameless when I take the liberty of naming the following gentlemen (at one time trustees of the school) on account of their great service to our school in the day of its weakness, and with whom your humble friend has had the honor and pleasure of serving as a member of its teaching staff, viz.:—The Rev. Dean Grasett, Rev. John Jennings, D.D.; Rev. John Barclay, D.D.; and W. S. Lee, Esq. My prayer for the "Old School" is that she may always prosper, and for you, that each one of you, in good time, and in your own way, may be privileged to add something to her fair name.

I regret that I do not know how to convey to the thousands who have passed through the school during these past years a fitting expression of grateful thanks and appreciation of their helpfulness and kindness in the conduct of the school.

Where beauty moves, and wit delights,  
And signs of kindness bind me,  
There, oh! there, where'er I go,  
I leave my heart behind me.

"Nil deest, invita Minerva."

L. V. McBrady, LL.B., Principals Manley, Embrce, Spotton, Prof. Mavor, Dixon Patterson (Artist) and others, commended highly the spirit which prompted to perpetuate the memory of former happy days. This night of generous fellowship, song singing, speech-making and cheering was brought to conclusion by the singing of the National Anthem.



ARCHIBALD MACMURCHY, M.A.



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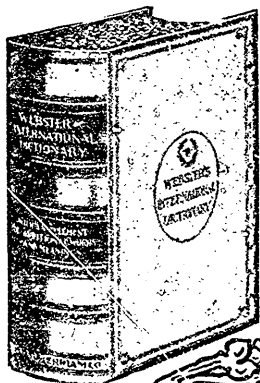
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