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THE CANADA
EDUCATIONAL MONTHLY.

AUGUST-SEPTEMBER, 1902

THE UNVEILING OF THE BURNS MONUMENT
AT TORONTO.

Prof. Clark, Trinity University.

It was 3.30 p.m. when Mr. David Walker opened the proceedings, as a gleam of sunshine overcame the rain, with a welcome to the visitors and a word of thanks on behalf of the committee for the generous subscriptions which had enabled them to carry through the project. He called upon Mr. J. L. Morrison to introduce the lady who was to perform the ceremony of unveiling.

Mr. Morrison discharged this duty in a brief speech, in the course of which he paid a compliment to Mrs. Walker's interest in the work of procuring the statue. He referred to the statue, remarking that it was especially pleasant that the pedestal was the work of a Canadian firm, the McIntosh Granite and Marble Company, while the four panels, "Tam o' Shanter," "The Address to the Daisy," "John Anderson, My Jo, John," and "The Cotter's Saturday Night," were the work of a Toronto young man, Mr. E. Hahn, a graduate of the Toronto Art School.

Mrs. Walker then drew the rope which released the draperies, and

in a moment the fine statue was in view. The male chorus present sung "There Was a Lad Was Born in Kyle," and the assemblage cheered. Miss Carolina Morrison presented Mrs. Walker with a bouquet of roses.

Mr. Walker added some particulars as to the moment of Burns' life represented by the statue. The sculptor, Mr. D. W. Stevenson, A.R.S.A., had been anxious to be present to tell the audience what period of Burns' career was represented in this portrayal; his health, however, had forbidden the journey. Mr. Walker thought that it represented him at the period of his removal to Dumfriesshire.

REV. PROF. CLARK.

Rev. Prof. Clark was then called upon to deliver the oration. He expressed his pleasure at being present on an occasion so interesting and so touching to them all, and congratulated Mr. Walker upon the termination of his loving labors: for it was to that gentleman, Prof. Clark remarked, amid applause, that they were indebted

more than to anyone else for the memorial. One hundred and six years ago that day, the speaker continued, there was taken from the world one of the keenest and brightest intellects of Scotland, one of the warmest and kindest hearts that ever beat under Hodden gray or tartan plaid. They were doing not so much honor to him as honor to themselves in setting up this monument. They had no apologies to make for honoring this great poet. There had been too much apologizing for him in the past. Burns was essentially a great and good man; he had his faults, he also had lofty ideals, and it was a grief to him that he could not realize them. Of what good man could not that be said? And who could cast a stone at him? They were assembled to honor that which was great and good in him. When they heard the voice of rebuke raised they were disposed to say that they preferred the author of "Holy Willie's Prayer" to Holy Willie himself.

This question, Prof. Clark continued, had been answered by the voice of mankind; they had the verdict of humanity. Burns was not merely Scotch; he loved Scotland deeply and passionately, but he loved humanity more than he loved Scotland. And Prof. Clark quoted Talleyrand's profound epigram, that there is somebody wiser than anybody, and that is everybody. When they had got the verdict of humanity they did not care for the exceptions.

INSTANT APPRECIATION OF BURNS.

There never had been a time when Burns had not been appreciated, when his poetry was not

recognized as being of the very first character. This was an absolute, phenomenal fact, and an experience shared by no other poet whom Prof. Clark could recall, unless it was Spenser, and Spenser was not a poet of the many. Consider how, for instance, Tennyson was years in attaining recognition; and how, on the other hand, poets like Cowley had attained recognition at a bound, only to be practically forgotten. But from the moment the Kilmarnock volume was produced until the end of his life Scotland recognized his greatness, while outside of Scotland the poet Cowper, for instance, bore tribute to his genius. There never had been a moment in which he had not held the same high place in the hearts, not merely of Scotchmen, but of all English-speaking men. Saxon and Celt united to honor the poet of humanity. So far was his popularity from waning that it had gone on increasing, and would continue to increase so long as men could recognize the dialect he used. And even if the Scottish language ceased to be spoken, men would undergo the labor of learning it in order to understand the poems of Burns.

It was not wonderful that so genial, so open-hearted a man, a man so full of humanity, so full of affection and tenderness, should be appreciated. His poetry was but the expression of the man; it was sincere, spontaneous, the utterance of a man with no second thoughts, unconscious, giving voice to the thought of the moment. There was no more sincere writer in the English language. There was no posing with Burns; he spoke out his own convictions, gave voice to his

own emotions. As a contrast Prof. Clark cited Alexander Pope, a poet of great power, but a poet in whose works one saw the perfection of artifice, as in Burns' work one saw the perfection of nature. Prof. Clark then referred to Burns' personality, to the impression he made upon persons he met, to the manner in which he entered the august society of Edinburgh as among his equals, to his unequalled powers of conversation, to the noble manner with which he bore the trials of prosperity as well as of adversity.

He then turned to a consideration of Burns' poetry. Burns himself had told them, in his address "to the Guid Wife of Wauchope," of his two great motives, and Prof. Clark quoted:—

"A wish that, to my latest hour,
Shall strongly heave my breast—
That I, for poor auld Scotland's
sake,
Some usefu' plan or beuk could
make,
Or sing a sang at least."

While later on in the same poem Burns says:—

"I see her yet, the sonsie quean,
That lighted up my jingle,
Her witching smile, her pauky een,
That gart my heart strings
tingle!"

Patriotism and the love of women inspired him. He had the defects of his qualities, but they bore his defects for the sake of his qualities. He could, Prof. Clark added, put up with a good deal from Burns—a great deal more than he could from his

censors, men who were not fit to black his boots. As for his patriotism, there was "Scots Wha Hae," described as the noblest war-song in all literature. But the glory of Burns was his songs, and the glory of his songs was his love songs. If anyone did not like his love songs he need not read them, but Prof. Clark added that he suspected that those who professed not to like these songs read them on the sly. As an example of these he quoted "Green Grow the Rashes O!" remarking on the beauty of the compliment in the concluding lines:—

"Her prentice han' she tried on
man,
And then she made the lasses O."

"My Nannie O" and "Of a' the Airts the Wind Can Blaw" were also instanced, and he quoted the second stanza of the latter song:—

"I see her in the dewy flowers,
I see her sweet and fair;
I hear her in the tunefu' birds,
I hear her charm the air;
There's not a bonnie flower that
springs
By fountain, shaw or green,
There's not a bonnie bird that sings
But minds me o' my Jean."

He was an old man, Prof. Clark said; some of those behind him on the platform were not young, but those words thrilled them yet.

There was also Burns' songs of friendship, such as "Epistle to Davie" and "Auld Lang Syne." That last was a song that knit men's hearts to one another. In his own knowledge men who had been estranged had been reconciled

by that song. Dare they describe Burns as a teacher? He was a great teacher, and Prof. Clark quoted from his "Epistle to a Young Friend":—

"To catch Dame Fortune's golden smile,

Assiduous wait upon her;
And gather gear by every wile

That's justified by honor;
Nor for to hide it in a hedge,

Nor for a train attendant,
But for the glorious privilege
Of being independent.

"The fear o' hell's a hangman's whip

To haud the wretch in order;
But where you feel your honor grip,
Let that aye be your border;

Its slightest touches, instant pause,
Debar a' side pretences.
And resolutely keep its laws,
Uncaring consequences."

And then, as the song of the coming order of things, there was Burns' great song, which forecast the day.

"That man to man the world o'er
Shall brothers be for a' that."

Burns did not owe them much, whatever they did for him, Prof. Clark said in conclusion. They could honor his memory, keep alive his words, follow him with their love, their gratitude, and their Tears—*Press Report, revised for the Canada Educational Monthly.*

BEVERAGES.

Miss E. M. Bendeley, Montreal and London, Eng.

Water is a prime necessity of life. It is the most universal beverage and if pure and of good quality is preferable to any other. It serves to build up the tissues of the body, 111-154ths of which consist of water; it preserves the fluidity of the blood and aids in excretion. The quantity required for drinking bears relation to the weight of the body, being nearly 1-2 oz. for every 1 lb. weight. Thus a person weighing 150 lbs. would require 3 3-4 pints per diem. Of this about 1-3 is taken in the food, and rather more if fruit is eaten, as it should be, plentifully. The purity of our water supply is a very serious matter and one for which our municipalities are gravely responsible. Individually some people can, if

they choose, protect themselves from the risks of drinking impure water, but in large cities business people, laborers and children are absolutely at the mercy of the authorities who regulate and control the water supply. Typhoid (enteric fever), cholera, summer diarrhoea, are nearly always due to drinking water containing the specific germs or some organic poison. These diseases are only slightly contagious, and enteric (pythogenic fever, *i.e.*, "filth produced,") occurs especially where the drinking water has been contaminated by the stagnant contents of drains, and especially by the emanations from typhoid patients, which contain the specific poison and are bound to produce the dis-

ease in any who take it into their systems.

The history of our late South African campaign furnishes us with a terrible death rate from enteric, directly due to a contaminated water supply, and the great hospitals of our American and Canadian cities have all they can do to cope with the numerous cases of this disease which come under their care. The healthiest persons may contract any one of these diseases from drinking impure water, and the results may be more disastrous than several bullet wounds. The impurities in water may be gaseous, mineral, vegetable and animal. The gases in water greatly increase its palatableness, and are not harmful except where a large amount of carbonic acid indicates the presence of organic impurities. Water from church-yards is often clear and sparkling from this cause and is extremely dangerous. Of the mineral impurities, calcium carbonate (chalk) and calcium sulphate are the two chief. An excess of the former is apt to produce goitre and gall stones. It can be precipitated by boiling. The latter is found in water from clay lands and can only be removed by the addition of washing soda. Lead is sometimes found in water from pipes and cisterns and is a bad addition to it.

Of the organic impurities, vegetable and animal, the latter are by far the most dangerous. Growing plants may be beneficial to water diffusing a certain amount of oxygen. Decaying vegetable matter in water causes diarrhoea and sometimes ague. Animal impurities originate in sewage or dead animals polluting the water. Free ammonia in water indicates danger-

ous organic matter. If water after being kept a day or two in a clear vessel smells it is a sure indication of impurity. Turbid water is also highly dangerous. The brown water from moors is harmless. Pure water is colorless or bluish if seen in large quantities and should be quite inodorous. Rain water is not generally a safe beverage, especially in towns. Rain, as it falls, takes up the organic particles suspended in the atmosphere thus purifying the air but becoming contaminated itself. Being soft, it gathers lead from the pipes and gutters through which it runs and it is also deficient in mineral salts. Except by the sea, where it contains some salt and oxygen, it is not sufficiently aerated and it may be stated as a general rule that the use of rain-water for drinking purposes is only excusable in the country and where no other source is available.

In localities where the water supply is doubtful many people drink only boiled or distilled water. Of two evils this is decidedly the least, but in both cases the water is very flat and deficient in the dissolved gases which make it palatable and digestible.

Aerated waters, of which soda-water may be taken as the type, contain carbonic acid in solution, which gives them their sharp taste and sparkling character. Soda-water acts as a sedative to the mucous membrane of the stomach, and mixed with milk renders it more digestible. Taken in large quantities it is weakening. By means of a seltzogene or gazogene simple carbonic acid water may be prepared at home, and if boiled or distilled water has to be used it is

very advisable to have such an apparatus. Of the many kinds of aerated waters seitzer and apollinaris are the most popular, while sulphuretted waters, such as those obtained at Harrowgate and Aix-la-Chapelle, are used largely for rheumatism and as skin tonics and are classed among the medicinal mineral waters which it is impossible to describe in detail in a short paper. Lemonade is generally a solution of sulphuric acid with carbonic acid and flavored with oil of lemons. It sometimes contains lead in solution. Home-made lemonade is far safer. It can be made with hot or cold water and with some CO₂ from a gazogene is a very wholesome drink and can be made fresh every day. If the water is doubtful, boil, and pour over lemons from which the seeds have been removed; sweeten to taste and leave to cool. Then use with soda water or the gazogene water. We come now to the discussion of tea and coffee as beverages.

Tea contains four leading constituents: (1) Volatile oil, (2) theine, (3) gluten, (4) tannin. The first named gives the aroma and flavor to tea and varies in quality with the various kinds. It is this which occasionally causes headache, sleeplessness and general nervous disturbance in some constitutions when green or very new tea has been taken.

Theine is the principal, rich in nitrogen. It is identical with the caffeine of coffee. It somewhat resembles quinine in composition, and taken in excess would be poisonous. In tea it exists to the extent of 3 or 4 per cent.; in coffee less than one per cent. Moderate doses of theine increase the

strength and rapidity of the heart's action, also that of the brain. It also increases the excretion of solids by the kidneys and improves nutrition, because, when not taken in excess it increases the appetite and assimilation of food.

Gluten gives tea a positive nutritive value, but very little is obtained in an infusion.

Tannin exists in an amount of 15-20 per cent. It is a powerful astringent and is constipating in its effects. There is more tannin in India than in China tea.

The preparation of tea is of great importance and according to the plan followed it may be a refreshing and stimulating beverage, harmless and good, or a liquid capable of causing nervous troubles, indigestion and other evils.

The habit of making a brew of tea and allowing the tea-pot to stand on the stove an indefinite time while cups of tea are from time to time drawn from it is an inexcusable one. It is this which draws out the tannin, making the tea dark in color and thoroughly unwholesome. The tea-pot should be kept dry when not in use; it should be warmed before making tea and the water used to make the infusion should have just boiled. In no case should the infusion stand for more than five minutes, and three is for India tea a better time. Either the leaves should then be removed, and this can be done by using the anti-tannin tea-pots with a small sieve for the leaves; or the tea should be poured into another tea-pot. The tea should not be drunk too hot and it should be taken at the end of a meal and not with food, especially with a substantial meal. High teas and tea-

dinners are objectionable and the practice of drinking it with every meal is most foolish and harmful, as also is the practice of drinking it in sips with bread and butter, as the tannin, however little there be of it, coagulates albumen and prevents its solution by the digestive juices.

For quenching thirst under active exercise and rendering prolonged exertion possible, tea is unsurpassed. If properly made and drunk weak it is an excellent substitute for water if the latter is of doubtful quality. The addition of milk and sugar renders it more nutritious but veils the flavor and somewhat lessens its power to allay thirst.

Coffee contains less volatile oil than tea, and the caffeine, which corresponds to theine in tea, also exists in a very small proportion. There is also an astringent acid in coffee somewhat similar to tannin in its nature and effects. The chief adulteration of coffee is chicory, which is generally harmless but of no utility. Coffee should be prepared by making an infusion, not a decoction. Boiling water should be poured on it and if mixed with an equal part of boiled milk a refreshing and nourishing drink is obtained.

Coffee is somewhat similar to tea in its effects on the human body. It is restorative and sustaining and has a greater power of neutralizing the effects of alcohol than tea. It is a valuable antidote after an emetic in cases of poisoning by opium (or laudanum), arsenic and alcohol. Unlike tea, which is apt to produce perspiration, coffee tends to make the skin dry and hot. With some it is very laxative and taken to excess it pro-

duces indigestion, sleeplessness and nervous disturbances. Persons of a nervous temperament should take coffee very sparingly and there are some who would be better without it altogether. It should not be taken at night, but for a breakfast drink, if well made, it is a wholesome and pleasant beverage.

Cocoa is so rich in nutritious material that it is more a food than a drink. It contains 22 per cent. of starch and gum, 20 of gluten and 51 of oil of cacao butter, besides an alkaloid similar to theine and caffeine, called theobromine, which makes it stimulating. It is thoroughly wholesome and safe, but tends to increase fat and therefore could only be used as a common beverage in a very diluted state, minus the milk and sugar, which render it so appetizing. The consideration of alcoholic drinks would take too long in this chapter, and the large amount of temperance literature circulated probably renders it unnecessary. Suffice it to say that while alcohol may be used, and indeed is often necessary in cases of accident, extreme prostration and dire emergency its value as a food or drink is practically nil.

It has been abundantly proved that prolonged muscular exertion may be undergone, and extremes of heat, cold and exposure better borne during total abstinence from alcoholic drinks. A long list of degenerative diseases are directly due to indulgence, even without excess, in alcoholic beverages and on the ground of their needlessness, their expense, and the temptation which they offer to over-indulgence, we can unhesitatingly rule them all out of the list of desirable drinks.

Hot water is drunk by many, but probably only for medicinal purposes. It should not be taken with food, but before or between meals, and it is apt to prove weakening in some cases. Those who find it useful as a laxative should take it as they find it best suits them, and probably a cupful morning and night would be very helpful to many. It is not, however, a natural drink and those who live a healthy life and are wise and temperate in their diet will probably never need it.

Iced drinks, which are so popular nowadays, should never be taken with food. The introduction of ice into the stomach, which is always at blood-heat, causes an immediate contraction of the glands and retards digestion considerably. Chronic indigestion, imperfect nutrition and gastric troubles are often due to over-indulgence in ice cream and iced drinks.

When we come to summarize what science has taught us with regard to what we should drink we find that, as in the matter of food, the golden rule consists in simplicity and moderation. After making due allowance for the increased thirst and need of its satisfaction, due to perspiration in hot weather, and under exertion, we still must acknowledge that a great many of us drink more than we need. Children contract this habit very early and it is very largely due to indulgence in candies, gum-chewing and other rich and undesirable foods. Extreme and continual thirst is a symptom of a disordered condition of the body and should be treated accordingly. To keep the desire to drink within reasonable limits is possible and

most advisable. It will often save us from the ill effects of drinking the first thing that comes our way if we will try to control this habit, and help and encourage the children to resist the fell temptation that lies in every water-but^t or tap they see. There is one way, too, in which we can protect ourselves from bad drinking-water, name^{ly}, by eating plenty of fruit. Children would be so much better in health if oranges and all other seasonable fruits were given them instead of sweets. No breakfast should be made without fruit, and it may be eaten to advantage with every meal and whenever thirsty. Milk, pure water and fruit are the only liquids children should have, and tea and coffee should never be given them, though cocoa would not be harmful.

There are no drinks to be compared with pure water and milk if we can get them, and the history of primitive times furnishes us with plenty of instances of people who lived to great ages and enjoyed a measure of physical vigor which to us weaklings of the 20th century is almost miraculous, on a diet of meat and bread washed down with water from wells which knew no contamination. Abraham and Sarah entertained angels with fresh bread, roast veal, butter and milk, but we would regard this as negligently fare for human beings of far less dignity than the messengers of the Most High. Elijah lived on two meals of bread and meal a day with no drink save that from the brook Cherith for a protracted time, and our Saviour disdained not the simple fare of a simple community when He ate of their fish and honey and bread and laid upon

men who had never known luxury or even comfort the charge of regenerating a world which had sunk to the lowest depths of degradation through self-indulgence and luxury.

We, in these hurrying days, cannot exactly order our lives on the same plan, and the feeling of a common brotherhood forbids our placing ourselves out of touch with our fellows by eccentric theories or unusual ways, but the broad principles of life are the same for all times. We can enjoy everything that is intrinsically good and ask our friends to join us too. We can use a wise discrimination along with a bountiful hospitality. We can live simply, abstemiously and yet so well that our health and strength shall be a standing tribute to our principles. We can cheat the under-

taker, believe me, far longer than we generally do; and our old age may be a gentle and in no wise painful period for ourselves and those around us. Decay of the mind and crankiness of the disposition need not accompany the inevitable weakening of the body with age, and the ripening of the spirit for the next world can be better accomplished with a well-balanced, healthy body than with one in which disease is added to weakness. The condition of a natural and painless death is a well-lived life and the body that we lay down to return to dust may in most of us be untainted with disease, pure and beautiful as the autumn leaves which return to mother-earth after having fulfilled their purpose in the economy of Nature.

EDUCATION AND CHRISTIAN SOCIALISM.

By Samuel Moore, M. A., Prin. Public School, Northfield, B. C.

The term education is a word of Latin origin, and usually denotes the growth of the mind and the training of the several mental faculties.

Professional teachers recognize three branches of education, viz.: I. Physical Education. II. Intellectual Education. III. Moral Education.

I. Physical training is attained by performing gymnastic exercise, drills, and the muscular development gained by the performance of daily duties.

II. Intellectual education, which generally has assigned the lion's

share, is that which is received at school and college by prosecuting the various subjects of knowledge on the programme of studies.

III. Moral education, which has many perplexing problems in the ethical science is given in a limited extent in the school, in family, in the Sunday School and Church.

This subject has become a vexed question in modern times, and owing to the unhappy differences of professing Christians is likely to be such so long as "the heart hath passions and the life hath woe." The problem of moral training is

an important phase of education, and has a few luminaries for its advocates, such as Dr. Elliott, of Harvard College, and Dr. D. J. Goggin, Supt. of Ed., N. W. T., in the sphere of pedagogy (for its advocates). Both these gentlemen hold and maintain that good morals, or ethics, can be as systematically taught as any other subject of the school course. From the fact that questions of right and wrong are more frequently discussed in the social and business relations of life than the weather we deem that the subject of Christian morals should receive more regular teaching. The educational maxim, "learn to do by knowing," is as true in ethics as in right acting are the primary social requirements in moral education. Some are of opinion that the subject of morals is best taught incidentally with other lessons, but there is evidently a fallacy in such specious reasoning. True, any subject on the curriculum may to some extent be taught incidentally. Shakespeare says: "All the world is a stage and all the men and women players." Some other writer has said: "All the world is a school and all the men and women merely scholars." We learn many lessons incidentally in the experience of life, but few teachers would be willing to allow the important subject of arithmetic, long regarded as the "poor man's logic," to be left to incidental teaching. Therefore, every branch of knowledge should receive systematic treatment.

The question of Christian Socialism is a problem for solution in the 20th century. It is diffi-

cult to give a concise definition of this subject, like love, it is an "indescribable something." To say everything that might be said on this important topic one would need to write a book. To briefly express socialism it is a practical application of the golden rule, viz.: "Do to others as you wish others should do to you." The best exposition we have of the ethics of Christian socialism is the sermon on the Mount. Christ was the greatest teacher of reforms and of socialism the world ever saw.

Some time ago I read a few tributes on the life of the late lamented President McKinley. One speaker pithily expressed the worth of his character thus: "President McKinley was a man who squared his life with the ten commandments, and the sermon on the Mount." Moreover, the character and life history of Queen Victoria the Good was another written epistle of socialism. To put it algebraically such lives—Socialism.

Socialism is an ideal to be reached in the twentieth century, but as we cannot make men moral and industrious by Acts of Parliament alone, we must to a great measure depend for the accomplishment of this end to industrial education, the influence of the press, and the lessons of Christian ethics from the pulpit.

Christian Socialism is based in many particulars on the teachings of the Sermon on the Mount, in fact, Socialism is largely akin to Christianity, for Christ must be considered a pioneer Socialist—"He went about doing good."

The aim of Socialism is to furnish the most favorable environment to men to develop their moral qualities. The present competitive system emphasizes the selfish principle, "every man for himself." This feeling of egoism must be replaced by altruism and fraternity.

As all men are consumers, so all should be producers; in the beehive of Socialism we must have no drones in the hive. All persons are expected to be workers, and, as a result, there would be justice, prosperity, and happiness in the body politic.

The advocates of Socialism have many problems to solve in regard

to: wages, co-operation, taxation, the liquor traffic, etc.

The field of knowledge on these subjects is very extensive, and requires active thought.

There is much room for reform on the above lines; some reforms are of slow growth and are brought about by the conscious effort of good people.

To say all that one might say on education and Christian Socialism a book would need to be written, but I trust I have said enough to indicate the importance of my theme, and I hope to be heard again on the subject.

THE LIFE OF A STAR.

W. Balfour Musson, Toronto.

The "Eternal Stars!" Are they eternal? or have they, like all terrestrial things, a life history? In other words, does a star advance from infancy, through a period of youth, to maturity, old age and death?

The reply of modern astronomy, whether based upon theoretical physics or upon the facts of observation, is in the affirmative. Stars are born—"they have their day and cease to be." The life of man is some threescore years and ten, the oak may renew its leaves for a thousand summers, the "round earth itself" wheels silently in its orbit for a hundred million years, and the mighty Arcturus pursues his journey for as many ages, yet his days, too, are numbered and his death is inevitable.

The question naturally arises, how can any certain knowledge be

obtained of bodies so inconceivably remote—so remote that a ray of light which encircles the earth eight times in a second would occupy nearly four years in a journey from the nearest star to the solar system; whilst a light signal sent from the earth, were that possible, to some of the tiny strangers seen glimmering in the fields of our large telescopes could scarcely reach its destination in less than two thousand years. Yet the apparently impossible has been accomplished, the answer has been written in the light itself, and it is from the standpoint of spectrum analysis that the question will be discussed in the present article.

To begin with, it may be well to ask the question, what do we mean by the word "star"?

The heavenly bodies include nebule, stars or suns, planets, comets,

and meteors; all of which have probably a common genesis.

To state the case briefly—an original substance is assumed, which may be named “cosmic matter,” or “star dust.” This substance forms the basis of those vast gaseous masses known as nebulae, and from which there is almost certain evidence stars are evolved.

The point to be determined is, when this mass ceases to be a nebula and becomes a star.

It will be necessary to give a short description of that wonderful instrument called the spectroscope.

As is well known, a pencil or ray of white light is composed of all the primary colors of the rainbow, which colors merge into one another by an indefinite number of shades. These shades depend upon the length and rapidity of vibration of the other waves by which they are caused. If now a prism of glass or other suitable substance be interposed in the path of the ray of light, each particular wave length will be refracted, or bent out of its course at a different angle, and the ray, if emanating from highly-condensed matter, be spread out into a broad band of colors, known as “the spectrum.” The spectroscope, which has been devised for the better examination of this split or divided ray of light, is an instrument consisting of a tube containing a lens to render the different light waves parallel, the prism, and an eyepiece for magnifying the image. A complete instrument also contains a device for measuring the position of the various wave lengths, but for our present purpose it is not necessary to describe this in detail.

Should, however, the light-emitting source consist of matter in a

gaseous condition, instead of a continuous band of color, there will be produced a spectrum of bright lines upon a dark background, the position and consequent colors of these lines depending upon the chemical elements composing the gas.

Should a nucleus of condensed matter be surrounded by a vapor containing the same elements at a lower temperature than itself, the bright lines would be replaced by dark lines upon a colored background.

It will now be seen that the examination of the light of any of the heavenly bodies by the spectroscope will furnish us with varied and important information regarding the constitution and condition of such bodies. This method of investigation is known as *spectrum analysis*.

As might be expected, the transition from a nebula into a star is marked by so gradual a series of changes as to leave no clearly marked line of demarcation. So much so, indeed, is this the case that we have what are known as planetary nebulae, as well as nebulous stars.

When, however, the stage is reached where the spectrum exhibited consists of a continuous band of color crossed by dark lines, as in the case of our own sun, the body may properly be called a star.

Such a spectrum indicates, as has been stated, a solid, or semi-solid, nucleus surrounded by an atmosphere or envelope of glowing gases.

In the case of the sun, which has in all probability reached, or just passed, its prime of life, the central nucleus is surrounded by a less highly condensed medium, known as the *photosphere*, which forms the apparent body of the sun, when

viewed through thin clouds, or smoke. This *photosphere* is in turn surrounded by a still more highly-attenuated layer called the *chromosphere*, outside of which lies the mysterious and beautiful corona, visible only during a total eclipse.

As a result of a spectroscopic examination of their light, then, the stars have been divided into four main classes, or "types." These types have been extensively subdivided, but it will only be necessary to consider the main groups, determined by Father Secchi, the illustrious Italian, who first undertook the laborious task of making a classification.

The first type includes white, or bluish stars, of which *Sirius*, or the "Dog Star," in the constellation *Cains Major* is a good example. Their spectra consist of a faint continuous background crossed by four heavy dark lines of hydrogen, indicating an extremely gaseous condition.

Stars of the second type are yellow in color, and the hydrogen lines become fainter than in the *Sirian* stars, whilst the lines due to metallic vapors come out more prominently.

This change may fairly be attributed to a mixing up of the elements owing to an advance in condensation, thus indicating a later stage in the development of the star. *Capella*, in the constellation *Auriga*, and our own sun are typical examples.

Red or orange stars fall into the third and fourth classes, and show spectra containing dark and peculiarly shaded bands or "flutings," in the latter class, almost certainly due to the presence of carbon in the atmosphere of the star.

A good example of a red star is *Antares* in the *Scorpion*.

Various considerations unite in placing third and fourth type stars in the stage representing the decline of life, but much work remains to be done in regard to the interpretation of their spectra.

Laboratory experiments tend to demonstrate that these changes in stellar spectra are mainly due to changes in temperature and density in the light-emitting sources, and a careful consideration of the result of observation and experiment convinced Sir William Huggins that *Sirian* stars merge by gradual stages into solar, and solar into post-solar stages, and that the actual differences "do represent in the main successive epochs of star life, rather than so many fundamental differences of chemical constitution."

As before stated, many other considerations of a theoretical and observational nature lend independent support to this conclusion.

To recapitulate—By a comparison of the spectra of stars situated in widely separated regions of space, the development of a star may be traced from the time of its emergence from a nebulous condition through a period of gradually increasing heat, caused by the gravitational energy of its particles and the consequent contraction of its mass, to a maximum temperature, then to a condition of still greater condensation and gradual loss of heat by radiation (in accordance with a well-known physical law), and finally to complete extinction. Then as a dark and lifeless body to sweep for an unknown eternity through

“The lucid interspace of world and
 world,
 Where never creeps a cloud, or
 moves a wind,
 Nor ever falls the least white star
 of snow,
 Nor ever lowest roll of thunder
 moans,
 Nor sound of human sorrow mounts
 to mar
 Their sacred everlasting calm.”

Or it may be to meet a fellow-wanderer, and by the awful impact be again resolved into a heated, glowing nebula, filling an almost incalculable extent of space, and ready to begin once more a life-history measured by ages which baffle the imagination.

THE OUTLOOK FOR THE AVERAGE MAN, IN A NON-COMPETITIVE SOCIETY.

Continued from May Issue

When it comes to the choice of a profession or calling, the individual will be guided by circumstances that defy all attempts to reduce the thing to rules or principles. It is a mistake to disparage any established profession. Thus, it is honorable to assist in the administration of justice, in the making of laws, and in their application to the various relationships of society. The legal profession must therefore always have its useful and prominent place. With the harmonizing and unifying of business relationships, and the substitution of the co-operative for the competitive principle, it is obvious that litigation is affected; and in some spheres it is, fortunately, much reduced. All this will have its effect upon the future of the lawyer's calling. To care for the legal business of some individual corporations nowadays requires a great number of trained lawyers. In some New York law offices, as doubtless also in Chicago, one finds thirty or forty, or even seventy-five or a hundred, fully trained members of the legal profession—excellent lawyers, of

whom one never hears—most of them college graduates; a few, perhaps, sharing in the profits of the firm and ranking as partners, but most of them employed at moderate salaries and working as law clerks.

It happens to please these men better to have their assured salaries and live their lives in a great metropolitan centre with opportunities to indulge their cultivated private tastes—to see pictures, to hear music, to meet their friends at the club—than to scatter into smaller cities and towns, hang out their shingles on the old-fashioned plan, and elbow their way to the front in law practice and in politics as persons of at least local importance. For my part I should probably prefer the independent shingle and a country town; but this is a matter of taste not to be disputed about, and the point I wish to make is that more and more the members of the legal profession are doubtless destined to associate together in these large groups under circumstances which afford a good deal of stability and satisfaction.

The medical profession affords most inviting opportunities because of its rapid progress upon really scientific lines, its wonderful further opportunities for research, its rare opportunities for the rendering of service to one's fellow-men and above all its growing authority and its changed position as respects public administration. Now that populations tend to become urbanized and millions of people must live in close proximity to one another, our men of research in the medical profession have been making a series of most providential discoveries which have totally changed all the conditions of life, and have quite reversed our whole outlook upon the future.

It is to the men of this noble profession that we owe that greatest of all modern discoveries, namely, the discovery that those very conditions of life which fifty or seventy five years ago seemed destined to destroy the human race in the civilized countries of high industrial activity, could be turned into conditions for the positive improvement and progress of the race. It was this profession that developed the modern science of sanitary administration; worked out and applied the germ theory of disease; abolished epidemics of the large and uncontrolled sort such as used to ravage all great towns at frequent intervals; showed us the relation of pure water, sufficient air supply and sunlight, to the health of the community; taught us to inspect food; lowered the rate of infant mortality by guarding the milk supply—and, in short, set the real standards for the administration of municipal government.

More and more, I am inclined to think, the medical profession will pass over from the sphere of a private to that of a public calling. It will become one of the most essential of the protective services, somewhat as the private watchman developed into the public police organization; and the voluntary fire companies grew into the great paid and highly organized fire departments that we see to-day. The more or less voluntary and haphazard hospital facilities have tended to become systematized and public in their support and character. The administration of relief and charity in modern countries has passed over in the main from the private and voluntary agencies to the sphere of a necessary and thoroughly organized public function. And that greatest of all protective services—the education and training of the children of the people for their places as citizens of the state, members of general society, and producers in the economic sense—has in the course of time everywhere come to be recognized as the very foremost of all the functions of the community or the state. In a somewhat similar sense, then, I am inclined to think, a larger and larger proportion of the men trained for the practice of medicine will become public servants—administering sanitary systems; looking after the physical development of the children in schools; caring for the health of the workmen in factories; ministering to the sick in hospitals and institutions; serving special classes like railroad men, sailors, or students, and specializing for the general care of the community in a way analogous to that of the official doctors who now enforce vaccina-

tion, or the United States marine hospital service. I had not meant to say so much about the future of a particular profession, and I have said this only as illustrative of certain tendencies which I believe will affect the economic status of workers in a good many callings.

At this point I should like to say with as much stress as possible, apropos of the new society that is to be evolved, that money-getting under competitive conditions is by no means the indispensable motive power that impels men to their best activity; and there is reason enough to think that it may safely be allowed a less important place; that is to say, human society will by no means stagnate when men are not driven to make exertion chiefly through fear of poverty.

I affirm without the slightest doubt or hesitation that in many lines of activity affecting the community at large it is possible to secure as high a degree of efficiency in non-competitive and public service as in service under the spur of competitive struggle and personal ambition. It is a great mistake to undervalue men's motives. Money-getting is only one of many springs of human action; and for my part I have long since become convinced that the sense of public responsibility brings out high qualities in men that might in those same individuals have lain dormant in strictly private occupation.

A large part of the progress of our times, even in the fields of wealth production, has been due to research and study by men who were actuated not in the least degree by the motive of gain. But the greatest example of all is afforded by what is now the foremost of all our professions, namely,

the profession of teaching. Here we find scores of thousands of men and women rendering noble, unselfish, and indispensable service to the community on the basis of fixed, moderate stipends, removed almost wholly from the competitive sphere of activity, and inspired to diligence and efficiency in their work by a sense of duty and responsibility.

To them it belongs in this new period to train the rising generation to right views of life and citizenship, that is to say, to develop the intelligent, co-operative man of the future, as against the competitive man of the past. The selfishness of the competitive man has grown principally out of his fear, and his sense of living in a world whose motto was, "every man for himself." The work at hand is the training of the man who can afford to believe that what helps one helps all, and that universal intelligence means universal emancipation.

Right-minded men and women, therefore, who fit themselves for the work of teaching, and who appreciate its relation to the demands of citizenship in an economic society, may well feel content in the thought that they have chosen a noble calling in which they can serve their country and their generation and find many incidental rewards and compensations as they go along.

As for other professions and callings—such is the trend of our industrial life that it would seem likely that it could make room for almost as many engineers, electricians, and men of technological training as are likely to present themselves. In the higher walks of what is commonly called business—banking, mercantile, enterprise, transportation, general manu-

facture, and the various branches of trade and commerce—doubtless a greatly increased proportion of young men must expect to work on salaries in large organizations. I am inclined to think that men who are engaged in the business of railroading are destined to be just as well off, under the amalgamation of the vast network of American railways into several comprehensive systems under united control, as they were when, not so many years ago, we had a vastly larger number of separate railway companies, each with its complement of officers, engaged a part of the time in reckless rate-cutting, a part of the time in extorting high rates on the principle of "all the traffic would bear," and the rest of the time in secret rebating. The newer method tends to make railroading more scientific, gives it a better opportunity to serve the travelling and producing community, and affords a more attractive calling for real merit and character.

As to the amalgamation of commercial and industrial enterprises, the rapidity of the process has doubtless caused a great deal of distress through changed methods and the displacement of men. But if one or two travelling salesmen can really do all the business that thirty or forty were struggling and competing for under the old system the community as a whole must certainly reap the benefit when the necessary readjustments have been made; and what is good for the community as a whole will not fail to be good also for most of the individuals concerned.

Let us not forget that the intelligent man of the future is also to find a great outlet for his energies

in the old and dignified calling of agriculturist. The application of science and invention to the business of farming is destined to work changes which we are only beginning to suspect. Scientific agriculture affords a field of study of almost infinite variety, and promises safe if not glittering financial returns. Along with the complete transformation of the business of farming under the new applications of science and invention, is destined to come about the rehabilitation of country life through the intelligent cultivation of co-operative methods. Greatly improved highways, the electric trolley for freight as well as passengers, the substitution to some extent of motor traction for horses in hauling and farm-work, the extension of the free postal delivery, the universality of the telephone, the centralization and great improvement of schools through the facilities offered by better roads and through organized methods for carrying the children back and forth, the multiplication of co-operative cheese factories and creameries, and common action in various other directions having to do with purchase and sale, the performance of heavy work by machinery, and the utilization of raw products by the establishment of additional primary industries analogous to the butter and cheese factories, the multiplication of travelling libraries, and the improvement of social facilities—in all these and various other ways country life can and will be greatly revived; and the position of the intelligent and well-educated farmer may well be one of dignity, prosperity, and contentment.

After all, the object of that better society toward which the civilized

world is moving is to reach such a point of abundance in production and of fairness in distribution, that the man may be much more than a mere factor in the economic process. There was much basis in fact for the old conception of the orthodox economists, according to which man was almost wholly concerned with economic functions, living his life under the hard and fast sway of the law of supply and demand. But we are destined to outlive that conception and that status. Consciously or unconsciously, blindly or with open eyes, we are working out our racial emancipation from that grind of hopeless toil which has been entitled the primeval curse.

In hopeful activity, and useful occupation, there must indeed always be exceeding great reward. But to have achieved a certain degree of leisure lies at the very essence of progress in civilization. Herein lies the value of the periodic day of rest, the occasional holiday or half-holiday, and, above all, the gradual shortening of the daily hours of labor for all classes of workers; provided, however, that the shortening of hours is attended by such training and education, and is surrounded by such opportunities that leisure from toil is likely to be filled with pleasing and improving activities. Under certain phases of the old competitive struggle for existence, a man's toil for livelihood often occupied fourteen, or sixteen, or even eighteen hours out of the twenty-four, and it meant the whole of life.

But where men work only eight or nine hours, with a reasonable prospect that a few years hence they will work only six or seven, the whole situation changes. It be-

comes relatively less vital that they should struggle absorbingly to rise from the status of journeyman to master, and from that of master to the man able to retire from a business that always kept him absorbed and breathless, only to find himself unfit at length for anything except to accumulate adipose and to indulge somnolence in a stupid and reactionary old age.

In the better time to come, when work for ordinary workers of reasonable intelligence shall have taken on the co-operative as distinguished from the competitive aspect, and when the triumphs of invention and of highly-organized production and distribution shall further have shortened the hours of labor, the son of toil may find ample compensation as he goes along in his personal freedom, in his ownership of himself. He may find himself in possession of time enough to cultivate a flower garden, if that is what he likes; to acquire languages and study comparative literature, if such be his bent; to experiment in a laboratory; to cultivate the art of music, or, in short, to offset the monotony of his necessary vocation by the variety and charm of his avocations.

Surely no one will say that this is a fanciful or visionary forecast, inasmuch as it is highly obvious that in very many fields of human endeavor that type of man has already made his appearance. The world is steadily moving toward the position in which the individual is to contribute faithfully and duly his quota of productive or protective social effort, to receive in return a modest, certain, not greatly variable stipend, adjust his needs and his expenses to his income, guard the future by insurance or

some analogous method, and find margin of leisure and opportunity sufficient to give large play to individual tastes and preferences, and therefore to counteract any stagnating or deteriorating effects that might come from wearing the harness of his regular craft or calling day by day.

One might illustrate by comment upon the small-salaried, well-educated civil service officials of Germany, who as a class are remarkably contented, happy, and useful; or the military and naval officers of all countries in times of peace; or the class to whom I have already referred, engaged in this and other countries in the work of education; or the better class of trained and steadily employed men in the service of great railway, banking, insurance, and other corporations; or the class of highly instructed men employed in many branches of the public service in England, who render a fair equivalent for the salaries they obtain, and yet achieve leisure enough, many of them, to attain a fair place in literature, or at least to gratify their individual tastes. There are few such sources of satisfaction as to feel with the poet that one's mind is his kingdom, provided only one has some little leisure to occupy the throne.

Just as the ultimate goal in a democracy is not strife and discord, but political harmony and concord, even so in the economic life of the community, the better hopes reach far beyond the wastefulness and strife of the old competitive system and demand the substitution for it of co-operative methods and scientific organization. From this new period of unified effort upon which we are entering let no man think there can be any return to the com-

petitive system as it has existed heretofore. These are movements too fundamental to be vitally affected by hampering statutes or decisions of courts. Just as trades-unionism could never be destroyed by English conspiracy laws or by the American device of injunctions, just so the unifying of transportation interests and the scientific organization of industry will make steady progress, not to defy Sherman acts and judicial mandates, but to obey those more fundamental laws and principles that have come to operate with a momentum now practically irresistible.

We are certainly then to have this new, close organization of industry. We cannot make water run up hill, but we can often do something to fix its channels and direct its course, and turn what might have been the harmfulness of the flow to useful and fructifying ends. We may be sure, then, that in our new economic society this question of *control* will be of vital importance, and that it will be settled in the light of experience on the basis of efficiency and of the greatest good to the greatest number.

Three methods of future control are readily conceivable. One method is that of control by individuals or by syndicates composed of comparatively few men whose fortunes may be told in hundreds or in thousands of millions. The second method is that of the radical enlargement of the functions of the political community, so that the people themselves, organized as the city, the state, the nation, may assume control, one after another, of the great common services of supply, and the great businesses and industries. The third method

is that of the gradual distribution of the shares of stock of industrial corporations, among the workers themselves and the people at large, until in one service or industry after another there shall have come into being something like a co-operative system, managed on representative principles, analogous in some measure to the carrying on of our political institutions.

I have the impression that we may see something in this country of all three of these methods operating side by side. Doubtless in some large industries we shall for a good while witness control concentrated in the hands of a few individuals. They will hold this control, however, subject to the inevitable law of diminishing returns on capital and of an ever-improving status for the intelligent employee. I may be wrong in my observations and impressions, but there has seemed to me to be a marked tendency towards the gradual elimination from industrial control of the capitalist as such, and the substitution for him of the skilful administrator. But the administrator, whether of great railway systems, like M. de Witte, head of the Russian system, or Mr. J. J. Hill, or of a great manufacturing enterprise, like Mr. Schwab, of the steel corporation, is produced in the business itself, and comes to the front through sheer force of merit and ability.

Recognizing this fact, the great capitalists who wish their sons to maintain any actual hold upon the conduct of business, see the necessity of having them taught in a practical way, beginning at the very bottom of the ladder. The larger the transportation and industrial corporations become, the more they

are at the mercy of the public—of the state, on the one hand, and of their employes on the other. The influence of the state will be to make for publicity and for methods that tend to steadiness, and through taxation as one method and direct or indirect regulation of rates and prices as another method, the community will check the accumulation of undue or monopoly profits. On the other side, the employes will insist upon gradual amelioration of their own status. Such conditions will of necessity bring efficient men to the front in the organization of labour, and not less so, certainly in the administration of the business from the standpoint of capital.

And with improved intelligence on both sides there will come better and closer understandings, with the prospect that periodic agreements upon wage scales and conditions affecting labor will come into common use, and that not only will mutual respect and confidence be greatly enhanced, but the opportunity of the individual workman to advance through efficiency and to pass from the inferior to the superior side of the situation will be made easier. As making for those better relations one could hardly praise too highly a movement born in Chicago, under the lead of the Civic Federation, for bringing capital, labor, and the general public into closer relations as respects the great industrial movement of the day.

In France, where the habit of saving is very highly developed, and where capitalistic control is not quite so highly developed in the hands of particular individuals as in England and the United States, the tendency is towards the wide

distribution of the share capital of railways and of other enterprises among the people who belong to the great working class, particularly to the class of skilled and intelligent workers. In Germany, on the other hand, the tendency is rather strongly in the direction of the increase of the direct industrial functions of the municipality or the higher government—the employees of railways, telephones, and the like assuming the status of civil servants and public employees like our letter-carriers.

Within the sphere of the municipality itself, this tendency towards increase of function, and therefore towards the absorption of an increasing proportion of the community into direct public service, is particularly strong in the cities of England and Scotland, in nearly all of which there is on foot at the present time a movement for the direct ownership and operation of local transit lines. This movement follows upon longer experience in operating gas and electric-lighting, as well as water supplies; and upon the experiment of direct employment as opposed to the contract system in the making of streets and sewers, and various other kinds of public work.

I do not know at all what lines of public policy in these matters we shall have preferred to adopt in the course of the average period of active life and work of the young men who are present in this audience to-day. But of one thing I am entirely certain, and that is that there has never been such a hopeful outlook for the sane and wise dominance of the best average intelligence. I would have a gov-

ernment so efficient, whether of the city or the state, that it should become a matter of comparative indifference whether the government carried on a service directly for the people as a co-operative community, or whether it secured the interests of the citizens through the proper regulation and control of a private corporation whose shares of stock should themselves be widely distributed.

In any case we shall need very strong, capable governments, because the increasing intelligence and refinement of the community will demand that those things now undertaken by the government shall be managed with a far higher degree of skill and success than heretofore. The preparation for this high average improvement in the tone and quality of government, whether local or general, must simply come about, as one readily sees on reflection, with the improvement in the intelligence and moral sense of our citizenship at large—along with the growth of a more acute sense of the practical value of the community's efforts to the individual citizen.

MORE, rather than less, shall we rely henceforth on the principle of democracy; and more, rather than less, shall we be obliged to adopt the policy of leveling up the many, even if it were only for the benefit of the few. Henceforth the rich man and the talented man, quite as much as the poor man and the man of ordinary parts, are to find their security and their prosperity in a community so ordered as to make for the general comfort and the general welfare.

The community as a whole will become the repository of such price-

less and varied wealth, the administrator of such vast resources, the provider of so many things desirable and useful—that its services will call for and receive the best talent; and no one will be so sufficient unto himself that he can afford to be indifferent to the success of the public administration.

It is a very great thing to have attained to some sort of clear conception of the possibilities of the ideal city of the future. Already that ideal city is emerging. Its elements to a large extent already exist, some in one place, some in another, all of them capable of transplantation and entirely compatible with one another. Thus the city with an ideal water-supply is not debarred from possessing ideal schools and public libraries. The city that has perfectly paved and well-cleaned streets may have everything else that makes for health, attractiveness, safety, and pleasure in the public appointments. No private schools can possibly be as good as the free public schools of the United States are destined to become in the due course of time. No private museums or galleries of art, no collections of scientific objects, no libraries, no monumental art or architecture could possibly, in private hands, attain such importance as that which will belong freely to all the people in common. No private grounds could equal our public parks as they are destined to develop. No individual could conceivably so surround himself with safeguards for the health of himself or his family as the community will supply to him and to its humblest citizen alike.

Thus the evolution of the new order of things is to give us some

approximation towards the ideal of the modern city with its low death-rate, its admirable facilities for education, recreation, and physical culture; its improved industrial conditions; its well-guarded housing arrangements; its clean streets—free from dust and largely free from noise; its pure atmosphere—with smoke abolished; its playgrounds; its public baths, and its varied opportunities for the use of leisure.

While the present tendency in the re-grouping of population, under which the large towns are growing, is doubtless to continue for some time to come, the contrast between city and country life will become less marked; for with the readier access of the children of the towns to the out of door and open life of the country, there will also come about a great movement for supplying the country itself with some of the advantages of the town through the co-operative agencies to which I have alluded. The populous community of the future, even more than of the past, must stand firmly by the principle of democracy. One of the chief objects must be to equalize conditions, to lift men up in the scale of being and to fit the oncoming generation in the best possible way for responsible citizenship.

When one compares the conditions of life in the great towns as they commonly were twenty-five years ago and as they are at their worst to-day, with those conditions that we now see can be feasibly supplied to all, we get a new sense of the reality of social progress. For 't is nowadays regarded, not as a wild dream, but as a fairly sober and reasonable proposition to demand that the poor man may at

least live in a model tenement, on an asphalted street, with pure air to breathe and with pure water to drink; that he may be surrounded by marvellous safeguards in the way of health protection and police and fire protection; that he may send his children to the very best of schools; that in the evening he may read the best of books from the free public libraries, by gas or electric light cheaply furnished; that he may hear the best lectures without price; may attend excellent free concerts, visit beautiful parks, public museums and galleries of art, look upon noble architecture and monumental statues with a feeling of pride and a sense of common possession; that he may ride swiftly and luxuriously in public vehicles at small price, and that he may be safeguarded against the worst dangers of illness or old age through one form or another of benefit funds or social insurance.

The community which professes to do all this for its members is at once minimizing the disadvantages of the laboring man and lessening the peculiar advantages of wealth. For the poor man, too, under the eight-hour system, is to have his leisure, his books, his music, his pictures, his parks, his opportunities of quick travel, his swimming bath, his gymnasium, his golf course, and a hundred advantages that were wholly out of reach even of the well-to-do man living in town forty or fifty years ago.

And if it is reasonable to hope for so much for the intelligent workingman—as the new social order develops and the ideals toward which society is working come into fuller realization—surely the man of higher education more complete training, or more perfect

moral, mental, and physical self-control is also to find things better rather than worse for himself. Least of all should he fear lest there be somehow a diminished opportunity for him to play some fitting part in the world's activity, and to reap some fitting reward. The margin of individual risk is destined to diminish. I think it true, also, that the margin of opportunity for obtaining very exceptional advantage over one's fellows in some particular directions is also to be diminished. But there will be corresponding increase in the opportunity to earn honorable renown by the full devotion of one's talents to the social good in any chosen field.

If this sounds like unmixed optimism, it does not assume for a moment that progress henceforth is to be without struggle and strife, any more than in the past. Life must always be made up, for the individual and for the community, of an almost infinite number of opportunities to choose between the better and the worse course; and the process of choice always involves some element of struggle, with some phases of reaction and disaster.

I merely hold that the general trend of progress at the present time lies before us with exceptional clearness; that life offers rewards and opportunities as never before by virtue of the new social and industrial organization; and that the outlook is bright with hope, through the transformed environment that the community is providing for the individual, and through the widening field of opportunity, in consequence, that the individual finds for activity and service among his fellows.—*University Record*, Chicago.

THE DEAF CHILDREN OF ONTARIO.

By G. F. Stewart.

The people of Ontario justly pride themselves on the excellence of their educational system, which provides a free education for every boy and girl in the Provinces. There is a considerable number of children, however, such as the deaf and blind, who are unable to avail themselves of the public schools, and for these special schools have been provided where methods of instruction suitable to their needs are employed. These are, unfortunately, called "Institutions" instead of schools, and many people class them asylums, as if they were places of detention and control. This is a lamentable and erroneous idea. These Institutions are Schools pure and simple, only, as the children come from all parts of the Province, it is necessary for them to reside at the Institutions during the sessions. A sketch of the Institution for the Deaf at Belleville, and of the work done there, will no doubt be of interest to the readers of this magazine.

It was formerly thought that the deaf were quite incapable of receiving instruction, and they were regarded as outcasts and as unfit to participate in the common pursuits and pleasures of life. This view prevailed until about one hundred and fifty years ago, when the first efforts to educate the deaf were made in Europe. These efforts were greeted at first with derision, and met with much opposition, so that but little progress was made for a time. But the courageous pioneers in this noble work persevered, and it was finally demonstrated that the deaf possessed the same mental faculties as other people, and were

equally capable of receiving instruction, and then schools sprang up everywhere. In 1817 the first school for the deaf was established in America, but now there are one or more schools in every State and Province, and ample facilities are provided for the education of every deaf child on the continent.

Less than half a century ago the first school for the deaf—a private one—was opened in Ontario by Mr. McGann, and, amid many discouragements, it was continued for several years, having to depend on private subscriptions, grants from municipalities, and other such devices. After a time, however, the Government became interested in the project, and, recognizing that the deaf were entitled to a free education as much as other children, the present handsome and commodious structure was provided. The Institution was formally opened in October, 1870, with only three pupils in attendance, this number, however, being increased to 100 before the term closed. For some years the attendance was small, but as the people became better acquainted with the existence and objects of the Institution, the number of pupils gradually increased until the utmost limit of accommodation was reached.

The object of the Institution is, as we have already stated, to afford educational advantages to all youth of the Province, who, on account of deafness, either partial or total, are unable to receive instruction in the common schools. All deaf-mutes between the ages of seven and twenty, not deficient in intellect, and free from contagious dis-

eases, and who are residents of the Province, will be admitted. Tuition, books, and medical attendance are furnished free, but those who are able to pay are charged \$50.00 a year for board. If they are unable to pay this amount, no charge whatever is made. Clothing must, of course, be provided by the parents or friends of the pupil, but indigent orphans are clothed by the Province so that none are excluded because of poverty.

The number of pupils at present in attendance is about 260, for the instruction of whom sixteen teachers are employed, and the curriculum covers about the same ground as the course of studies prescribed for the Public Schools. In addition to this, the trades of printing, carpentering, shoemaking, and baking are taught to such of the boys as wish to learn any of these: while the girls are instructed in all kinds of domestic work, tailoring, dress-making, sewing, knitting, and such ornamental and fancy work as may be desirable. There is also a sloyd-shop, and next term Domestic Science will be added to our curriculum.

Our readers would perhaps be interested in knowing how the pupils spend their time at the Institution. Well, all of them must get up at six o'clock every day of the week, summer or winter alike, though they may get up earlier if they wish. At half-past six they have breakfast, after which the boys learning trades go to the shops, certain girls wash and wipe the dishes, others go to work in various parts of the building, sweeping, dusting, sewing, etc. Every child in the Institution must make his own bed. At 8.30 all work ceases, and the pupils wash themselves, blacken their boots,

and make themselves clean and neat, and assemble in the sitting-rooms. At 8.45 all go to the chapel, where the teacher on duty says a prayer, gives the pupils a short talk on any subject he may desire, tells them any important news of the previous day, etc. Then all go to the class-rooms for a continuous forenoon session. Promptly at twelve dinner is served, and the pupils not assigned to special work, such as dish-washing, are then free to amuse themselves as they choose till 1.20. They are then called in, and sent to their class-rooms, for the afternoon session from 1.30 to 3.30 on Tuesdays and Thursdays, and till 3 o'clock on the other days. When school is dismissed, all go again to the chapel, where prayers are again offered, and then the pupils disperse to the shops, sewing-room, laundry, etc. The boys not in the shops make themselves generally useful. Some are assigned in rotation to assist in the laundry, others keep the playgrounds and lawns, as neat as a pin, others sweep the class-rooms, carry water, etc., and in the proper season pick up potatoes, apples, etc. But so many boys find these odd jobs easy, an abundance of time is left for play—hockey in winter and foot-ball in summer being the favorite games. At 5.30 all come in, clean themselves up, and have supper at six. At seven the higher classes go to the study-room, where, under the supervision of a teacher, the intermediate pupils study till eight and the seniors till half-past eight.

The Juniors go to bed at seven, and the others as soon as dismissed from the study-room. As may be imagined, such regular hours, with plenty of sleep and exercise, and

good, wholesome food, keep the pupils in good physical condition, and the contrast between the appearance when they come to the Institution in the fall, and when they leave for home in June is very marked. Yet some do get sick, and for these there is a trained nurse always on hand, and the best of care—better than the most of them could get at home—is taken of all who are indisposed. For contagious diseases there is a splendidly equipped isolation hospital. On Saturdays the pupils work in the shops, etc., till eleven, and then are free the rest of the day. On Saturday evenings there are always lectures, magic-lantern exhibitions, pantomines, and other entertainments given in the chapel. On Sunday all the pupils attend church or chapel twice, where services are held by the teachers in rotation. The ministers of all denominations are permitted to come to the Institution any school day, and instruct the children belonging to their respective denominations for as long a time as they choose after school. So it will be seen that the moral and religious welfare of the pupils are looked after as carefully as the mental and physical.

Are the children contented and happy here? This is a superfluous question to all who have ever visited the Institution. In no other school in Ontario can there be found a happier lot of boys and girls, and, with rare exceptions, they are all eager to return in the fall. The motto of our school is, "The greatest happiness is found in making others happy," and we strive to rule by love and good-will, rather than by fear and severity, and visitors seldom fail to remark upon the per-

fect confidence and affection that exists between teachers and pupils. It is very rare, indeed, that corporal punishment must be resorted to, perhaps not a dozen times in a term.

The pupils as a rule are eager to learn, are respectful to the officers and teachers, and kind to each other, and it is often very touching, after school opens in the fall, to see how solicitous the older pupils are to make the newcomers feel at home, and to overcome the feeling of homesickness inevitable after a first separation from home.

The first Superintendent of the Institution was the late Dr. Palmer, and on his retirement in 1879, he was succeeded by the present incumbent, Robert Mathison, M.A., under whose wise control the Institution has attained to a splendid efficiency. Mr. Mathison, who gives his whole time and energy to whatever he undertakes, and had been markedly successful in his previous career as a journalist entered upon his new duties with enthusiasm. He made a thorough study of all that related to the deaf and their education, and soon became known as one of the ablest and most successful superintendents on the continent; and his conspicuous services and eminent success were fittingly recognized by the National (Galludet) College for the Deaf at Washington, D.C., of which the President of the United States is Patron and Honorary Resident, which, among the other honors, conferred upon him the degree of Master of Arts. He is a graduated student of Prof. Alexander Bell, author of "Visible Speech," and took a thorough course in that branch of instruction for the deaf. Mr. Mathison gives to his responsible duties no divided

service, but has devoted every power of mind and body to the accomplishment of the ideal which he has set before himself, which was to make the Belleville Institution second to no other on the Continent; and that he has succeeded in doing so is universally admitted. He possesses splendid executive ability, and rare tact and judgment, and at the same time commands the love and esteem of every pupil who has ever been under his charge. He manifests more than mere professional interest in the deaf, and when the pupils leave the Institution to enter upon life's duties, he endeavors to keep in touch with every one of them, he follows their careers with sympathetic interest and solicitude, and to him they freely apply for counsel in every time of difficulty, and from him they are always assured of a cheery word in time of discouragement, and of sympathy in time of trouble.

The ideal held before us in all our work is simply to develop the

characters of the pupils, to awaken their intelligence, and to give them the linguistic acquirements, the mental discipline, the kind and amount of knowledge and the practical skill that will enable them to earn a livelihood and to live useful and happy lives. We aim at no spectacular results or merely ornamental acquirements, but rather at the practical and the useful, and never fail to impress upon the pupils that it is better to be good than to be either great or wise. And that our efforts have been crowned with success is demonstrated by the fact, that, so far as we know, every graduate of this Institution, who has need to do so, is earning a competent living, that hundreds have established happy homes, that not one can be classed as a pauper or a criminal, and that wherever they may be, they are conspicuous as honorable, industrious, useful, and law-abiding citizens.—The Canadian Boy.

TORONTO GLOBE ON EDUCATION.

The following is an adaptation of an editorial appearing in the *Globe* of August 14th, 1902. By a transposition of terms, which appear in italics, it is made equally applicable to voluntary public schools, and primary education.

LAWRENCE BALDWIN

VOLUNTARY PUBLIC SCHOOLS.

Dr. ——— Principal of the "*Harcourt*" *Voluntary Public School*, has been selected to organize the ——— scholarship scheme, and to visit the countries which will participate in this remarkable educational bequest. The work is of such importance that it may in time make it

necessary for Dr. ——— to sever his relations with the *school* in which he has done excellent work. It will, at all events, involve long absences, during which it will be of the first importance to have as acting head of the *school* a thorough disciplinarian, who recognizes the spirit and policy by which the institution ought to be guided.

It has been made evident that the *school* is not a superfluous or anomalous institution, but that it supplies a want in our educational system. Of that system uniformity is a necessary feature. It is impossible to have *public schools* in Ontario without some general plan and method of

working. That does not mean, however, that uniformity is to be set up as an object of worship. Uniformity is to a certain extent necessary, or at least highly convenient; but divergences from uniformity are rather to be encouraged than otherwise. The late Principal Grant spoke once in favor of testing educational ideas, not throughout the whole Province, but in certain localities. In *voluntary public schools* this can be done without deranging or complicating the general system, and the results have been such as fully to justify the maintenance of the school.

What should be the guiding spirit and policy of such an institution? Some persons regard it as carried out on the lines of an English *voluntary school*, and approve or disapprove of it accordingly. It seems to us that this conception is too narrow. There are excellent features in the great English schools. But these schools were not made to order, according to certain patterns, from which no departure was allowed. They grew out of the conditions of English society, just as the oak grows out of the English soil. Go into Scotland or into Germany and you will find the education of boys conducted on entirely different lines. If the question were asked, which is the

best? the answer would be that each has its good features and its defects, but that each is suited to its environment and to the needs and ideas of the people. So a Canadian *school* must be distinctively Canadian. That does not mean, of course, that it is to be conducted in a narrow spirit of national conceit. There are good educational ideas everywhere, in the United States, in Great Britain, in Germany, in France. We want the best of all of them, so far as they can be applied to Canada. We ought to be ready to learn of all, and yet to apply to every educational idea and method the test of applicability to the conditions of this country. In this way distinctively Canadian schools will grow up and flourish like the natural products of the soil.

Of course these remarks apply to the general educational system of this country as well as to institutions like Upper Canada. The special advantage of these institutions is the opportunity they give for freedom of teaching and departures from uniformity in method. If a rule is found to work badly it can be changed without causing widespread inconvenience. In this way these schools, instead of injuring, may benefit other *primary* institutions of learning.

“ I hear a whisper running
 So musical and free,
 In accents soft and gentle,
 Thro' earth, and air, and sea.
 Come, listen to its pathos,
 In ecstasy of hope,

Now humming through the meadows
 And down the mountain's slope.
 The trees take up their rustle,
 The grass begins to wave,
 And all the feathered songsters
 Sing in each grot and cave.”

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.

Under present conditions, it is inevitable that the number of men teaching in our schools should decrease and among the few left in the schools, of the best endowed men, scarcely any will be found teaching in the public schools. In recent years women have taken many of the departments of labor formerly occupied by men; of all of them, the one most accessible and agreeable to women is teaching. In all ages, in every climate the first teacher, the most influential teacher, has been the woman. She holds this position as in former times, and there is no likelihood of her leaving this vantage-position. The hand that rocks the cradle rules the world. Which makes the better teacher, man or woman? Comparisons are odious, but comparisons are constantly being made of late, and generally to the disadvantage of women.

Without going into the indeterminate question of whether there is sex in "mind" or no, or whether the intellect of man or woman is the greater; curious questions these are and lead only to endless controversies, let us consider things which are within the easy reach of average readers.

The class lists of Cambridge, London and Oxford afford clear light upon the comparative power of men and women from the university standpoint. In the schools, sixty years ago, the government

therein was largely by the "taws;" it was the same likewise in the family. If the rod is to return in its old-time severity, in such a case, the question, whether man or woman is the better, may be raised. But in present circumstances and judging by present tendencies, it is idle to entertain such a proposition, unless for academic discussion.

Unit for unit, the "new sisterhood" offers better candidates for the responsible office of teacher than the men do. The outlook indicates that this will become more and more so in the near future. Canada is becoming a land of industry in many lines of human effort. Mines of the most valuable minerals are being opened in many parts of our country; engineering in its multiform application is constantly in requisition; the value of the really scientific chemist in manufactures is being recognized increasingly by our men of business. It is needless to enumerate any other branches in which the country is reaching out to develop its natural and abundant wealth. In these and many other fields of effort, men are urgently asked for, and to competent men large salaries are willingly paid. The pity of it is that approved workmen of the class required are not to be found in Canada to supply the many calls now being made for these specially trained men.

Women are not competitors with men in these fields of enterprise. The men have been for the nonce unopposed. But the effect upon other departments of work, for instance teaching, is to leave them almost wholly to women; and we add, under the existing conditions, the better teacher, and under any conditions, the equal teacher.

The point which is most canvassed in the present phase of the discussion is the capacity of women teachers to govern pupils over fourteen years of age. All concede the ability of women to manage and instruct the young child—the pre-eminent ability of women—the line of doubt is drawn at fourteen years. Is this done with the design to exclude her from the high school? Let us consider. All our high schools are attended by boys and girls—young men and young women. Not only is this the state of our high schools, but the classes are mixed classes, classes composed of boys and girls.

Shall we have men only to attend to the education of these boys and girls? Can men alone do it? Is it possible that anyone who knows anything of the present English world can entertain seriously the thought of restricting the activities of our qualified women in such a way as to prevent them from exercising their wholesome influence in our secondary schools? For argument sake, allow that the young men would be more of men under the leadership of men—which we do not admit—than under that of women. In that case, what would become of the girls? Become mannish? The country can well afford the absence of that weak species of neither man nor woman. We venture the assertion

that in any school of two teachers one of them should be a woman, and vice versa. The needs of girls are as great as those of boys, and their rights are equal. No high school should be conducted without having on its staff at least one lady. The vision is made plain. The woman is not man, but she is equal, though diverse. The province—Canada, we may say—is face to face with the fact: Women are to be the major part of our teaching force and the dictate of wisdom is to make her most efficient for her invaluable work. It is claimed in the New England States, that it is a matter of proof that the schools suffer, if the number of men teaching in the schools is less than 25 for every 100 teachers in the schools. We believe there is truth in that statement. We have found some women equal to the best men in controlling and governing classes of either boys or girls, or classes of both, and far superior to many men. The rod is not king in government, in family, school or state.

The number of men teaching in our public schools is becoming year by year smaller; the number of schools is slowly increasing; hence the number of women teaching in our public schools is increasing. This undeniable fact, which is plain to every one, forces discussion. Why should men leave the schools, and is it to the advantage of the community that women should take their places? It is most true that men of affairs, whether in the church or in law, or in medicine, or in the wide fields of industry and commerce, have had their training in schools controlled and guided by the genus school-

master—now apparently “passing” from the service of his country as “master.” Naturally these men feel and think that if men for the same line of work are not trained by the same moulding force—the same strenuous regime, as they were—the product—the outcome will be disastrous to the whole community.

No one need be surprised at this conclusion. The great surprise would be, if the conclusion were different. There is nothing in teaching, or to teaching of a worldly sort to entice a young man of fair average ability to devote himself during his life to the profession of teaching. In this statement we have in mind teaching in high schools as well as in public schools. The conditions in teaching are much more restrictive than in either of the other three professions.

In these modern days the teacher is so cribbed, cabin'd, and confined by departmental regulations in regard to text-books, modes of teaching, inspection, etc., etc., he is so handicapped by the pretentiousness and ignorance of trustees, by petty jealousy and narrowness of his professional brethren that every man of ability is warned to give a wide berth to the profession of teaching. Moreover, the teachers have no control, no voice as to the conditions of any one becoming a member of his profession. All that business the Government has kept carefully in its own hands. The whole preparation of the teacher is dealt with in such a way that the teacher is entirely at the mercy of the Government. Would it be to the best interests of the

people if the Government should take entirely under its own management the licensing of all the doctors in Canada? Organize a Board to decide on a curriculum; assign values to the different subjects for examination, the percentage to be obtained in each subject in order to pass; appoint the examiners, readers, etc., etc., the same as is done in the case of the licensing of teachers, with which all are so familiar. If the Government took all this additional power into its paternal care, we submit the query, Would it be for the best interests of the people? Would doctors appreciate that mode of dealing with them? If this were the order of things in dealing with admission to the medical profession, would we have the services of so many men who have been and are an ornament to their chosen life-profession?

Is not the treatment observed with respect to the teacher responsible for the lack of ambition and spirit in our schools to-day? The Government shuts the door of admission in the face of such men! It is well known that a few years ago an attempt was made to organize teachers in such a way that they would have a potential voice in the ordering of matters connected with the admission, etc., to and continuance in the profession of teaching. But the present Premier, who was at that time Minister of Education, signified his strong disapproval of the effort, and consequently it was considered unadvisable to proceed. Had the Minister favored the undertaking, and actively supported it with all the influence of his posi-

tion, we might have had a powerful force acting in Canada tending to the betterment of the teacher's standing and efficiency.

We hereby tender our cordial thanks to the SCHOOL BOARD OF GLASGOW, SCOTLAND, for its courtesy in sending us a copy of its Annual Report, 1901, by favor of G. W. Alexander, M.A., clerk. It is encouraging to note the comparatively liberal annual amount the Government of Great Britain and Ireland pays for the schooling of the children in the elementary schools; and refreshing it is to observe with what impartial eye the Education Department recognizes school work, whether the work is done in Board Schools, Church of Scotland Schools, or Roman Catholic schools (shades of the fathers of the 16th century), or any other school, the work is acknowledged and paid for. We Canadians have not yet reached that plane.

We quote a paragraph from it which deals with a live school question in Ontario at present, and incidentally supports what *The Canada Educational Monthly* advocated some time ago. It is plain to us that every scholar in our public schools should pass the examination

for admission, which corresponds very closely with the Merit Certificate examination, before he is allowed to leave school.

"In view of the position the Merit Certificate holds in regulating school arrangements, it is satisfactory to note that 1,916 scholars have been successful in gaining this Certificate, or 272 more than last year. The number at the Merit Certificate stage throughout the year was 3,566, and of these 2,844 were presented. As a consequence of the Education (Scotland) Act, 1901, the Merit Certificate ceases in itself to exempt a child under 14 years of age from further attendance at school. *The Committee are of opinion that every child who goes through the normal curriculum of an elementary school should have an opportunity of obtaining the certificate, and they expect that only in exceptional circumstances will a child be allowed to leave school without it at the age of fourteen.* The probable increase in the number of children between the ages of 12 and 14 who will remain at school when the new Act is in operation may require some revision of the existing arrangements for the instruction of older scholars, but any changes decided upon would naturally take place at the beginning of next session."

COMMENTS.

The National Educational Association of the United States, in recent convention in the city of Minneapolis, in a forcible resolution, pronounced in favor of the restoration of the Bible as a text-book in the public schools. Those who have labored to take away the great reproach from our public school

system in Canada will be glad to know that the movement toward giving the Bible its proper and rightful place gathers force in many quarters. It is true that the Association asked that the Bible be studied chiefly as literature, and not as a teacher of moral and religious truth, but even if it could be

confined to that sphere, it would be almost impossible to exaggerate the importance and usefulness of such study even along the one line. How splendid the books of the Old and New Testaments are simply for educational purposes, both in an historical and a literary way. They contain the whole of a nation's history and literature. They contain that literature in all the various forms in which it was developed; and, moreover, the nation in whose history they interest us is as remote as possible from our own modern life. If the object of education be to give mental versatility, width of knowledge, and largeness of outlook, if it is to create intellectual curiosity and suggest objects of study, then what could be more desirable than a study of these books? As a matter of educational utility, does not the Bible claim a first place, or, at least, some place, in the schools and colleges of the land?

But no one believes that the Bible could be studied even as a literature without its impressing upon the student great moral and religious truths. The great lessons of all history stand out upon its pages with unparalleled clearness and force. As a basis for moral training the study of the Bible is an absolute necessity. If the true aim and object of all education is character—and who would deny it—then a system of education which ignores the world's noblest handbook of morality is seriously and fundamentally at fault.—*Christian Guardian*, 23, 7, '02.

fact that Great Britain has not conceded any vital point. She has been so generous in minor matters that some commentators go so far as to say that Great Britain gets all the peace and the Boers get everything else, the intimation being that England paid a big price for the cessation of a wearying war. This view of the matter overlooks the fact that the main issue, the independence of the two Boer republics, has been decided in favor of Great Britain. There is no longer a Transvaal Republic and there is only an Orange River Colony—having accomplished the destruction of these states, Great Britain can well afford to let Boer school children learn Dutch if they think they want to.—*Exchange*.

In the June-July number of the *Monthly* we find the second of Miss Edith M. M. Bendeley's remarkable studies on Diet. After her comprehensive survey of the subject, Miss Bendeley proceeds to show how food may be so chosen, prepared and used as to be a blessing instead of a curse. We need hardly say that this instalment is well worth reading. Mr. Jas. Keiller, B.A., of the Collegiate Institute, Ridgeway, writes of the Importance of Geography in Commerce. The statement implied by the title is not likely to be disputed, and yet many statesmen, men of business and teachers act as if they did not believe in it. Mr. Keiller undertakes to exemplify its truth by answering some practical questions. The editor pays a deserved tribute to the late Principal Grant, all whose great powers, fruitfully exerted before, were yoked together harmoniously for the good of Queen's University. The *Monthly*,

Most of the discussion of the terms on which peace was brought about in South Africa ignores the

edited by Archibald MacMurphy, M.A., maintains its place in the front rank of educational journals. (Canada Educational Monthly Publishing Company, Limited, Toronto.)"—Montreal Gazette.

Regulations have been issued by the Education Department, providing aid for public school libraries, chosen in accord with a catalogue arranged by the department. The grant is limited to \$10 a year, and within that limit to half the amount spent by the trustees, and in case the Legislature does not make a sufficient grant, the aid will be distributed pro rata. The departmental catalogue includes biography, history, geography, travel, mythology, fables, elementary science, citizenship, etc., but the new regulations will not interfere with the right of trustees to purchase at their own expense books outside this list. The principal of the school is the librarian. Applications for aid must be made yearly through the inspector, accompanied by information regarding books purchased, with such vouchers as required from booksellers.

School trustees have no right to dictate how many evenings in the week a young woman may "keep company," whether with a permanent and recurring beau or with various and fugitive beaux, although the young woman may be a teacher in the school over which the trustees have jurisdiction. At least this is so in Tennessee, where a court has just awarded a teacher her salary for a year, although in the middle of it she was dismissed because she went too much into society and entertained too many

visitors during the evenings. Besides denying the right of the trustees to dictate in any event, provided the teacher properly performed the duties of her position, the court specifically states it as its opinion that "three nights in the week are not too many to devote to social enjoyment, whether the lady's beau calls on all three evenings or she divides her time in various ways."

The climate of the Klondike is not so black as it has been painted. According to Director R. F. Stupart, of the Meteorological Service, the average annual mean temperature is about 22 degrees; the mean of the three summer months is about 57 degrees, July being 61 degrees; and of three winter months, 16 degrees below, with January 23 degrees below. Spring may be said to open towards the end of April, the last zero temperature of the winter usually occurring about the 5th of this month. May, with an average temperature of 44 degrees, is by no means an unpleasant month, and the 23rd is the average date of the last frost of spring. Daily observations during five summers indicate that on the average the temperature rises to 70 degrees or higher on 46 days, and to 80 degrees or higher on 14 days; 90 degrees was recorded in Dawson in June, 1899, and 95 degrees in July of the same year. These temperatures, with much bright sunshine and an absence of frost during three months, together with the long days of a latitude within a few degrees of the Arctic Circle, amply account for the success so far achieved by market

gardeners near Dawson in growing a large variety of garden produce, including lettuce, radish, cabbage, cauliflower and potatoes, and warrant the belief that the hardier

cereals might possibly be a successful crop, both in parts of Yukon Territory and in the far northern districts of the Mackenzie River basin.

CURRENT EVENTS.

Whatever consonant sounds are best to choose, the vowels at least should approach modern Italian vowels. Everyone is agreed on that—except, it seems, a headmaster and an inspector of schools in New Brunswick. It is to be hoped, in the interest of sound learning, of good taste, and of respect for common sense and elementary knowledge, that that province will not go back to a comparatively recent corrupt English method, abandoned now in English authoritative books, unknown in any university of note in the United States or Canada, and a subject of amusement to every nation of cultivated beings on the face of the earth.

Strange, if New Brunswick, or any one in New Brunswick, should be so far behind Nova Scotia; where that now discredited English insular method of a couple of centuries is forbidden. However, we know that the University of New Brunswick has respect enough for what is better and wiser not to have kept this up. It is to be hoped that the Education Board will not take a foolish and indeed ignorant step backward.

The Department of Education, New York, have selected Mr. J. C. Rogers, B.A., Principal of Hawkesbury High School, for an important appointment in English in the

Commercial High School, Brooklyn, N.Y. Mr. Rogers is a Victoria county boy, who has steadily worked his way up. He is a graduate of Queen's, of '94, with first-class honors in English, and has done considerable post-graduate study in New York.

The Treasurer of Wycliffe College received a short time ago a cheque for \$3,000 from Jas. F. Robertson, Esq., St. John, N.B., for the endowment of scholarships, which the College Council has decided to call after the name of the generous donor.

The following statement is made by Mr. Havelock Ellis from the study of eight hundred and fifty-nine men and forty-three women of note in Britain. The upper and middle classes, according to Mr. Ellis, are rich in geniuses. The country and small towns produce genius more often than cities, and the clergy father the most distinguished children. Geniuses tend to come of large families, to be the children of elderly parents, to be precocious, feeble in health in early life, but fairly long-lived. They have usually excellent education; a large proportion travel extensively in early years. There is among geniuses a tendency to remain unmarried or to marry late in life.

Persons of unusual intellect are often subject to gout, asthma, or angina pectoris (nervous diseases), to stammering, melancholia, or insanity.

England, Scotland, Ireland, Wales Dominion of Canada, Commonwealth of Australia, Newfoundland, New Zealand, Ceylon, Cape of Good Hope, Barbados, Natal, Windward Island, Sierra Leone, Guiana, Gold Coast, Trini-

dad, Nigeria, Leeward Island, Uganda, Jamaica, Transvaal, Honduras, Rhodesia, Bahamas, Orange River, Bermuda, New Guinea, St. Helena, Straits Settlements, Fiji Islands, Hong-Kong, Falkland Island, Wei-Hai-Wei, Cyprus, Malta, Aden, India, Perim, Gibraltar, Mauritius. A shorter expression for that roll of names is the British Empire. Egypt and the Soudan are not included for courtesy's sake.

SCHOOL HYGIENE.

Helen MacMurchy, M.D.

The Story of the Bacteria. By T. Mitchell Prudden, M.D. 75 cents. New York and London: G. P. Putnam's Sons. Dust and Its Dangers. *Ibid.* 1901. 75 cents. Drinking Water and Ice Supplies. Second Edition. 1901. *Ibid.* 75 cents.

These three handbooks are practical and sensible, clearly written and full of valuable information which should be, but is not yet, the common property of every intelligent citizen. Especially should anyone responsible for a home, (and we should all be educated so as to be able to take our share of that responsibility) be possessed of this information. As books for school libraries, or rather, perhaps, as books for teachers' libraries, so that teachers might make them the basis of talks on hygiene to their classes, we consider these books admirable. "Drinking Water and Ice Supplies" deals with this most important subject in a broad, satisfactory manner, so that householders and others living in the town and country, as well as

in the city will find their needs and difficulties in regard to obtaining pure water are carefully considered.

The Cost of Living. By Allen H. Richards, Instructor in Sanitary Chemistry in the Massachusetts Institute of Technology. Second Edition, \$1.00. New York: John Wiley & Sons; London: Chapman & Hall.

This is a good book on hygiene in a wide and comprehensive sense. It is at once so full of good sense and such an antidote to inherent stupidity that everybody should read it. Plain living, high thinking, and the adjustment of the household economy to modern claims and ways of doing things are dealt with in these pages in a wise and true spirit. We can only repeat that everybody should read it.

Handbook on Sanitation. By Geo. M. Price, M.D. 1901; \$1.50. New York: John Wiley & Sons; London: Chapman & Hall.

The author, who is Medical Sanitary Inspector of the Depart-

ment of Health, New York City, is well qualified for the work he has undertaken in writing this book. It is comprehensive, practical, clear, and concise, and contains the latest information on sanitary law and practice. Disease and death are so directly caused, in many instances, by dirt and overcrowding that a book like this should be read and studied by every intelligent citizen who wants to do his duty to himself and others.

From Attic to Cellar. By Mrs. E. F. Holt. Salem: The Salem Press.

This little household handbook is thoroughly in accord with sanitary science and very practical. It is full of useful hints on domestic economy.

Dangerous Trades. Edited by Thomas Oliver, M.D., F.R.C.P., London: John Murray.

This volume deals with the historical, social and legal aspects of industrial occupations as affecting health and will no doubt be the standard work on these subjects, and as such should be placed in all reference libraries. The editor is well known as Medical Expert to the Home Office and Professor of Physiology in the University of Durham. No less than thirty-eight experts have assisted him, six of whom are women, and the volume is to be heartily recommended to all who are interested in social and commercial questions.

The Annual Report of the Chief Inspector of Factories and Workshops for the year 1900, recently presented to both Houses of Parliament by command of His Majesty, contains much food for thought. The number of cases of lead poisoning in 1899 was 1,258,

and in 1900 it was 1,058. In 1898 and 1899 no cases of arsenic poisoning were reported, but in 1900 there were 22, 3 of which were fatal. Systematic medical inspection of work-people has been found of great benefit. There were 79,020 accidents in the factories and workshops of Great Britain in 1900, of which 1,045 were fatal. The reports of the lady inspectors are very interesting. But the Blue Book, while it records progress, reveals a terrible state of things among the very poor.

The Journal of the Sanitary Institute, London, England, contains in its last quarterly number a valuable report on the Teaching of Hygiene in the Schools and Colleges of the United States of America, by Alice Ravenhill. Miss Ravenhill was specially commissioned for her task by the council of the Sanitary Institute. The Education Department, and the Technical Education Committee of the West Riding Yorkshire County Council, and her report deals with

1. The Training of Teachers in Hygiene.
2. The Teaching of Hygiene in the Schools.
3. Other Provisions made for the Health of the Scholars.
4. Abnormal and Sub-normal Children.

This report takes up so great a variety of subjects closely related to educational interests, and is at once so full of information and so suggestive that we hope it will be widely read in Canada and that the educational authorities in this country will endeavor to procure copies for inspectors and others who would be interested in this subject.

BOOKS AND MAGAZINES.

The long story in the August St. Nicholas is a capital railway story for boys, called "Tom Jarnagan, Junior," written by Francis Lynde.

The August Century is a fine number, containing short stories by Edna Kenton, S. Weir Mitchell, and Frederick Palmer; poems by Joel Chandler Harris, Bliss Cushman and William Watson. Amongst the articles of general interest may be mentioned P. T. Barnum, Showman and Humorist.

Mr. F. Hopkinson Smith's serial, "Oliver Horn," is concluded in the August Scribner; and a most charming beginning is published of Barrie's new serial, "The Little White Bird." If it is continued as finely Mr. Barrie's public will have much to be grateful for. The short stories are particularly good.

Mr. Balfour is the subject of the first article in the August American Monthly Review of Reviews, a very interesting account is given of him by Mr. A. Maurice Low. Other articles are on M. Bloch, and G. F. Watts.

One of the most interesting contributions to the August Cosmopolitan is Herbert George Wells and His Work, by E. A. Bennett, who gives much importance to Mr. Wells' powers of scientific prophecy.

The Youth's Companion have begun the publication of a series of Tales of a Mississippi Pilot, by H. S. Canfield, the second of which, "The Coming and Going of Sing-song Eph," appears in the issue for the 31st of July.

The Living Age for August 2nd contains a very good short story by the same Mr. E. A. Bennett, entitled "A Feud in the Five Towns," which was originally published in the Cornhill Magazine.

The August Atlantic is as usual a fine number of this excellent magazine. There are two almost remarkable short stories: "A Night's Lodging," by Arthur Colton, and "The Cane of Adullam," by Alice Brown, besides others of not quite so high a note. "The Revival of the Poetic Drama" is by Edmund Gosse; and "The Short Story," by Bliss Perry. Duncan Campbell Scott contributes a poem called "Rapids at Night," and Mr. A. C. Merwin a very interesting account of Bret Harte.

The first article in the July Studio is devoted to the work of an American painter, Mr. Eric Pope. It is written by Miss Regina Armstrong, and is illustrated by reproductions of many of his paintings. The International Exhibition of Modern Decorative Arts at Turin is the second contribution to the same number; and the third is six exquisite drawings by Tony Grubhofer of different scenes in London. Recent Domestic Architecture and Home Arts and Industries are other important contributions.

Home and School Library. Editor: LAURIE MAGNUS, M.A.; publisher: Mr. John Murray, Albemarle Street, London, England. The following three books are from this long-established publishing house: "Plato's Republic," 2s. I. M. Campbell, M.A., LL.D., Professor of Greek, St. Andrews;

Honorary Fellow of Balliol College, Oxford. In regard to the *Plato*, all intelligent men can heartily join. In the words of Jewett: "His truth may not be our truth, and nevertheless may have an extraordinary value and interest for us." In the preface the author states that he was encouraged to hope that he might be able to say something worth printing, on a subject which has been more or less familiar to him for fifty years. In our humble opinion, what he has done in this modest book is well worth printing and reading.

Introduction to Poetry. LAURIE MAGNUS, M.A., Magdalen College, Oxford. 1s. 6d.

This book is not intended to teach its readers to write verse. "Its object is to stimulate a reasonable pleasure in poetry." It is well calculated to do this. The criticisms are well founded, and the reader will find them reliable. We cordially commend the volume to our teachers of English in our public and high schools.

The Face of Nature. REV. C. T. OXENDEN, D.D. 2s.

The subjects are: Weather Forecasting, Vegetable Life, The Record of the Rocks, the Story of a Common Stone, and an Appendix. A book well calculated to induce habit of observation and the love of reading—qualities of the very highest importance, and which every true educator strongly desires to see established in his scholars.

From the *Cambridge University Press*.—"Madame Therese," by Erckmann-Chatrian, recited with introduction and notes by Arthur Reed Ropes, M.A. ("Pitt Press" series.) If this is scarcely the

most important or most interesting of the Erckmann-Chatrian stories, it possesses qualities that render it excellently adapted for school purposes. The style is easy and colloquial, and the historical element is never introduced to such an extent as to become tedious. The work has been carefully edited by Mr. Ropes, who has contributed a well-written introduction and some highly serviceable notes. A map also adds to the usefulness of the volume, which, like all the Cambridge University Press productions, is remarkably neatly printed and bound.

A First Course in Chemistry. J. S. LEONARD, B.Sc., (Lond.) John Murray, Albemarle Street, London. 1s. 6d.

This is a beginner's book in chemistry, as much as possible, based upon the heuristic method of learning and teaching. Teachers ought to be benefitted by reading a book so carefully prepared for use in the schoolroom, and self-taught learners will find it helpful to them in their efforts to acquire a knowledge of chemistry.

Gage's Manual Training Series. Cardboard modelling, by Albert H. Leake and William Brown, Toronto. W. J. Gage & Co.

The authors are respectively Director for Ontario, and Superintendent for Ottawa of the Macdonald Manual Training Schools, and their aim has been to write a hand book that may be used by teachers in Ontario in introducing manual training into their classes. In this we think they have been successful. Information is given in a definite and satisfactory manner and every step fully explained. There is an excellent introduction by Mr. Jas. W. Robertson of Ottawa.

Nature Study and Life. By CLIFTON F. HODGE, Assistant Professor of Physiology and Neurology in Clark University, Worcester, Mass. With an introduction by DR. G. STANLEY HALL. 12mo. Cloth; 514 pages; illustrated. List price, \$1.50. Ginn & Company, Boston, New York, Chicago, London.

This book contains the results of five years' special study. In the point of view, in the selection of the subject-matter, and in the presentation of methods of conducting the work, this book marks a definite advance over other publications on the subject.

It is a determined reaction against the special and technical, and forms an earnest effort to give fundamental and universal interests in nature their deserved place in our system of public education. Many of the suggestions found in it have been adopted in public schools.

This book is a 12mo. bound attractively in blue and gold, so that the volume is appropriate in appearance not only for the schoolroom, but also for the home reading table or bookshelf. The illustrations are of unusual value and interest. It is a notable book.

Bilingual Teaching in Belgian Schools. By T. R. DAWES, M.A. London: C. L. Clay & Sons, Cambridge; University Press Warehouse, Ave Maria Lane, 2s.

This volume is the report of Mr. Dawes, a Gilchrist travelling student, presented to the Court of the University of Wales, of what he saw taught in the schools of Belgium, especially in connection with the best method of teaching French, German, and English. This book

of 63 pages only we commend to all teachers of languages. We, in Canada, have many languages to deal with in our schools, and all those engaged in this very important work need all the reliable information they can lay their hands on. Mr. Dawes, who is a teacher, supplies such information.

Elementary Experimental Chemistry (inorganic). W. F. WARSON, A.M., Professor of Chemistry and Biology. Freeman University, S.C. Barnes & Co., New York. \$1.25.

A noteworthy feature of this book is the full-page illustrations, which have been made with much care. The book is intended for students in high schools and juniors in colleges.

Titian, No. 8, Riverside Art Series. MISS HURLL. Houghton, Mifflin & Co., Boston, U.S. Paper, 30 cents.

Miss Hurl's work in this book is similar to that in the seven other volumes of the series, all of which she has written or edited.

The Arithmetic of Chemistry. DR. WADDELL, School of Mining, Kingston, Ont. The MacMillan Co., New York. Geo. N. Morang & Co., Toronto. 90 cents.

Dr. Waddell is a teacher, and has performed the duties of an examiner on several occasions, hence this book has been prepared by him to aid learners to solve the difficulties they meet in their attempts to make chemical calculations. Teachers and students will find an aid for acquiring accurate knowledge of chemistry in this volume of 138 pages.