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OCTOBER, 1895.

MODERN PSYCHOLOGY.

BY JOHN A. MACVANNEL, COLUMBIA COLLEGE.

IN the following sketch of Psychology the attempt is made merely to indicate in a general way the rise of the modern science (and Psychology as a science is quite modern), the principal names in connection with this development, the phenomena which are to be regarded as constituting its province, and the methods employed. To further the science we should welcome assistance from whatever quarter it may come. From experiment, from the mind of the child and of the savage, from the results of virtue and vice; even the insane and the idiot reveal to us something of the miracle of human intelligence—and the animals also will tell us much. But all these phenomena must receive their interpretation through the consciousness of the normal adult human mind. Psychology as a science is but initial; but it is the science of the future, inasmuch as its terminus is normal and ideal man—the complete and adequate idea of man.

Perhaps the greatest boon for Psychology at present (as for many other sciences) would be the resolution on the part of Psychologists to try to understand one another; and perhaps the next would be an agreement with regard to psychological terminology;

which, being so mixed up with that of our common life, may never reach the accuracy and precision attained by the sciences of nature, although these are in a measure subject to the same difficulty. Psychology, which at present, if slowly, is beginning to orientate itself as a science, needs a terminology which should comply with, at least, the two conditions of (a) accuracy and (b) general acceptance. If we are to have a Synthetic treatment of Psychology, terms should as soon as possible be agreed upon which will represent the indivisible elements of mental phenomena. In the Science of Physics it is understood that by the atom is denoted the as yet undivided particle of matter. So, too, the element of Chemistry—which alone of the Natural Sciences furnishes us with a process comparable to the Psychological ultimate or element—is quite definitely understood. In like manner the terms we employ to designate the elements of the phenomena of mentality, should have in them lurking no underlying hypothesis of the nature of the self, mind, transcendental soul, etc., all that is assumed—as in the other sciences—being (a) the admitted existence of certain

phenomena and (b) the possibility of analysing them. The old conflict between materialism and spiritualism (so far, at least, as Psychology is concerned) has quite worn itself out. Psychology tells us of concrete mentality—describes the life we live as conscious beings—but it tells us nothing of the mind's ultimate nature. To tell us this is the province of Ethics, Metaphysics and Theology.

When the mind of Greece was turned inward, it found there a complex group of phenomena, and, as it had already done with the experiences of natural objects, at once began a comparison between these, putting together the like and separating the unlike, sorting into divisions and ending in finding several distinct groups. Accordingly, whilst the underlying unity was never lost sight of, yet it was natural to suppose that the soul possesses as many separate functions as there were groups of phenomena left unresolvable by observation. Such a procedure was the beginning of the later doctrine of mental faculties. Plato first among the Greeks 'separated' mind from body. His threefold distribution of the human faculties into Reason, Impulse and Appetite was made rather from an ethical interest, than as a result of accurate observation. Though schematic, it gave some semblance of order, and afforded a starting point at least for Psychology.

Aristotle (in his *De Anima*), gathering up into one the work of Plato and his predecessors, may be said to have laid the foundation of Psychology. In his treatise we find the struggle of two methods for the mastery. He attempted to make Psychology a Science on its own merits, separate from Ethics and Metaphysics; but his mind was so permeated with the system of Philosophy, begun by Socrates and

carried further by Plato, which finds the explanation of what *is* in what *ought* to be, that his entire Psychological doctrine is *informed* with ideas brought from the sphere of Metaphysics; yet, through his keenness of observation, and his search for the causal connection, he seems to have caught a glimpse of a distinctively modern doctrine. He conceived the development of the soul as running parallel to that of the body; the physical functions as organic to the mental; and his method in the *De Anima* is apparently, at least, a biological-developmental one. The sensitive (vegetative), the connotative, and the intellectual, were not so many different parts into which soul is divided—but only different sides or aspects of mental action. It is the same soul that manifests itself in these various forms of psychical activity—the unity in which they are all embraced—as he says in the *Metaphysics*.

Aristotle, while giving independent functional value to Intellect and Desire, subordinated feeling to these; and this two-fold scheme remained long the prevailing one. It survived in Reid's "Intellectual and Moral Powers," and in the common sense Psychology of every day life. This overlooking of feeling as a separate phase, Sully attributes to its special inaccessibility to observation. Leibnitz looked upon feeling as a vague or imperfect cognition. The German Psychologists of the Wolffian School first recognized feeling as a phase of mind co-ordinate with Intellect and Will. Wolff was the originator of the so-called theory of mental faculties. Kant adopted the tripartite division and his authority, until Herbart's coming, seemed to exercise a Medusa-like influence on those to whom the doctrine was preached. Yet, after the general recognition of the fundamental distinctness of feeling, by some the three modes of mental function

were not regarded as equally primordial and independent. In the history of Psychology the same attempts to derive one from the other have been made as are made at present by such Psychologists as Horwicz, Spencer, Münsterberg and Külpe.

Opposition to the theory of mental faculties developed chiefly along two lines :

(1) That followed by the Physiological explanation of mental life, which in its extreme form became a proposal for a psychology without a soul. Thought, Sense and Ideas were to be Physiological functions of certain organs within the nervous system.

(2) The searching criticism of the theory by Herbart and his followers who rejected it entire: not, however, in the interests of a scientific account of mental phenomena but of a Metaphysical doctrine of the soul's unity, reducing all its functions to the generic type of "ideation."

Psychology, if it is to justify its claim of being a science, must furnish us with two things: (a) Accurate description of its subject matter, and (b) theory. So far in the history of Psychology, it has been almost entirely taken up with mere description. The proper end of scientific investigation—*i.e.*, the uniformities of the relations to one another of the phenomena of mental life—has been scarcely more than hinted at. Külpe of Leipsic, attributes this lack of progress in Scientific Psychology to ignorance of the dependence of mental on bodily processes. It may be added that until the time of Fechner every inquiry in Psychology was, from the outset, bound up with some metaphysical hypothesis, spiritual or materialistic. The chief conditions of the rise of the Modern Science of Psychology (if we should call it modern.) may be conveniently summarized :

(1) The general effort of the sciences to throw off unnecessary metaphysical assumptions.

(2) The searching analysis of Herbart and his school of the doctrine of mental faculties, which discredited or greatly modified the earlier theory.

(3) The study of psychic facts in the light of the conception of development.

(4) The study of sensori-motor activities by Physiological Psychology.

A Scientific Psychology may be said to have begun with Fechner's (*i.e.*, about the middle of the present century) notion of the definite functional correlation of psychical with physical processes. Prof. James says it is in the same state of advancement as astronomy before Copernicus. Gradually, however, it is beginning to assume among the others *den sicheren gang der Wissenschaft*. To Biology is due the conception of development; the old doctrine of the disparateness of mind and body (Plato, Descartes, etc.) is being modified, and more and more is coming to be recognized the mental life as an organic unitary process which develops according to the laws of all life. The mind is no longer regarded as a mere stage for the play of so many independent faculties, nor yet a soulless rendezvous in which isolated atomic sensations and ideas gather, hold a sort of *external converse* and then, departing, leave naught behind.

The phenomena of mind resemble the phenomena of matter, in that they are ordinarily of a complex character and are necessarily and always connected. "Experiences" may be taken as the general designation of the facts about which all sciences busy themselves. Psychology as to its subject matter has this peculiarity and pre-eminence over the other sciences, that the experiences are those of experiencing individuals. The means are (1) observation (2) experiment. Observation in Psychology is termed Introspection.

The conscious-content (*i.e.*, the immediate experience of an experiencing individual) furnishes all the attainable data for the science. Of this experience—to be scientific—an absolutely impartial consideration must be given. For Psychology consciousness can be no existence or abstract form of mental life apart from all actual psychic facts. As Münsterberg says: "That which is immediately given in inner experience is neither a material world nor a soul, but simply consciousness, the consciousness of a definite content." We may define consciousness as the collective name of the mental processes which exist for an individual at any moment; in other words it is *all* of the conscious content at that moment—and nothing beyond this. The problem then of Psychology is the analysis of concrete mentality, in order to discover the ultimate elemental processes (analysis), and the laws of their combination into the concrete-complex of the mental life (synthesis). Such a procedure would deserve the name of Scientific.

Mental life, as a fact of observation, is given us only in constant connection with bodily life. Observation supported by experiment shows that the two maintain the most intimate relations to each other. It is agreed by all that the general physical condition of all mental states, which are data for Psychological Science, is the existence and the activity of the human nervous system. This relation of dependence is thought to be completely realized, although in great measure it can only be hypothetically maintained. It is inconceivable how a sensation can be derived from a motion (as one motion from another), and so for the most part at present, we speak of a "Parallelism" of the psychical (intellect, feeling, will) and brain process; *i.e.*, we conceive of

them as phenomena which accompany one another, of such a character that each change on the one side expresses itself in a corresponding change on the other. This principle of Psycho-physical parallelism would seem to furnish us with a regulative principle of scientific procedure in Psychology. We know, *e.g.*, that the sensation "blue" depends on the excitation of a definite sense-organ. Yet much at present must be presupposed, and in support of such a theory we can only await the increasing confirmation of experience.

In the developed human consciousness—which forms our only starting point—we discover the interplay of three categories of psychical fact or processes, which we name for the present: (1) Sensation (or Presentation and Representation—corresponding to the Intellectual faculty of the older Psychology); (2) Affection (Feeling—the generic fact of which agreeableness or disagreeableness are the forms); (3) Conation (Will, fact of effort or resolve). Thus we sense the red color of any object, we are pleasantly affected by it (the thrill of the entire organism) and conate the action of seizure. Many Psychologists deny the ultimate character of either one of these three constituent processes of consciousness; some attempting to derive affection and conation (*i.e.* Feeling and Will) from sensation; others attempt to derive all else from affection as the original of mind. Extremes in any case should for the present be avoided. The above division of mental processes only the increasing confirmation of experience can justify, or "inflexible" outstanding facts condemn. The conscious-content seems to be made up of these three ultimate processes, sensation, affection and conation, and whilst these three are one, sensation is not affection, nor affection, conation, nor conation sensation.

A LIBERAL EDUCATION.

BY REV. J. ELLIOTT, OTTAWA.

(Continued from last issue.)

NOR is it merely along lines of material discovery and material invention that the influence of the completest culture is being felt. Alongside of that, and, perhaps, facilitated by that, have originated world-embracing plans for human betterment, or for highest human well-being. The rights of humanity are being considered with a view to their adoption as a part of the creed by which we live. Human brotherhood is writing itself in characters of living light and living heat on the hearts of earth's best. All this is finding expression in self-denying efforts for human good.

Again this really liberal education gives power among men. The slightest investigation would convince us that power has fallen, is falling, and will for ever fall into the hands of those who have brains that can think and hearts that can feel for the rest. They have developed their latent powers. They have utilized the grand heritage of truth bequeathed to them by the upward struggle of the ages. They know how to put the mind in the right attitude toward truth. Hence, power has fallen into their hands. This has been always so. It is, I think, more so to-day than at any preceding period of our world's history. Aristocracies of birth are crumbling to dust, or sinking into mental and physical imbecility; aristocracies of mere wealth are becoming a menace rather than a blessing to our civilization. Aristocracies of mere uncultured genius lack what might be called the element of reliability. They are strangely erratic. The world is beginning slowly but surely to recognize the aristocracy of

thought. The men who have the deepest insight and the most heroic courage ever rule the world. The world could get along without some of its crowned heads, some of its members of parliament, who are supposed to frame its laws; but the world could not without greatest hurt to itself part with one of its seers.

There is still another result of liberal education at which I would briefly glance. It is that it gives dignity to the essential nature of the individual, a kind of moral or spiritual, or inherent value against which we can weigh no equivalent. You can tell at a glance the thoroughly developed man. His breadth of view, his depth of insight, his nobility of purpose, his purity of motive, his equilibrium of nature, his complete self-control, his freedom from prejudice, his freedom from superstition, his toleration, his broad philanthropy, his patience, his self-denial, his hope, in one word, his developed manhood. All these shine out with a bright yet tender radiance which marks him as a man who has reached the mountain top of human development, whose brow is bathed in eternal light and whose heart is hallowed by eternal love. Liberal education, then, is most desirable. It develops our manhood. It, and it alone, can raise us to the highest standard of manhood possible to us. It, and it alone, can make us the greatest possible blessing to society. It, and it alone, can draw out of that curious body of latencies—the human mind—the good therein contained. It and it only can effectively correct the evil. It and it only can give the soundest judgment, the most varied

pleasures, the broadest sympathies and the highest life ideal. But a question here meets us, namely, how is it to be secured? This naturally leads us to think specially of schools and colleges though there are other agencies which play a very important part in human education.

Schools, I think, should not be unscientific, happy-go-lucky places where a young woman of, say, twenty years of age manages to keep, say, thirty children happy, or miserable, or quiet for, say, three hours in the forenoon and for an equal length of time after dinner; though I am free to confess that I am thoroughly convinced there is a greater educational influence in keeping children happy, miserable, or quiet, than in chaotic confusion and disorder. Each school should be a psychological observatory, where teachers with rare insight practise the art of discovering the latent capacities of each pupil, and then of applying with rare skill such sympathetic impulse as each pupil needs in order that those latent capacities may be completely developed. I know the work I would assign the teacher is exceedingly difficult. I know that the importance of the teacher's work has not yet dawned upon society as a whole. I know that the teachers of our children, like most intellectual servants of mankind, are neither honored nor paid as the importance of their work would justly demand. I am not certain that the importance of the work of training the rising generation in the most plastic and formative period of their history has been duly considered by teachers themselves. Our public schools have very much to do with the progress of our nation. Our public school teachers should, like poets, be born not made, or rather should be born and made. I may be mistaken but I think that those who teach in our schools should make teaching their life work,

and so devote their life's best energies to it. I do not think it should be made a mere convenience as a stepping stone to something regarded as higher because humanity is willing to pay more in hard cash for it. But I fancy the public can settle that question, or that the question will settle itself, when the people attach to teaching in our public schools a salary on which a man can comfortably live. We need not be afraid to risk our cash, for in the intellectual development of our sons and daughters compound interest on compound interest will be the rate and usage of this exchequer. Our public schools, then, are of the utmost importance. Inferior work done here has its blighting influence for life. Good work done here inspires to higher work; and prepares the pupil for the more advanced studies of our higher institutions of learning. At the work of those higher institutions of learning in the development of the human mind I would glance a moment.

Toward this higher development of humanity College training *should* be, and, when things *are* as they *ought* to be, *will* be *very* helpful. Contact with *living, thinking* men, who are themselves in most perfect sympathy with the main stream of 'the world's intellectual life; contact with men who have reached intellectual waters to swim in and who are not afraid to try the ocean under the guiding eye of their God; contact with living, thinking men who, I will not say, know everything, but who do understand the subjects they teach, and who can impart their knowledge must be very helpful to the student. Teachers in our higher institutions of learning should be men of breadth of view, depth and thoroughness of culture, together with the sublimest dignity of nature. Contact with such men is like the breath of the morning—both pleasant, invigorating, and inspiring.

Contact with such men gives a charm to study, and casts a spell upon the student's mind which mysteriously impells him to attempt and to achieve intellectual feats of which, under ordinary circumstances, he would never have even dreamed. Put mediocrity in the professor's chair and you curse the rising generation. There will then be no liberal education except in spite of the influences which should secure it. The earnest student may be greatly aided or greatly retarded by his environments; especially so, when it is environment from which he has learned to expect so much. True his mind is not moulded as an earthen vessel in complete passivity, by the hand of the potter. There needs to be spontaneous and hearty co-operation on his part. But for that very reason, there should be in the professor's chair that pre-eminent ability which commands reverence, and that helpful inspiration which secures co-operation. Great teachers never teach a book; they are more than a hundred books combined. No great teacher will permit his student to merely study a book. He will teach him how to rethink the book. But he will teach him vastly more. He will teach him how to reflect on the subject in such a manner as will enable him to correct the book where necessary and thus he will place in the hand of the student the key to all successful study, the key to self-education, which all true education in the last analysis must be.

I would in conclusion offer a few observations on what the student must do for himself, if he would be liberally educated. Every student should set before himself a very high ideal. He should aim, not at a petty intellectual fastidiousness, and not at what some one has aptly called "a fine ladyism of the intellect." For these grow most luxuriantly on the thin

and artificial soil of minds at once vain and second rate. College life should ring the death knell of all such fastidious littleness and at the same time ring the birth peal of a nobler, manlier tone of thought.

"Greatly begin, though thou have time
But for a line, be that sublime—
Not failure but low aim is crime."

The honestly and modestly aspiring student should remember that our world is full of noisy mediocrity, often assuming the dress of true and developed greatness with most indifferent results. He should ever remember that where slipshod work is done the results must ever be indifferent, and that wherever the best work is done time will forever disclose the best results. The mere surface effort may produce intellectual fireworks of varied color and dazzling brightness for the moment, and for the moment only, to be succeeded by the darkness of disappointing failure. But thorough intellectual work will secure perennial and eternal light. Indeed, the surface student may at first seem to eclipse his slower, because more thorough, brother. But he is never sure of his ground and soon falls behind in the race, while his slow but thorough neighbor stands an undisputed first.

"As lamps set high upon some earthly
eminence,
And to gazer, brighter seem than the
sphere-stars they flout,
Dwindle in distance, and die out
While no star waneth yet;
So through the past's long searching
night
Only the sphere-stars keep their light."

He, who would be liberally educated, must aim to do the highest work and to do it well. The man who desires a liberal education should never be in a hurry. Hurry is the ambitious young man's danger. He

wants to get through. He wants to get to work. He, perhaps, feels financial pressure. One of our greatest educational curses is hurry. Fathers and mothers want their children's education rushed. They forget that from its very nature it cannot be successfully rushed. They forget that an attempt to rush it, mars it.

"We have not wings that we might soar

But we have feet to scale and climb
By slow degrees, from more to more
The giddy summits of our times."

The true student should never hurry. When he meets a new word, he should take time to ascertain its meaning. He should do this thoroughly. Then it is his word. He can use it with confidence. No student should need a dozen introductions to the same word. When the student reads a sentence he should be at the pains to understand it. He should leave no paragraph till he has mastered it. Such work may be slow but it will be enduring. It but seems slow. It is the quickest method of securing the ultimate result.

It may be said that I mark out for the student a pathway which if he would tread he must put forth effort, exercise patience, and believe in this respect at least in the perseverance of the saints. I do. I would not deceive myself. I would not deceive you. The way to the highest is through persistent, patient, hopeful work.

"The place by great men reached
and kept

Was not attained by sudden flight
But, they, while their companions
slept,

Were toiling upward in the night."

Once more, we should remember that our education is never completed. Unfinished, untouched curricula live everywhere about us. When we have

done our best, we have but picked up a few pebbles on the shore. Oceans unexplored lie still before us. There should be no pride of intellect. Indeed, the conceit of knowledge is most vigorous in those who have recently learned a few elementary truths, and a few only, and they but half-learned, just as spiritual conceit is found in its purest form in men whose religious experience is of a rudimentary and undeveloped kind.

Above all things, let us remember that our education liberal or otherwise, is not for our aggrandizement, but a talent to be unselfishly, patiently, cheerfully and untiringly used for the greatest good of our fellowmen. It is good and pleasant, on this sombre earth, during this dark life, brief passage to something beyond, that the servant of ignorance should be light.

The most cultivated minds are usually the most patient, most clear, most rationally progressive, most studious of accuracy in details, because not impatiently shut up within them, as absolutely limiting the view, but quietly contemplating them from without in their relation to the whole.

This adaptation to the humblest wants is the peculiar triumph of the highest spirit of knowledge.—
James Martineau.

Condemn no man for not thinking as you think. Let every one enjoy the full and free liberty of thinking for himself. Let every man use his own judgement, since every man must give an account of himself to God. Abhor every approach, in any kind or degree, to the spirit of persecution. If you cannot reason or persuade a man into the truth, never attempt to force a man into it. If love will not compel him to come, leave him to God, the judge of all.—*John Wesley.*

RELIGION AND EDUCATION.

A SERMON P^r EACHED BY THE VERY REV. DEAN CARMICHAEL, D.D., D.C.L.

Text—St. Luke, chapter x., verse 27.

“**T**HOU shalt love the Lord thy God, with all thy heart, and with all thy soul, and with all thy strength, and with all thy mind, and thy neighbour as thyself.” No student of the times—of the day and hour, can fail to realize that we are living in a period of marked discontent with the foundations and framework of society as it exists, widespread discontent, breaking out at times into widespread antagonism between class and class; the routine work of the world going on, under a varied voiced protest that at times speaks out in tones that augur mournful things as far as the future peace of society is concerned. And underneath this discontent, there exists, in some countries, a conspiracy of lawlessness that is wholly destructive in its hopes and actions, that exists to tear down and stamp under foot all existing institutions, divine and human, and that if successful in its policy of remorseless destruction, could not fail in time to reduce society to a state of social chaos, in which evil, as we now understand it, would be regarded as the highest good, and the highest good as the worst form of evil. Now, there never yet has existed a widespread and multiform spirit of discontent between class and class, between master and servant, between employer and employed, that there has not also existed a certain amount of realizable cause for such discontent, and such cause or causes left unremedied may result in the most serious complications, if not in open public antagonisms. This fact the wealthier and more educated classes of society are apt to forget, and hence, as in the

present day, they under-estimate the ever-increasing force and power of what is socially called the “lower classes.” They forget that free education, ever increasing the area of its irresistible influence, is steadily permeating the class that in days gone by was almost wholly uneducated, and that, whilst that class in its daily work and toil remains much the same, a mental change is sweeping over it, unexampled perhaps in the history of man. If education goes on as it is going, it will be almost impossible in seventy-five or a hundred years from this to gather together in civilized countries such a crowd as tore down the walls of the Bastille in 1789. You might have the bitterness of heart, and the brutality of action intensified, and the suffering and starvation equal, but every man in such a crowd will be able to write his name, and read his paper, and go to his work of spoliation as an intelligent being, instead of being whirled to it as an atom in a vortex. Now, a great fact like this should not be forgotten, and other facts that are necessarily connected with it. For instance, regarding education as a great social force—in what class is it working with the most powerful intensity? Not certainly in the highest class of social life—for that has ever been fairly educated up to the light of its age, and has also been content with a reasonable kind of mediocrity. In the middle class it is working with magnificent worldly and material effect, bringing its influence to bear on politics, on commerce, on art and science, on all avenues of industry, but it is bursting as a new revelation

—as an irresistible force—on the once uneducated millions; it is steadily cultivating the great brain power that in times past was left untouched; and it is filling the once empty mind of the masses with thoughts and aspirations that are native born to a training intelligence, and that can be no more crippled or confined than the growth of a seed, or the speeding progress of a ray of light. And mind you, these are the millions that the light is reaching, the millions that in times past were only used to dig and delve, to fill up giant armies, to crowd pauper workhouses, to tenant penal settlements—the millions—every man and woman fast growing into a mental as well as a physical power—the millions in due time learning to know as much as the thousands without their wealth—and knowing in time more than the tens—without their nobility; the millions—that the thousands and the tens will yet have to keep under—or, to compete with, or what is most probable, to compound with. Instead of the Danube running into the Black Sea, the possibility is that the Black Sea may rise and overspread the Danube. Is education then a national curse—a secret of social discontent and embitterment of classes—an engine whereby order is to be reduced to chaos, and contentment to confusion? Who dare say so? Education is the right of every man, woman and child; it is the duty of every State to “draw forth” from every subject all the powers that as germs God has placed in them, and to develop their various physical, intellectual and moral faculties. This is the duty of every civilized State. I ask you, is modern civilization fulfilling it? The whole tide of modern civilization, as set going and lauded by middle and higher classes of society, desires either to sweep distinctive religious teaching clean

out of the world's curriculum, or to put it into a corner with a fool's cap on its head. I do not mean by “religious teaching” that of distinctive Churches or sects. I mean the prominent distinctive teaching that may be styled Christian, and that surely in the great public schools of every Christian country should hold the foremost place, with ample time given for its inculcation. The teaching that there is a God, and Saviour, and Guiding Spirit—that God has spoken to man through His Word, that there is a hand that rules the world, that gives me my place in it, and my duty in connection with my place, that my life here should be a life of duty, done towards God and towards man; and that I am responsible for my duty, and will reap its harvest in some shape for weal or woe in that after world of reality into which I, as an immortal being, will yet enter. Surely the poorest child of the lowliest man has a positive right to this moral and spiritual teaching; and that, not in holes and corners and at inconvenient hours, but in open class and in the very forefront of education itself. But no—the very classes that are murmuring at the discontent, and unrest, and widespread and singularly able combinations of the age, are the very classes that have done their best to inaugurate and build up systems whereby the brain is educated—as if it alone were to be “drawn out,” and the moral and spiritual aspects of man's nature largely left untilled. The policy has been this: Cripple churches—pare them down with unsparing knife—disestablish, disendow them all, and when that is done—then we will provide for the education of the brain of the millions, and the Churches can provide for their religious, spiritual and moral training. And then when the masses slowly, yet surely, through sheer

brain culture, begin to feel their power and to say to higher classes—we are as good as you, say it sometimes truculently, and with curses against order and religion and God and man, and Church and State, say it sometimes with increasing volume and ferocity—then the very classes that mainly aided in divorcing God from education lift up their hands in horror at the Atheism of the age, and tirade against the Church as a weak and ineffective institution. In connection with this result, the Protestant wing of the great Church Catholic has much to answer for. No greater anomaly, I think, has ever existed, than that of institutions based on the open principle that the Bible is the foundation of all education, practically joining hands with unbelievers the world over, to make the Bible the least prominent volume of instruction in public education. Of course, it has arisen from the jealousies resulting from the divisions that fester in the breast of Protestantism—in other words—the Bible as the sole basis of human morality, as the one defining voice of duty towards God and man, and between man and man, has been sacrificed as an offering to the spirit of disunion that unfortunately exists within the Church of God. As it is, Christian States throughout the world are speeding on education like some exploring vessel following the known track of ocean passage to a given point, but without chart or hint as to the character of the most unknown and dangerous portion of the journey. If I am only a highly specialized animal, then educate my brain to the full, but if this life is but a step on the journey of my existence, and that there are charts that if followed will lead me into safe anchorage at last—then for mercy's sake give me the benefit of their daily teaching. Discontent there ever has been, discontent, I suppose, there ever will be,

but there is no doubt of it, that the nation which inculcates duty towards God and duty towards neighbour as the foundation of national morality, whilst leaving room for mutual rearrangements of society to meet the changes caused by time, will save itself from the reckless rush of Anarchy and Atheism. But this we can never hope for as long as Christian nations, and Christian Churches, combine in awful unity of purpose to make the Word of God the least used, the least prominent volume of public instruction. We may stand it, but if so, after us will come the deluge.

The three Welsh colleges are doing a very good work by urging the University authorities to recognize geography as a qualifying subject for degrees. Their advocacy received a fillip, if it was not actually originated, by Mr. Clements Markham's weighty protest at the Geographical Congress, against the general neglect of this science as a mode of higher education. "The authorities of the Universities of Great Britain," Mr. Markham said, "are not even aware that geography is a distinct branch of human knowledge, a science in itself. Practically they deny that it is an independent subject of study, and merely treat it, when it receives any attention at all from them, as subsidiary to history, or some other recognized subject." This is one of the things which they manage better abroad, and especially in Germany. Yet who should lay special stress on geographical study if Englishmen do not? Our second and third grade schools have not much to reproach themselves with so far as elementary instruction in geography is concerned. We cannot say the same for the classical schools and colleges, where an atlas of the *orbis antiquus* is held to satisfy every need.—*The Educational Times*.

THE APPLICATIONS OF ELECTRICITY.

BY WILLIAM J. HOPKINS.

THE past twenty years has been a period of rapid advance in the application of electrical science to industrial purposes. Twenty years ago we had no telephone; the electric light was scarcely more than a scientific curiosity; and electric traction in its present sense had not been thought of. Now, when we can talk with our friends a thousand miles away as easily as if they were in the same room, and when the electric cars hurry past our windows every minute or so, it is not easy to recall, with any real appreciation of the facts, the condition of things before the beginning of this last era.

We had then become familiar with the land telegraph and the submarine cable, although the cable even then was not older than the telephone is now, and various applications in the arts had attained a considerable degree of perfection. The real commercial development of electric lighting was made possible by the discovery of the method of making hard carbons from what would otherwise be but a waste product. Indeed, it is perhaps not too much to say that commercial development in any branch of industry is due to the discovery of methods of utilizing waste products, and the perfection of cheap methods of production. Such discoveries are likely to be accidental. The useful thing or the cheap process is found in the search for something else. This was the case with the Bessemer process for the production of steel, and it may be that a process of producing an illuminating gas of great efficiency has just been discovered in a similar way.

The hard carbon, which can be moulded in any desired shape, seem-

ingly an unimportant thing in itself, possesses properties which cause it to play a very important part in most of our electrical industries. In a particular form, as the result of manufacture from a natural fibre, or from paper, it makes a success of the incandescent lamp. The street-car motor passed through many trials,—periods of trial to its promoters also,—before the hard carbon brush made its commercial success an assured fact. The telephone transmitter, which enables us to talk with ease over a thousand miles of wire, depends for its action upon the little particles of hard carbon, prepared with considerable care and contained within its case.

It is only about seven years since the introduction on any large scale of electric street cars. The mechanism by which the power is applied, although it has passed through many stages of development since then, remains to-day practically unchanged in general design; but the method of supplying the power to this machine has been the subject of much experiment. The first successful method, used in 1883, was in principle exactly the same as that used now, the overhead wire, with which an under-running trolley, attached to the car, made contact. The objection of the public to the use of overhead wires, however, has always been so great that there have been many attempts to use other methods. Placing the supply wires in an underground conduit is a desirable substitution. The first trial in Boston furnished amusement for one winter to the street boys who d-lighted in dropping wires and nails into the slot to see the sparks fly; and the peaceful citizen derived some

entertainment from the volcanic eruptions of flame during a period of thaw. The "ideal method," the use of some form of battery by which each car is made an independent unit, has been tried again and again. There is no doubt of the possibility of running cars in this way. The trouble is that the imperfections and the vagaries of the secondary battery, or "storage" battery, make it impossible for any company to pay dividends on a modern basis of fares and traffic. When some of the patient workers in that field—and there are many—have found a primary battery into which we can feed coal or iron, or some other relatively cheap material, as we now feed coal into furnaces, then we may pull down our trolley wires; but not until then, if we want cheap and comfortable electric traction.

The storage battery, although so far unsuccessful, in competition with the "cheap and nasty" trolley, finds its field elsewhere. It will not bear jolting and rough handling in its present form, and for that reason it cannot succeed even in train-lighting. Not to go into the question of its use in house-lighting, and in such work as electro-plating, the propulsion of small boats electrically must be accomplished by means of storage batteries. The city of Philadelphia has recently equipped a small electric launch for use as a harbor police boat, and the uses for boats so propelled will undoubtedly multiply. The advantages of such boats are very evident, and the disadvantages of storage batteries for propulsion on land are of less moment when they are applied to propulsion on water. A use of the storage battery, which seems less likely to become generally successful, lies in its application to the driving of road vehicles. Here, the question of expense is relatively unimportant, as such carriages have been, so far at least, for pleasure purpose only.

The possibility of the successful transmission of power electrically was demonstrated some years ago. It has been practised on a small scale in many instances, and we are now awaiting with interest the completion of the great undertaking of utilizing a portion of the power of Niagara Falls in this way. There can be no doubt of the success of the industrial city near by which is to be supplied with power from the central plant at the Falls. The commercial success of the plan for transmitting power to Buffalo and other points farther away from the source is less assured, but will depend largely upon the perfection of details. Of course our systems of electric street railways and city lighting are only particular cases of power transmission, although not generally included under that head. The railways have extended rapidly over considerable distances of country roads, and the next development for which we must look in that direction is the application of a similar method of propulsion to certain portions of existing steam roads. The use of electric motive power for such roads would be attended with certain advantages where the traffic is heavy. Electric motors are better adapted to the attainment of high speed than steam locomotives of the type in universal use, and the distribution of power from a central station is more economical than the use of independent units in cases where the station can be run at nearly its full capacity all the time. The absence of smoke and dirt would contribute greatly to the comfort of passengers, and in some cases to their safety. For these reasons an electric locomotive is to be used in hauling trains through the Baltimore tunnel, and the most recently equipped underground road in London uses electric traction. The displacement of any existing system by a new one is always a slow

process, so that it may be some time yet before electric motive power comes into general use on even those portions of our existing railroads which could adopt it to their great advantage.

On some short portions of large railroad systems the change to electric motive power has been made and the line operated with considerable success. The New Haven road operates such a short line in this way, and now the New York Central contemplates equipping electrically the line between Buffalo and Niagara, making use of the power from the Falls.

In all these projects of power transmission over long distances we must look to the alternating current. The application of the direct or continuous current naturally came first as its problems are all easier of solution; but the limit of development in that line seems to have been reached, and its field is comparatively small. For further development in by far the greater number of cases the alternating current is essential. The telephone depends for its operation upon the alternations and variations of current; and with the telephone may be classed such devices as that for reproducing handwriting. For electric welding, although it can be done by a continuous current, the alternating current is best adapted; and the possibilities of electric lighting by alternations of very great rapidity appear marvelous.

Electric welding can be accomplished in two ways. The pieces to be welded may be placed in a powerful electric arc, which thus simply takes the place of the forge; or the parts may be heated by causing the current to pass directly through them. The first process of heating is seldom used for welding, but is largely used in smelting refractory substances, as a very intense heat can be obtained in this way. The second, or Thomson welding process has not grown so

rapidly into use of late years as when first developed, and its present use is chiefly in the manufacture of projectiles. A new application of this process has recently been developed, however, which may give some indication of its possibilities. Armor plates which have been subjected to the Harvey process have an extremely hard shell of steel on the surface. To place these plates in position they must be drilled at certain points for the bolts; and to do this it is necessary to soften the hard steel surface at those points. It has been very difficult to accomplish this softening by ordinary processes, and almost impossible to avoid softening a greater portion of the plate than is desirable. By applying the terminals from the welding machine at suitable points it is found that the plate can be softened just at the parts where it must be drilled. The current passing through the hard surface coating of steel heats it sufficiently and because of the great mass of metal behind the hard surface, the softening of adjacent parts is avoided.

In telephony, we can scarcely hope for development very much beyond the limits indicated by what has already been accomplished. Some new discoveries may, of course, be made which will make it possible to talk across the Atlantic; but so far as we can tell from our present knowledge, improvements in apparatus will serve only to extend slightly the distance over which conversation can be carried on. Talking through an Atlantic cable is such a different thing, and so far beyond the present limits, that it can scarcely be hoped for. In the same line of development, however, as it is now possible to transmit speech and handwriting, there seems to be no inherent reason why it should not some time be possible to see at great distances by analogous means.

—*The Citizen.*

RELIGION AND EDUCATION.

BY REV. ALFRÉD BROWN, B.A., RECTOR OF PARIS, ONT.

THE advance of nationalism, that is, the idea of State control of all questions, going so far with some of its advocates as to make the State the owner of all property, and to abolish all individual rights, is being felt in many directions, and the State is assuming control of subjects which up to a comparatively recent time were largely managed and controlled by the Church. For instance, marriage and divorce, philanthropy and charity, and education, are now dealt with by the State in utter disregard oftentimes of the doctrines and claims of the Church, and with small consideration for the views and sentiments of Christian people. This is due to many causes, among them the inability of the Church, owing partly to divisions, to deal effectually with the subjects referred to, the changed conditions of society, and chiefly perhaps an advancing secularism, a reaction from too much other worldliness, which characterized the ordinary and prevailing type of Protestant and evangelical religion. The spiritualized conception of the Church which thought only of man's salvation after death, and but little of his conduct and happiness here, and ceased to interest itself in human interests and affairs, is largely responsible for that relaxed hold upon those great questions which determine life and conduct. When the Church has no message or duties for her members but to bid them pay and pray, and abdicates those solemn responsibilities laid upon her by the teaching and example of her founder, viz., the regulation of marriage and divorce, the relations of the sexes, the care of the sick and needy, the teaching of children, indeed all that can humanize and

raise men in the scale of being; can we wonder that the State steps in and endeavours to do that which the Church has neglected, or at best but imperfectly performed? One of the subjects upon which the State has laid a heavy hand, is that of education, which our Lord especially committed to His Church when He bid His Apostles: "Go ye therefore and teach all nations." We are glad that the Manitoba school question has arisen, because it has drawn widespread attention to the arbitrary action of the State, not only in the Province of Manitoba, but in all the provinces of the Dominion, in separating religion from education, and practically handing the schools of the country over to the secularists. The Roman branch of the Catholic Church should be commended by all the friends of religious instruction for the consistent stand it has made on this subject. It is the same position that our mother Church in England has always maintained, and is struggling for at the present moment. The Church of England in this country has always stood for the same principle though it must be confessed that she has allowed the difficulties which stood in the way to deter her from asserting it as strongly as she should have done, and from making the sacrifices which were necessary to give effect to her convictions on this important subject. The school question in Manitoba has drawn attention not only to the rights of Roman Catholics, but also to the fact that in the other provinces rights are conceded to them which are withheld from other denominations of Christians, and that a system of Separate schools for one denomination, and a general secular system for

all others, is as unjust as it is unsatisfactory. How religion can be imparted in State-aided schools is, it is confessed, a difficult question, but the difficulties of the case should not lead us to acquiescence in a system in which religion is entirely banished. Against this state of things there has been a protest from our synods as well as from some of the other religious bodies of the country, and there are indications that in Ontario at least, there is a disposition on the part of the Government to meet the views which have been thus expressed. No one uniform system will meet the varying views which are entertained, or the necessities of the case. Nothing short of Separate schools or State aid to voluntary schools where they can be had, combined with some place for the imparting of the principles of religion and morality in schools generally, will meet the demand for more religious instruction. The following schemes have been suggested: 1st. That the schools remain as at present, viz., Roman Catholic Separate schools—and common schools in which religion is recognized by the school being opened with prayer and the reading of some brief selected portion of Holy Scripture. This has proved unsatisfactory, because it gives to one denomination a right denied to all others, and because experience has proved that the provision in regard to religion is too meagre and too perfunctorily performed to have very perceptible influence upon the pupils. 2nd. That some definite scheme of religious instruction be agreed upon, undenominational in character, which all the children shall be required to attend, with a conscience clause exempting all children whose parents object thereto. This might answer in neighborhoods where the population is small and but one school could be maintained, but to this there are evident objections.

First, the difficulty of deciding on such a scheme. And, secondly, the still greater difficulty of being sure that the teacher has the moral and religious qualifications to fit him or her to act as a teacher of religious truth. If the scheme were one that included anything but the great elementary truths of religion, objection would not be wanting, and the conscience clause would be taken advantage of by many parents, and the children deprived of the religious training. On the other hand if the instruction be so meagre as not to include what is necessary properly to teach faith and morals, then the instruction would be comparatively valueless. The chief difficulty, however, would be the teacher. Who could vouch for or inquire into the teacher's soundness in the faith. Trustees of schools may, or may not be believers in the Christian religion. However simply Christian doctrine might be stated, and however much it might be reduced, it would be too much for an Agnostic or a Unitarian. Then, not a few teachers, like Gallio, care for none of these things, and how could such teach subjects which should be treated with reverence and the interest that can only come from profound conviction. Religious instruction under such convictions would be a mockery and worse than none. 3rd. It has been proposed in some of the Anglican synods that a stated portion of time each day be devoted to religious instruction, and that the clergy, or recognized and authorized teachers of each Church or sect, be allowed to give the children of their particular denomination religious instruction. This, if granted, might be a valuable concession, and in some cases might be useful, but we fear it is unsuited to many localities, and in practice would be found unworkable. For instance, the number of children in any one school of

a particular Church, of an age to be classed together, would be too few for the purpose. Then, unless the plan were generally adopted by, say, the leading denominations, the children of any Church that did endeavor to adopt it would rebel against being taught religion when their fellows were going on with school lessons, and still more if the rest were allowed to play during the time allotted to religious instruction. In a large parish, also, where is the staff of teachers coming from to give a half hour daily in some five or six, or possibly nine, buildings devoted to education? The clergy could not do it. In the town in which the writer resides there are four school buildings, and to give such instruction would, allowing for the time in going from one school to another, take at least three hours daily. The population is less than 3,000, and in towns of greater population the time needed would be still greater. Competent teachers would have to be provided, and this could not be done unless they were paid. Ratepayers would object to an increase of the rates for this purpose, and people who are now burdened to support their several churches would also object to increased demands upon them to support additional religious teachers. Such a plan would also be impracticable in scattered school sections in rural districts. Altogether, we fear this proposal, fair and plausible as it seems, would not secure the desired end. 4th. The last proposal, and we believe the only one that will secure adequate religious instruction, which is the only foundation of morals, and on which character can best be formed and developed, is that of recognition and aid by the State of voluntary or denominational schools. To all should be granted the privilege now enjoyed by the Roman Catholic Church in this province, of having schools in which they may teach their

children not a diluted, undenominational religion—much less schools in which religion is barely tolerated or altogether banished—but schools in which they can teach their children all that they ought to know and believe to their souls' health. It is invidious and unjust that one denomination should have rights and privileges denied to all others, and the subject will not down so long as this state of things continues. We would invite our Roman Catholic fellow subjects to join in demanding this change in the law, as the surest way to promote religious education, and, as we believe, the only way by which they can hope to retain the privilege they now enjoy. Education, like religion, is a subject on which people differ, and the State must take hands off unless it is prepared to recognize and to allow for the different views which prevail on this all-important question. The difficulty which has arisen in Manitoba, and which has extended all over the Dominion, would at once disappear if this broad and enlightened view of the question were to prevail. Let any given number of ratepayers have power to establish a separate and denominational school, subject of course to inspection, and guaranteed as to the efficiency of the teachers, in which they can have religion taught as they desire, and then, we believe, the school difficulty would be at an end, and till this is done, we believe the agitation will continue. This is what the Church of England is contending for in England, and what a considerable number, if not a majority, of Anglicans in Canada want. Nothing short of this will meet the necessities of the case, and for this we hope all true friends of religious education will contend till a Government is found here, as we hope Lord Salisbury's Government is, in the mother land, ready and willing to grant it.—*The Canadian Churchman*

"WHEN A BOY TIRES OF SCHOOL."

BY MARSHALL H. BRIGHT, NEW YORK.

I AM asked to tell the readers of the *Interior* what I think should be done "when a boy tires of school." Obviously the first answer that suggests itself is—it depends upon the boy. And certainly some boys tire of school because of disappointment at their slow progress or through some inherent weakness of a nervous character; such boys, it is unnecessary to say, need to be encouraged to pursue their studies. Others, again, tire of school because of having not the slightest interest in their studies. It is not only uphill work but it is positively most disagreeable work; they cram but to recite and forget. Their only goal is the class room, outside of which their studies have not the slightest interest for them. Indeed so poor are their recitations that they would be dropped, as so many are, but that good conduct keeps their name on the school register. What shall be done with these boys?

Back of this question, however, and containing the basic principle by which the answer to the question must be tested, another inquiry arises, What is the object of this schooling? Is it supplied for purely decorative purposes? Is it obtained as an approved method for providing intellectual gymnastics, that the mental faculties may be sharpened by the exercise? Or is the boy sent to school and then to college just "for the name of the thing"—that he may graduate, and by writing the cabalistic letters A.B. after his name become a member of that mystic fraternity which claims superiority over all who live outside the charmed circle? Or is the aim of all schooling or Preparation (not education, please, for that is

a life work) utilitarian in the highest and best sense? However some may regard this matter, I shall assume that in the utilitarian idea lies the true conception of the real object of schooling, speaking generally—for special studies are often pursued simply for one's pleasure, though even here a useful purpose is served. But in the main I take it that the aim and object of schooling is to enable the boy to develop the faculties with which he has been especially endowed—and which differentiate him from every other boy—to the fullest extent possible, that he may devote them to the very best purpose.

Now, boys differ, and very greatly so; they differ more widely than trees or animals of the same species differ. As Ruskin says, the higher the organism the greater the corruption at death, so the higher the civilization and the more complex his environment the greater will be the difference between boys. In our latter day civilization some boys are born mathematicians; they lisp in numbers, and the numbers come; some are born linguists and classicists, they absorb Greek roots and Latin gerunds as naturally as the babe drinks in its mother's milk; others again excel in measuring the forces of nature, the scientific trend shows itself in an early love for ornithology or botany or geology or zoology.

Right here I recall the case of a New Haven boy who from earliest childhood showed an intense delight in everything relating to the structure of animals. One day, during the absence of his parents, he took the house cat and put it in a pot of boiling water that was on the stove. When they returned the dish of

savory puss was speedily discovered. The boy of twelve years, being inquired of concerning it, at once admitted what he had done, and exclaimed, "Don't take it out, papa; it isn't time yet; I'll show you a perfectly beautiful skeleton in a few days." What did that father do—take the boy in hand, give him a thrashing, and then deliver him a lecture? So some would have done. But this father took the boy aside, made it clear to him that the cat was not his to kill, and told him that he would show him a more humane way when he next had occasion to kill an animal in order to secure a skeleton. The boy is now a man and one of the foremost naturalists in America, although, being found deficient in college, his father thought it best to withdraw him from school and instead provide him the means for pursuing the study of natural history, which had become a passion. Another boy, a real "stupid" at school, who gave up the classics, languages, and mathematics because they were so distasteful to him, is one of the most distinguished meteorologists in the country.

What has all this to do with the boy who tires of school? Just this: it illustrates the fact that nearly every boy, as a rule, has some natural bent which manifests itself at an early age and which is nature's way of showing in what direction he is best calculated to work. Of course there are exceptions, as there are plenty of boys upon whom anything more than the three R's plus a fourth R—righteousness—would be thrown away. But passing by these, I think the conclusion to be a safe and just one that, ordinarily, when a boy is tired of schooling it is either because he has got all he requires or because an ill advised course of instruction has been forced upon him, resulting in a conflict which will not "down" until the course of study is changed or the boy

is taken out of school. Let the anxious and disturbed parent appropriate, this important truth; you cannot force all trees into yielding ambrosia or apples of the Hesperides, when they can only bear butternuts or are fit only to be used as firewood. By all means covet for your boy the best gifts, but be careful to supply the freest choice and opportunity to Preparation for life's work. If the boy is tired of school because the school is a poor one, or because he has not the capacity for acquiring instruction, by all means take him out of school. If though, the fact holds that the prescribed course is neither to his taste nor to his capacity and natural tendency, then change the course of instruction, just as you change the food which the young child fails to assimilate.

Teachers fail not because they lack in education: the best teachers in the school-room to day commenced with the barest rudiments; they industriously added to their feeble knowledge. If it be asked how they succeeded, they will quote the words of Bishop Alonzo Potter, "Success will come in an enlightened giving of yourselves to your work," when he spoke to the first graduates of the first normal school founded in the State of New York. Teachers who give of their knowledge only do not reach any very high success; such persons are apt to become knowledge peddlers, the lowest kind of teaching. Remember that Agassiz did not teach to get a salary; he aimed to enlarge the Truth-Circle, as Swedenborg calls it.

Humanity is indeed a happy lot when we can repeat ourselves in others, and still be young as they.—*Barnaby Rudge.*

THE LOWERED STANDARD.

NOBODY who reads the daily press can have failed to note the remarkable frequency of crimes, great and small, at the present time. In the not very distant past we have congratulated ourselves that disregard for the laws of God and man has been exhibited in a lesser degree here than elsewhere. To-day congratulation under this head would be flattery. The terrible murders of the past few years, not those of imported fields, but of natural home-grown criminals, the burglaries, the thefts, the breaches of trust, the violations of social obligations, are so numerous and so real as to deprive us of all reason for boasting, and to force us to the conclusion that there is something radically wrong. Criminalologists attribute crime to a variety of causes, each tending to its own particular end. Heredity is a potent influence; but it operates in what are termed the criminal classes. Unless we have already created a criminal class, and certainly until recently such could not be said, our wave of wickedness is not the result of inheritance. Depressed trade is another factor. It is always held that when times are strained men's worst instincts assert themselves in the struggle for existence. Thus it happens that frauds and thefts are perpetrated with a view to obtaining what cannot honestly be secured. Our depression, however, has not been severe. Nor have the crimes been of the character which result from privation and hunger. Speaking generally, the offences have come from covetousness and selfishness, weak morals, and a want of appreciation of the duties of man to his Creator and his neighbour. Who is responsible for the conditions we are experiencing? The Churches do their duty in that they inculcate

right ideas and lead into the paths of virtue. The State is equally industrious in its own peculiar way. Its machinery for punishment is designed to curb the appetite for vice. Where then is the fault? Can it be that in sowing the seeds of virtue we wait too long? Do we allow the weeds to take root before we attempt to implant sound principles in the minds of the rising generation? These propositions are closely allied to the subject of education. They cover parental duty in that department of life, Church duty in relation to the young, and the duty of the school in reference to religious and moral instruction. It is difficult, and in fact impossible, to know to what extent parental duty is performed. The degree no doubt differs in various families; but it is to be feared that its average is low. The Church or Sunday-school work is done well; but does it reach the young in respect of whom the parents are indifferent? In the Public Schools we have an instalment of religious teaching. That this teaching is efficient in the moulding of character is sometimes denied, and for this reason it is urged that it should be abandoned. The question is, whether in view of the allurements which beset the young, of the vice that is growing, of the apparent neglect of the religious teaching by parents, and of the difficulty which the Churches experience in the performance of their important work, the last shred of religion should be driven from the schools. The answer is to be found in the results of this policy elsewhere. In Australia the Bible is proscribed, so far as the schools are concerned. English literature is even garbled, in order that religion may be avoided. Many good men and women come

from these schools ; but it is acknowledged that the standard, instead of becoming higher, is perceptibly lower. France has thrown aside religious instruction. Educationists there report that without the aid of religion, morality cannot be implanted, and that as religion is wanting the coming race is deteriorating. That the schools should take the place of the Church no one will contend ; yet, remembering what the conditions are

in Canada to-day, and what the consequences of religious prohibition are elsewhere, the exclusion of the very foundation of morality from the primary institutions surely cannot be contemplated without alarm.—*Mail and Empire.*

“When you *do* pay people for looking alive, it's as well to know they *are* looking alive.”—*Our Mutual Friend.*

DRAINING NIAGARA.

THE correspondence between Mr. J. W. Langmuir, Chairman of the Niagara Falls Park Commission of Ontario, and Mr. Andrew Green, President of the Commission for the New York State Reservation at Niagara, deals with the question of draining the Niagara River for commercial purposes, and the effect of such work on the lake levels. The question has recently become of special interest, great inconvenience and danger being occasioned by the exceptionally low levels of the great lakes during the present season. It is gratifying to learn that the commission in charge of the New York State Reservation is alive to the importance of maintaining the great cataract at Niagara, and of the necessity of co-operative action in preventing its virtual destruction by the diversion of water for commercial uses. Co-operative action between New York State and this Province will be necessary to that end. But Mr. Langmuir's letter directs attention to the fact that not only the great cataract, which is in itself of sufficient importance to warrant an active effort on the part of both nations, but the navigation of the great international waterways is in

danger from other and more extensive canal, power and drainage projects. The level of the three great lakes—Michigan, Huron, and Erie—is maintained by a most remarkable natural formation. With the exception of the dip caused by the current, they are on the same level, about 580 feet above the sea, the fall in the St. Clair and Detroit Rivers bringing Lake Erie about eight feet below the other two. The great natural basin containing these three lakes may be described as having three depressions in its brim. The lowest depression is now at Buffalo, and forms the outlet into the Niagara River. At North Bay on Lake Nipissing another of these depressions occurs. The rock rim is about 100 feet above the level of the lakes. Should any natural convulsion open a channel or cause a sufficient depression at that point the current of the lakes would set across the valley of the French and Mattawa Rivers to the Ottawa, reaching the St. Lawrence by that route. Lake Erie would cease to discharge her waters through the Niagara gorge, but would find a lower outlet by way of Lake Huron, Georgian Bay and the Ottawa river. An examination of the Lake Nipissing

district shows that at an earlier period in the geological history of the great lakes this was their actual outlet.

At Chicago the natural barrier is less than 30 feet above the rock rim at the head of the Niagara River, and is of a formation easily excavated or tunnelled. A depression of 50 feet would give Lake Michigan an outlet into the Mississippi Valley. The waters of Lakes Huron and Superior would follow. The current in the St. Clair and Detroit Rivers would be reversed, giving Lake Erie also an outlet by way of the Mississippi. The Niagara River above the Falls would become a dry bed, and Lake Ontario and the St. Lawrence would be depending on local rivers and streams. This at a later period has been the actual course of the great lakes, evidences of the outlet by the Mississippi being conclusive. Mr. Langmuir draws attention to the fact that it is proposed to cut through this barrier a drainage system for the City of Chicago—really a canal connecting Lake Michigan with the Mississippi. In order to carry sufficient water to prevent the pollution of the Illinois River it will be necessary to build a canal 160 feet wide by 18 feet deep.

It is also stipulated that when the population of Chicago exceeds 3 000, 000 the capacity of the canal shall be enlarged. It has been estimated that the canal will carry about one-twentieth the water now passing over the Niagara Falls. This is far more important in its secondary results than any scheme yet proposed for diverting the course of the international waters. Mr. Langmuir also calls attention to the proposed Lockport canal, to run from a point on the Niagara River between Buffalo and the Falls through Lockport to Lake Ontario, to bring water from Lake Erie to Hamilton, and the proposed power aqueduct from Lake Simcoe to Toronto. The questions arising are of great international interest, and efforts should be made toward a conference with a view to reaching a definite understanding regarding the future policy—*Toronto Globe*.

“What more dost thou want when thou hast done a man service? Art thou not content that thou hast done something conformable to thy nature, and dost thou seek to be paid for it, just as if the eye demanded a recompense for seeing, or the feet for walking.”—*Marcus Aurelius*.

THE DRIFT OF POPULATION TO CITIES.

THE closing decades of this century are witnessing no more remarkable phenomenon than that shown in the migration of population, not so much from country to country, as from place to place in the same country. This interior migration is most noticeable in the most progressive lands. It is effecting a rapid transformation in Germany, in England, in Australasia, under widely different conditions, but nowhere is its operation more general than in the United

States. In Australia, for example, the rural districts prosper and a few great cities grow enormously, while all the intermediate communities are relatively stagnant; but in the United States the drift is unmistakably from the farms to the nearest village, from the village to the town, and from the town to the city. Out of a total of 909 townships in New York, 274 gained numerically between 1880 and 1890, while 635, or more than two-thirds, became less populous.

This transplantation has most far-reaching effects. Politically, it transfers a preponderance of power to the great cities, changing the results of important elections, and increasing the urgency of municipal problems. Socially, it swells the number of the classes most exposed to agitation and discontent, intensifies the dangers to be apprehended from social upheavals, and widens the growing chasm between the classes. It concentrates the wealth of the nation into fewer hands, and reacts profoundly upon the material, social, and political life of the entire nation. The more rapid the process of centralization, the more frequent and intense must be the periods of depression needed to correct it.

The student of social science, observing so stupendous a movement, asks whether society is to be the gainer or the loser by it. On the one side, he trembles—especially if he be an American—at the prospect of adding enormously to the burden of the municipal governments in the large cities, already almost breaking down through corruption and inefficiency. He realizes that in times of social disturbances the great cities are an ever-growing menace to the public authority and even to the existing social order. He knows that crime is increasing, like the cities, out of all proportion to everything else; and that the massing of dense populations means impaired public health and morals. The constant depletion of the smaller towns and of the country, steadily draining away the best, lowers the tone of village and farm life, prevents the rapid diffusion throughout the country of improvements in education, and tends to exclude the inhabitants of the rural districts from participation in the great ameliorations of modern life which ought to be common to all.

Per contra, it is the testimony of

Sir Charles Dilke that in Australia "the working people of the capitals have excellent houses and gardens in the suburbs, and are better off than the dwellers in the country from most points of view. On the other hand, the population of the colony, generally speaking, gains, from the concentration in the capitals, in education, in power of recreation, and in many of the matters which make life most pleasant. The effect must be a quickening of the national pulse, and is already, in fact, visible in the brightness and high intelligence of the Australian people."

In America, even the poorest of the working people refuse to go into the country to live. Labor is benefited in many ways by association; school advantages are better, wages higher, capital receives better returns, ambition has a wider field where the rivers of people have their confluence. Yet, on the whole, the conclusion seems unavoidable that the evils and dangers, present and prospective, of the excessive massing of the people in the cities far outweigh the benefits. Doubtless the chief cause of this remarkable concentration is the natural superiority under existing conditions, of large centres for all the processes of production and exchange.

For some of the conditions that are operating so unfavorably against the country there is no remedy. So far as the concentration is the result of the natural superiority of the city as a place for business or residence, so long as human nature continues to crave the stimulus of social contact, there can be no remedy until the accumulated miseries of overgrown cities drive the people back to the land. Some sanguine observers, seeing the temporary check caused by the present depression, think that time has now arrived. Others look to the recent extraordinary extension of the system of electric

street railways into the country districts, to give relief by making it more convenient to live and work outside the cities. This movement will enable the cities to spread out over a wider territory, materially reduce the overcrowding, and raise greatly the standard of health and comfort for the poorer citizens. This suburban movement is universal, and is one of the most significant features of modern town life. But this counter movement can hardly effect the rush from the country toward the centre, and possibly it may even accelerate it by ameliorating the condition of the city's poorer classes. With these exceptions, the only remedy that can avail to moderate existing conditions is equality in transportation rates; that is such a readjustment as shall treat the railroad system as a unit and all the people as equally entitled to its benefits.

It is not pleasant to believe that in the future development of our country dulness, isolation, and monotony are to be the permanent lot of the tillers of the soil. It will be unfortunate for our natural life if agriculture shall come to be shunned by the intelligent and abandoned to a class of peasants. When the farmer and villager begin to study more how to enrich and beautify farm and village life, when perfect roads, daily mails, the telephone, the electric railway, the manual training schools, shall have carried into the remotest corners the blessings of the new civilization, it may be that the incentive to live in cities will be largely removed. If the dwellers in the smaller towns and country want to counteract the existing tendencies they must be alert to seize and appropriate the agencies which are now transforming modern life.—*Public Opinion.*

CAPITAL RULES.

CHICAGO University did a most imprudent thing when it established a professorship of political economy. Political economy is a most important subject of inquiry, and as well worth a professorship as any other which a college can take up, but universities in the position of the one of which Chicago is so proud do wisely not to give it prominence. Chicago University received four million dollars, the bulk of its endowment, from Mr. John D. Rockefeller, a very good and public-spirited man, as the facts prove. It has also received about half a million from Mr. Charles T. Yerkes. Mr. Rockefeller is a member of the celebrated Standard Oil Company, which controls the petroleum product of the United States, and has made all its members immeasurably wealthy, and the Standard Oil Company is understood

among other things to control the Chicago Gas Trust. As necessary with a man possessing so many millions, Mr. Rockefeller has his hand in most trusts and monopolies. Mr. Yerkes is a street railway magnate in many cities. It is quite certain that no one could teach political economy at all, or even approach the subject, and not have to face the question of monopolies and trusts. It is equally certain that if a university is to have a professor of political economy he must be ignorant or disingenuous or he will treat private monopolies, secured either by combination or by purchased franchises, as an evil to be mitigated. Chicago University could no doubt have got a man to teach political economy in such a way as to glorify oil trusts or soft money or gas extortion or anything else. For money they could have had him from

either of the first two classes mentioned, the ignorant or the disingenuous, and the man who succeeds Professor Bemis, whom the faculty recently asked to resign, or in other words turned out, will almost necessarily belong to one or the other of these classes.

A man has a perfect right to get what he pays for, says the *New York Recorder* in defending the act of the faculty. "Mr. Rockefeller and his associates," it says, "have a perfect right to employ professors and pay them roundly for teaching the Rockefeller views of political economy, and if they do not get the views they pay for they have also a clear right to stop the teaching and discharge the teacher." If Professor Bemis was employed with any such expectation there was some mistake about it. He became both in the class room and on the platform an exposé of the way in which these monopolies are bleeding the public, and an active public advocate of reform. He proclaimed that the Gas Trust was selling gas to the people which cost not more than sixty cents a thousand feet for a dollar and ten cents. He held that street railways should pay a percentage of their gross receipts into the city treasury in return for the profitable privileges they enjoy. It is easy seeing that this was flat blasphemy for a professor enjoying emoluments which had their origin in just such businesses, and that he deserved the "capital punishment" which followed. If the dismissal could have been the end of it it would have been nice for Dr. Harper, the revered president, and for Mr. John D. Rockefeller, the beneficent founder, and for Mr. Charles T. Yerkes, the donor of the greatest of telescopes. But it was not. There arose a general barking all over the country, just as there does in the farmers' yards when a menagerie is passing at night. The press

is all up about it, and asking if the universities, like the other institutions of the country, are going to be governed by plutocratic dictation. How are they going to get out of it? If the universities were controlled by state government they would be equally liable to dictation. Imagine a state university under a Republican Government teaching anything but protectionism, although there cannot be found an economist of any name at all who advocates protection. The remedy lies in the fact that there is, as Matthew Arnold put it, a power not ourselves which makes for righteousness. If the man who gets Professor Bemis's place advocates, as the *Recorder* says, the Rockefeller views of political economy, his words will, in view of the circumstances, fall emasculated and valueless on the ears of students who will be started on the path of independent inquiry by their necessary disrespect for dictated and purchased opinions.—*Montreal Daily Witness*.

OBJECT LESSONS.—Young teachers are, as a rule, unwilling to allow Nature to tell her own story, and insist on taking the words out of her mouth, although, if properly interrogated by the pupil under the direction of an intelligent teacher, she is capable of teaching much more clearly and impressively than any human teacher. The business of a teacher in an object-lesson is not to teach at all, but to let Nature teach.

There is almost no kind of literature that will not help the preacher (teacher) either by refreshing and enlightening the mind, or putting him on new lines of thought, or making him more familiar with the real motives of men and the actual issues of certain lines of conduct or by supplying him with illustrative matter. *Marcus Dods*.

CHRISTIANIZING POLITICS.

AT a large and enthusiastic meeting of Christian Endeavorers of the Maritime Provinces, held in the town of Truro the other day, a strong resolution in regard to Christianizing politics was unanimously carried. The truth was emphasized that Christ will never be king of the world until He is king of its political life. In view of the fact that during the next few months the people of Canada will be specially interested in political questions it was agreed to recommend the Dominion executive of Christian Endeavor to set themselves to organize a campaign of education on good citizenship along Christian Endeavor lines, and that they endeavor to engage in this enterprise every newspaper, religious and secular, which will open its columns for good citizenship, and to stir up every preacher to be like an old time prophet in bearing witness against political evils and in exhorting his congregation to faithfulness in public duty. Such a resolution coming from a company of church members convened for religious purposes will give a shock to men whose fastidious notions of spirituality lead them to think that Christians should not soil their hands with political affairs, but it will bring joy to the ever-growing multitude of followers of Jesus Christ who believe that a systematic effort should be made to Christianize the politics of our country. It does seem an anomaly that men whose function, as described by their Lord and Master, is to be the light and salt of society, should exhibit a lamentable apathy in connection with great civic questions.

The aim of the Church is to bring about the establishment of the kingdom of Christ on the earth, and that means the doing of the will of God below as it is done above. The late Dr. Arnold used to define the Church as an institution the object

of which was to make men like Christ, earth like heaven, and the kingdoms of this world the kingdom of our Lord and His Christ. Politics thus come within the scope of Christian service. In the last analysis of the two there ought to be no exclusive separation between the functions of Church and State. Both represent different operations of the same force. The state is but the people acting in a civil capacity for the civil welfare, while the Church is but the people acting in a spiritual capacity for spiritual welfare. In a Christian country one spirit should dominate both phases of activity, and that the doing of the will of Christ. We are as yet at some distance from the attainment of this ideal, but the best thought and service of our generation are keyed to its attainment. The charm of Christianity is how it simplifies life by unifying it. The true follower of Jesus does one thing; he follows Christ. Whether in the church, in the office or in the political arena, his constant endeavor ought to be the realization of the will of Christ. So every department of human activity becomes Christianized for Him. A man's religion is radically incomplete if it draws him away from the discharge of his duties as a citizen and a patriot. Politics offer a great opportunity to every Christian of witnessing for the Master and sending forward into the high places of the field men who would fight for the right. To shirk such an opportunity is to betray a sacred trust. To use it for partisan purposes is to abuse it. Politics must be Christianized by putting principles before party and men before measures and by steady adherence to the right. That consummation so devoutly to be desired will be greatly hastened if all our church members would only vote as they pray.—*Montreal Daily Witness.*

ELEMENTS TAKEN FROM THE SOIL BY TREES.

A correspondent of the *Country Gentleman* writes as to the comparative exhaustive power of different kinds of forest trees upon the soils where they have grown. He had heard that the pine barrens are so called because pine woods made land barren and that certain native species are poison to land. The letter was referred to Mr. B. E. Fernow, chief of the Forestry Division of the Department of Agriculture, and we quote the main points in his reply :

"As far as exhaustion of minerals from the soil is concerned, no fear need be entertained, since forest trees require only the smallest quantity of the commoner kinds of minerals from the soil, and, in addition, they return the bulk of these to the soil in a more soluble form by the fall of leaves and twigs; hence they improve the top soil, as is well known. The foliage of some trees decomposes more readily than that of others, and forming a humus of more or less desirable composition, this beneficial effect varies with the species; thus while the conifers, especially larch and spruce, as well as the beech, are among the greatest improvers of soils, the humus from catalpas, black locust, etc., is of little use, while the foliage of the oaks decays but slowly, and hence does less for the improvement of the soil. But the saying that "red oak and black walnut poison the soil" is probably an overstatement—at least, we have no knowledge that this is really so or any reason to believe it; they are simply less useful in making humus.

"Of much more moment to tree life than the minerals is the water of the soil, and in respect to the amount of water transpired, trees differ very widely, so that, in general, deciduous-leaved leaves may transpire six times as much as coniferous trees. The pines especially are moderate users of water. These latter are satisfied with such small amounts that they can

occupy the dry sands of the pine barrens to the exclusion of other species. The deterioration of soil under given trees, then, depends upon the rapid exhaustion of the soil moisture. This exhaustion, is, however, much less due to the transpiration by the trees themselves than to the surface evaporation, and this again is dependent upon the amount of shade which the trees exert. Under a dense growth of the shady beech, hemlock, spruce, sugar-maple, etc., no exhaustion of moisture takes place, while under the light-foliaged birch or oak, especially in later life when the crowns become thinned out, the sun reaches the soil readily and much water is evaporated. In addition, if these trees stand alone in a field, the raindrops readily fall through the foliage upon the soil and compact it; thus much less water can percolate and the evaporation from the compacted soil is increased, as every farmer will understand who cultivates his crop in order to reduce evaporation.

"As far as influence upon neighboring crops is concerned, trees exert a deleterious influence upon the immediately adjoining portion of either by their shade—and some species are shadier than others, hence a difference in degree of effect—or by their competition for moisture. Some kinds like cottonwoods, willows, and elms, require not only more water than others, but their root systems are capable of rapid and enormous extension in search of water, so that their influence is far-reaching. Grape vines are of the same nature, so that it is almost useless to cultivate in the neighborhood of a vineyard unless the soil contains a superabundance of moisture. The taproot trees are less injurious, because they supply themselves from greater depths, while the shallow-rooted ones, like black locust, beech, spruce, etc., compete on the same level with the annual crops."

NOTES FOR TEACHERS.

SCHOOL BOARD WISDOM.—It is one of the curious things of a democracy that every man and any man is thought to be wise enough to go on a school board, be a member of Congress, or hold the office of president. We have sent under this firmly fixed rule a good many fools and a good many bad men to Congress and to the state legislatures and will probably keep on doing it. Our system of politics is a huge misfortune to us. In one of the wards of this city a man wanted to be nominated for Congress; he applied to a "promoter" and asked, "How much will it cost?" Being told he drew his check, gave it to the "promoter," and was duly nominated.

The men who go on school boards have a general conception that there must be a house, desks, books, and teachers. Very often the selection of the latter is done on queer principles. In this city a teacher had done excellent work for four years, then married; the death of her husband occurred in two years; then she sought for employment again in the school and was rebuffed with this remark, "You have had your chance; there are other girls now that want to get a place and get married too." The fact of her excellent service was wholly ignored.

There are those who consider in an appointment the "backers" of the candidate—this is so well-known in our cities that the matter of qualification is quite secondary. The influence of the politician is fought; the school board man helps the politician expecting the latter to help him in return. This matter of influence cuts a very large figure in such cities as New York, Chicago, Buffalo, Cincinnati, Detroit, and a few others.

Then there are school board men

who insist the appointee shall live in the city—the idea is that the money raised in a place should be spent in a place. Some years ago a principal in Ohio nearly lost his place because he bought the furnishings of his house in another city than the one he lived in. He was warned that his salary must be spent in that town and no other. In New Jersey a teacher got a place by telling the influential member that he would hire a house of him if appointed; he says his salary was raised, too, as the rent was higher than he could afford.

A member in one of our Western cities, just elected, to show his ability to manage educational matters, when the salary list was read asked with curious stupidity: "How many female clerks have that much? How many good and intelligent mechanics have it at the present time?" He was a person who ranked the training of the minds of children on the same level as selling a pair of gloves or soldering a waste pipe. The delicate task of cultivating a human intelligence requires different powers from those that guide a mechanic's hand, and is to be rewarded after a different fashion. The profession is one that calls for constant study, for vigorous health, for earnest pleasure in its work; and these are necessary qualifications that cannot be maintained upon a pittance and the endless anxiety that is the result of that pittance. Where prices are resolutely kept down, or constantly reduced, there is no inducement to any one to spend years in careful and conscientious preparation, or the hours out of school in the study necessary to prevent intellectual rust.

The Cincinnati school board not long ago worried over the sinful extravagance of teachers. One mem-

ber thought teachers dressed too well—they ought to wear cheaper gowns. Another said they saved their money and spent it on railroads during the summer.

These and a good many other matters are not the business for which they were elected. They are to secure good teachers, no matter where they come from, and pay them proper salaries. If these teachers choose to spend some of it on clothes, some in travel, it is a matter wholly for them to consider.

The school has heretofore been the target; that has been put on a better basis. Now let the school board look out for hot shot.

EDUCATION AND CRIME.—Since 1870 the number of children in English schools has increased from 1,500,000 to 5,000,000, and the number of persons in English prisons has fallen from 12,000 to 5,000. The yearly average of persons sentenced to penal servitude for aggravated crimes has decreased from 3,000 to 800, while juvenile offenders have fallen from 14,000 to 5,000.

In France the criminal statistics and the statements of the magistrates show that as schools have been opened prisons have been filled, and that the diffusion of education has been accompanied apparently with an increase of crime, especially juvenile crime. Keeping children in school ought, apparently, to some extent keep them from the commission of petty offenses by lessening opportunity; but if this be the case, the same effect should be produced in France as in England. A French journal offers the explanation that in France, as under the republic, education is simply intellectual instruction, while in England there is not only instruction but training; moral and religious

influences are brought to bear upon the minds of the young.

There is not much soundness in Victor Hugo's contention that when you build a school-house you close the door of a jail. The people of no other country spend more money for education than the people of the United States; but crime has more than kept pace with instruction, and it is worth our while to consider whether this result may not be in some measure due to the quality of the teacher.—*The Minneapolis Times*.

It is not probable that among the questions asked by the license-giving authority this will occur: *Do you know how to question?* or *Have you studied the art of questioning?* It is a subject as difficult as arithmetic; it is more important than arithmetic. (1) The questions should be logical, beginning with something the pupils already know; the next based on the answer given and so on. (2) Use questions that require thought. (3) Do not use indefinite questions, or general questions—these latter may be used in reviews. (4) Avoid a set form of questions; do not let the pupils know what will be asked next. (5) Question rapidly, for children's minds work fast and they lose interest when they see the teacher behind instead of ahead of them, as he ought to be. (6) Remember that things come to the pupils in wholes and that questions are used to take these to pieces.—*The School Journal*.

“Furthermore, as we all know, the teacher's personal appearance has a great deal to do with inspiring the confidence of pupils. A tasty, neat-fitting dress is a more potent factor of discipline than is commonly supposed. M. E. Hadley.

PUBLIC OPINION.

To my mind it is the moral education of young children—up to the age of fifteen or sixteen—that presents the most serious difficulty. After that age boys become more self-helpful, and their experience has given them a much deeper knowledge of the nature of evil. As they grow older, and their eyes are opened to the real state of things within and around them, the sense of their own moral responsibility in the conduct of their lives must become to them a real motive force, which they may resist or co-operate with according as their wills are wrongly or rightly inclined. But before that age, boys obviously need careful supervision as to morals. Evil is within them; but they are only imperfectly acquainted with its nature and modes of operation. There is indeed in the human mind an intuitive perception of the difference between right and wrong. I think one has recollections of such a perception existing from the first, however faintly, in one's mind; but this original intuitive perception is a very different thing from the fuller knowledge and realization of the nature of evil, which only experience and maturity can gain. And, therefore, I say that children fall into grave sins, and contract bad habits and tendencies which may handicap them terribly in their after career, from lack of instruction and enlightenment, and from the faintness of their sense of responsibility.

AMERICANS AND BRITONS :—The superficial sort of education which obtains in the United States, the undue pushing forward of young men and the relegating of old men of experience, coolness and sound judgment to the rear, have much to do with creat-

ing the conditions under which the Americans are continually blundering and making ridiculous, often dishonourable, fiascos that bring upon them and their country the hearty contempt of all who love fair play.

The system of education in the United States makes the people there superficial and frothy; the English system is the very opposite. In the United States men of mature years and experience are sent to the rear in business and impetuous young men given the preference. For a time and under certain conditions the young blood may make a stir and hum, but they lack coolness and judgment, and when trouble comes they have not the resources, born of experience, to overcome the difficulty.

A long continuance of these conditions in the United States has produced the national characteristics which render possible such regrettable trickery as has been exhibited in the Cornell crew's conduct at Henley and the two fiascos at New York.—*The Toronto Star.*

Police Magistrate Denison is of the opinion that the school system is being conducted entirely without regard to morals as relating to property, for so many children educated in the public schools are vandals who will destroy what they cannot steal, and are not forced to observe those decencies and politenesses of life which are really the best equipment for a youth or girl who desires to get through life easily.

I had no idea, and I am loath to believe, that there is such a general weakness and failure in our school system as not to afford instruction in honesty and politeness.

No intelligent parent is unaware of the habits of his or her child. If they live in an oblivious condition, letting the youngsters do as they please, they must expect to see their children land in a reformatory, prison or penitentiary. The more the city endeavors to assume the parental control of children, the more parents will neglect this sacred office and the greater difficulties we must encounter. This century will not stand a curfew law, when the bell rings and children must go to bed or be gobbled up by policemen. The curfew rings in the home

nowadays, not in the market square, and the greatest evils of the hour are owing to the weak and miserable demand of parents that policemen and school teachers and Sunday school teachers, and preachers and priests and bishops, shall look after the children who are a reasonable charge upon the parents who begot them. I think as individuals and as electors we should resist any idea that parental responsibility shall be shouldered either upon the police commissioners or the Police Magistrate.—*Don, in Saturday Night.*

GEOGRAPHY.

INSIGNIFICANCE OF MAN.—Man has been styled the "Lord of Creation," and even people who do not claim that title for their race imagine that it holds an important position in the universe. Whatever may be the importance of man in the spiritual world, he is, it seems, of but small account materially even on this planet, which is his special habitation. A writer in the *Strand Magazine* has undertaken to prove that the population of the earth covers only an infinitesimal portion of its surface. Taking the number of people in the world as 1,480,000,000, he shows that every living person could be obtained in a square common less than twenty-two miles each way; each person of the 1,480 millions could have a square yard to stand on; and any expert cyclist could be left outside with his machine, and ride round the square containing the world's population in about three hours and a half for the $87\frac{1}{2}$ miles of boundary fence. Or the 1,480 million persons could each occupy a square yard of standing-room in Bedfordshire and then fill up only two-thirds of that county. They could be tucked away

down in Radnorshire, by a little squeezing, and leave all the rest of the world empty. Even the Isle of Man would hold nearly one-half of the world's population at one person to the square yard. This fighting, struggling, white, black, and tan, good and bad, very much mixed population of 1,480 millions could be packed in a cubic box measuring only 1,140 yards in width, 1,140 yards in depth, and 1,140 yards in height. Each person could be allowed 27 cubic feet of room inside such a box, and the box itself could be deposited when full in Battersea Park with a squeeze, in Victoria Park with ample room to spare, or in Hyde Park and not occupy much more than one-third of the ground space of that public resort. To emphasise still further the insignificance of the human race, when considered in its collective material aspect, the writer asserts that Mr. Chase, the cyclist, could, if left outside the above-mentioned box, run round it in about six minutes for the two miles and a half; or, a person accidentally left unpacked could stroll round the box and inspect it in one hour easily.

HOW A FISH COMES TO THE SURFACE.—A curious physiological discovery has been made in the past year by Professor Bohr, of Copenhagen, in regard to the mode of storage by which a fish accumulates so much oxygen in the air that distends the swimming or air bladder. The air contained therein has a percentage of oxygen that may rise to as much as 85, an amount much in excess of the percentage in atmospheric air. Professor Bohr tapped the air bladder of a codfish and drew off the gas by means of a trocar and airtight syringe. The gas had 52 per cent. of oxygen. In a few hours the air bladder was refilled, apparently by a process of secretion of gas from the blood in the capillaries on the wall of the bladder. In one experiment the gas thus secreted had 80 per cent. of oxygen. When the nerves connected with the organ were severed the secretion ceased, and the organ was not refilled. It thus appears that when a fish descends to a great depth, and his body is reduced in size by increased pressure of the water about him, he is able to attain his former size and rise by secreting the gas he needs, and not by absorbing it from the water. Support is thus given to the theory that the gaseous exchanges that occur in the lungs of animals are not purely physical.

MEDICAL ANTIQUITIES.—One of the most interesting features of the meeting of the British Medical Association is the collection of medical antiquities formed in Italy by Dr. Luigi Sambon.

The chief interest in the collection of surgical instruments lies in the light thrown by them upon Roman skill in surgery. It is clear from the number, variety, and delicacy of the knives, forceps, and specula used that the ancient Romans must have possessed a high degree of operative skill. A

collection of ophthalmic instruments is particularly striking. They were originally described by a learned German as instruments used in sculpture, although the tomb in which they were found was known to be that of an ophthalmic surgeon from the inscription. There is no doubt about their real character. The handles are made of bronze, and the blades are of iron, which has, however, in most cases rusted away. A beautiful little pocket medicine chest of bronze with four compartments is also exhibited, and glass ointment pots, as iridescent as mother-of-pearl, together with a number of miscellaneous curiosities, including safety pins of precisely the modern patent shape, barbed fish hooks, charms, toys, a most ingenious baby's bottle, and a noble bronze horse-bit of Etruscan work. But perhaps the greatest curiosity is a lump of solidified Falernian or the dregs thereof found at the bottom of an amphora.

The collection will be exhibited next year at the International Medical Congress, for which Dr. Sambon has been commissioned by the Italian Government to write a history of medicine, but it is Mr. Oppenheimer's intention to offer it eventually to the Royal College of Surgeons.

“Magnify your office and recognize it as rightfully claiming the whole effort of your manhood, the most skillfully trained intellect and the utmost grace that pure and healthful living, constant prayer, and hopeful self-control can secure to you. No work makes so constant a demand on all our best energies, and none, therefore, yields so constant a return of keen and healthful happiness.”—*Marcus Dods.*

In how many bright books there is no God treading on the high places; nay, there are no high places of the earth for God to tread upon!—*Vigil.*

"WHEN IN THE NIGHT WE WAKE AND HEAR THE RAIN."

BY ROBERT BURNS WILSON, in the *July Century*.

When in the night we wake and hear
the rain
Like myriad merry footfalls on the
grass,
And, on the roof, the friendly, threat-
ening crash
Of sweeping, cloud-spiced messengers,
that pass
Far through the clamoring night; or
loudly dash
Against the rattling windows; storm-
ing still
In swift recurrence, each dim-stream-
ing pane,
Insistent that the dreamer wake,
within,
And dancing in the darkness on the
sill:
How is it, then, with us—amidst the
din,
 Recalled from Sleep's dim, vision-
swept domain—
When in the night we wake and
hear the rain?

When in the night we wake and hear
the rain,
Like mellow music, comforting the
earth;
A muffled, half-elusive serenade,
Too softly sung for grief, too grave
for mirth;
Such as night-wandering fairy mins-
trels made
In fabled, happier days; while far in
space
The serious thunder rolls a deep re-
frain,
Jarring the forest, wherein Silence
makes
Amidst the stillness her lone dwelling-
place:
Then in the soul's sad consciousness
awakes
 Some nameless chord, touched
 by that haunting strain,
When in the night we wake and
hear the rain.

When in the night we wake and hear
the rain.
And from blown casements see the
lightning sweep
The ocean's breadth with instantan-
eous fire,
Dimpling the lingering curve of waves
that creep
In steady tumult—waves that never
tire
For vexing, night and day, the glisten-
ing rocks,
Firm-fixed in their immovable disdain
Against the sea's alternate rage and
play:
Comes there not something on the
wind which mocks
The feeble thoughts, the foolish aims
that sway
 Our souls with hopes of unen-
dured gain—
When in the night we wake and
hear the rain?

When in the night we wake not with
the rain—
When Silence, like a watchful shade,
will keep
Too well her vigil by the lonely bed
In which at last we rest in quiet sleep;
While from the sod the melted snows
be shed,
And spring's green grass, with sum-
mer's ripening sun,
Grows brown and matted like a lion's
mane,
How will it be with us? No more
to care
Along the journeying wind's wild path
to run
When Nature's voice shall call, no
more to share
 Love's madness—no regret—no
 longings vain—
When in the night we wake not
with the rain.

EDITORIAL NOTES.

APPOINTMENTS—UNIVERSITY OF TORONTO.

Professor Fletcher, of Queen's University, Kingston, has been appointed to the teaching staff of the University of Toronto. Professor Fletcher has had a distinguished career as a student both in Canada and England. As a teacher he has considerable experience, for he was Professor in classics in the University of New Brunswick before he received his appointment to Queen's. We know that the graduates of the Provincial University rejoice at the appointment of the new professor, and we express the earnest hope that for many a year the University of Toronto may have the benefit of his experience and scholarship in her class-rooms. The new appointment to the lectureship in chemistry is well received, the friends of Mr. Fred J. Smale, B.A., saying that he will give good service in that important subject of study.

PROFESSOR DALE.

The report is current that Professor Dale who, as Professor of Latin, gave good satisfaction in the University of Toronto, is to receive the appointment to the chair vacated by Professor Fletcher in Queen's University, Kingston. The teachers of Ontario will be much pleased if Professor Dale's high ability as a teacher can be still retained to enrich his native Province.

PRINCIPAL MCGILL UNIVERSITY.

Pensive regret sits near by the University of McGill, Montreal, while the honoured Principal, Dr. Dawson, retires from the active duties of the Principalship, and the new Principal, Dr. Petersen, enters into harness. In parting with their former friend, the teachers of Canada can say, with-

out any shade of misgiving, well done, good and faithful comrade. Heartily and with high expectancy we welcome the new Principal of McGill to Canada and wish him great success in his new sphere of work. We bespeak for the new Principal of Upper Canada College, Geo. R. Parkin, M.A., a cordial welcome by the teaching profession of Ontario, and hope that the unpleasantness connected with the dismissal of his predecessor, with which, of course, Mr. Parkin had nothing whatever to do, will not operate to the disadvantage of the institution or its principal.

REV. PRINCIPAL GRANT ON EDUCATIONAL FALLACIES.

IN the "Educational Number" of *The Interior* there is an able article on "Educational Fallacies," by Principal Grant. The following extract will make it quite clear that the learned principal of Queen's has no sympathy with the policy that would "obliterate" all religious teaching from our public schools:—

The phrase "Separate Schools" is enough to throw an average American or Canadian audience into a nervous or ballistic fit. There is historical reason or ground for this as there is for every wide spread sentiment. All kinds of foreign material have been thrown into our national hoppers, and it is instinctively felt that there must be some way of grinding it up into a digestible compound. To this end "the little red school house" is quite indispensable. Our future voters or rulers must be taught to speak English. Duly certificated teachers, and the best possible text-books, must be insisted on, and there must be independent and reliable inspection of every school. All this the state must have, but it must have something more, if it is to secure the right kind of citizens. No one wants an elaborate and expensive school system to develop on this continent as French authorities say it is developing in France, an ever increasing army of criminals. There must be moral training, and moral training, without reli-

gious sanctions, has been proved—on a large scale in China—to be worthless. The most perfect speculative acquaintance with ethics goes hand in hand there with the systematic violation of the fundamental principles of ethics, with a wholesale corruption and consequent maladministration which has just led to the greatest breakdown and national humiliation of modern times. In this matter, the state cannot afford, as some innocents urge, to close its eyes, and loftily allege that it must not intrude into the domain of the parents and the church. No one proposes intrusion. All that is asked for is freedom, and freedom consistent with efficiency and completeness of the school system. The state has the right to insist on moral training as indispensable to national well-being; and as the only religious sanctions effectual with children are those acknowledged by their parents, every encouragement should be given for the application of these, consistent with the rights of others and with the maintenance in every community of well-equipped schools. As the life of every state tends to become increasingly complex, this principle may gradually lead to the grafting of various kinds of separate schools on the national system. Lovers of the fallacy of uniformity

will be alarmed at the suggestion of such a possible outlook. Their position is that as we cannot agree on the cut and colour of our clothes, all must agree to don prisons garb or go naked.

There used to be a large majority of people in this country opposed to pure secularism in education, but there is some reason to fear that the number is on the decrease. Constant agitation wearies good citizens. The people who are thrown "into a nervous or bellicose fit" by the mere mention of separate schools may try to get away from the fit by the elimination of moral and religious teaching from all schools. Perhaps, as Principal Grant suggests, this trend towards secularism may be followed by a reaction which will graft various kinds of separate schools on the national system. Either that or the American purely secular school will be sure to come.—*Canada Presbyterian.*

SCHOOL WORK.

THE HIGH SCHOOL PRIMARY.

LATIN GRAMMAR AND COMPOSITION.

Examiners: W. Dale, M.A.; J. Fletcher, M.A.; J. C. Robertson, B.A.

1. The following passage is not to be translated, but is given merely as a basis for the question that follows:—*Cæsar exposito exercitu et loco castris idoneo capto, ubi ex captivis cognovit, quo in loco hostium copiae condesissent, cohortibus decem ad mare relictis et equitibus trecentis, qui praesidio navibus essent, de tertia vigilia ad hostes contendit eo minus veritus navibus, quod in litore molli atque aperto deligatas ad ancoram relinquebat, et praesidio navibusque Quintum Atrium praefecit, Ipse noctu pro-*

gressus millia passuum circiter duodecim hostium copias conspicatus est.

Translate in Latin:

(a) While the cavalry was being landed.

(b) When (*cum*) they learned that the army had encamped.

(c) The shore was easy and clear.

(d) They leave the same cohort to guard this ship.

(e) They were hastening to the camp over which he had set Cæsar himself.

(f) On the tenth night they advance a mile.

2. Using the verbs *accipio, possum, proficiscor, transeo*, translate into Latin the following sentences:—

(a) They receive.

(b) It ought to be received.

- (c) It had been received.
 (d) We cannot set out.
 (e) He will set out.
 (f) They said (*dixerunt*) that he had set out.
 (g) He learned (*cognovit*) who had set out.

- (h) He learned who could cross.
 (i) They were crossing.
 (j) He begged them (*rogavit*) to cross.
 (k) He begs us (*rogat*) to cross.
 (l) An opportunity (*facultas*) of crossing.

3. Translate into Latin:—

- (a) He uses a larger ship.
 (b) As all hope had been lost, they surrendered to him.
 (c) For two reasons they make the mound as large as possible.
 (d) All these places are farther distant.

(e) Having reached another river, he demanded a large number of ships from the neighboring state.

(f) They informed Cæsar that the hostages which the Britons had promised to give had been sent to the nearest winterquarters.

4. State the reason for the mood or the case used in the italicised words in the following sentences (the sentences are not to be translated):—

(a) Ille omnibus primo precibus petere contendit, ut in Gallia *relinqueretur*, partim quod insuetus navigandi mare *timeret*.

(b) Qua re animadversa Ambiorix pronuntiari jubet ut procul tela conijciant neu propius *accedant* et, quam in partem Romani impetum *fecerint*, cedant (*levitate* armorum et cotidiana exercitatione *nihil* eis noceri *posse*), rursus se ad signa *recipientes* insequantur.

(c) In the preceding extract (b) why do we not have *qua in parte* for *quam in partem*, and *faciant* for *fecerint*?

JUNIOR LEAVING.

LATIN GRAMMAR AND COMPOSITION.

1. Write the Latin for *greatest; best; greatly; certain things; at midday; as easily as possible; that it might be taken; that it might be done; he will be able; they used to go.*

2. Translate into Latin:—

(a) It was impossible for Cæsar to accept the terms.

(b) You ought never to have promised to reward (*praemias afficere*) the soldiers.

(c) The soldiers were informed that the camp would be attacked at daybreak.

(d) The tenth legion was not far from capturing the standards of the enemy.

3. Translate into Latin:—

(a) On the news of the defeat, I was persuaded to take up arms under the leadership of Pompeius.

(b) Whenever Cæsar saw his men hard pressed, he would at once send them assistance.

(c) If Napoleon throws all his forces across the river Rhine, I am afraid that no one will be able to resist his advance.

4. Translate into Latin:—

The spring had not yet passed, when the Roman armament sailed for Britain. Cæsar took with him five legions and an equal (*par*) number of cavalry, the usefulness of which had been proved in the late expedition. Three legions were left under Labienus, to provide for the security of Gaul. The landing was effected without opposition at the same spot as in the preceding summer: and Cæsar, leaving ten cohorts to protect his naval station, repaired with the main body to a spot not far from the shore, where he constructed a camp to which he might retreat in case of defeat. This, it is thought, is the foundation of the famous (*celeber*) station of Rutupiae, whose ruins attest to this day the greatness of Roman military works.

CONTEMPORARY LITERATURE.

The September number of the *Atlantic Monthly* is especially strong in fiction. The serial "A Singular Life," by Elizabeth Stuart Phelps, is remarkable not less for its purity than for its truth, while "The Seats of the Mighty" continues to be easily the best thing that Gilbert Parker has written. A new serial by Miss Murfree is begun in this number. Among the verse will be found a fine poem by Bliss Carman. Michael Field, the English writer, appears for the first time in an American publication contributing "Tiger-Lilies." "Guides: a Protest," is an amusing paper by Agnes Repplier.

Of special interest to educationists, in the *Popular Science Monthly* for September, is the paper on "Material of Morality," by Mr. James Sully, and the note in the *Editor's Table* on "Sham Education." Natural History is well represented by "Variation in the Habits of Animals," and "The Study of Birds Out-of-Doors." Among other papers of interest may be mentioned "Trades and Faces," by Dr. Robinson, "Natural Rain-Makers," by Mr. McAdie, and "Fruit, as a Food and Medicine," by Dr. Benjafield.

Conan Doyle, H. H. Boyesen, and Clark Russel are among the storytellers in September *Cosmopolitan*. There is also a delightful sketch of "An English Country House-Party," by Nina Smith, the house at which she visited being the historic Abbotsford. The illustrations of the number are specially fine.

Mr. Stockton's delightful story "Love Before Breakfast" is concluded in this number of the *Ladies' Home Journal*. All the various departments are full and interesting

while the continued stories sustain their promise. The cover, which is designed by C. D. Gibson, is extremely attractive. Grace Greenwood tells in this number who the man was who most influenced her. Graceful in theme and melodious in construction is Mr. Robert Coverley's song "Love's Reflections," written exclusively for the *Journal*.

"Medical Work in Missions" receives special attention in the September number of the *Missionary Review of the World*. R. H. Graves contributes a paper on "Their Basis and Results." Dr. Maria White gives her experience in "Medical Work Among Women and Children." There is also a note on "The Death of Dr. Phillips." "Japan and Korea" are the countries written of by Dr. Pierson in the "Monthly Survey."

"The Third Time of Asking" is a delightful little Scotch story in *Littell's Living Age* for Sept. 14.

Julien Gordon has a characteristic short story in the September *Lippincott's*, entitled "Morning Mists." The complete novel is by Francis Lynde and is called "A Case in Equity." Ella Wheeler Witcox has an amusing sketch entitled "The Literary Woman at a Pic-nic." Charles G. D. Roberts contributes a poem called, "The Weaver."

"Teddy and Carrots," a serial which is running in the *St Nicholas* at the present time, is of more than usual excellence. There are two other serials besides this, both very good. "Our Moose, Elk and Deer" is the title of a paper by W. T. Hornaday which is of great interest to its readers. Jeanette Gilder contributes a paper on "Antwerp and Old Ant-

werp." The verse and short stories are fully up to the usual high standard of the magazine.

A fine portrait of Viscount Wolseley is the frontispiece of the *Illustrated London News* for Sept. 7. The illustrations of the number are exceedingly fine, especially a reproduction of a painting by Frank Dicksee, entitled "Memories." "Aunt Jane at the Seaside," is an amusing short story by the late Lord Brabourne.

We have received in *MacMillan's Colonial Library*, through the Copp Clark Co., Toronto:—

The Great Dominion. By Geo. R. Parkin, M.A., London: MacMillan & Co. These studies of Canada and Canadian affairs were first in the shape of letters to the *Times* and we need not inform our readers that Mr. Parkin is a good authority on Canadian and Imperial affairs. He is also a good writer and has the power of imparting much valuable information in an interesting way. The chief subjects treated of are "The Northwest," "The Canadian Pacific Railway," "Coal," "Eastern Canada," "British Columbia," "The Great Fur Country," "Trade Relations and Trade Policy," "Labour," "Education and Political Tendencies." The book is a good one for teachers and indeed for any citizen.

The Principles of Rhetoric. By Prof. Adams Sherman Hill, of Harvard College. New York: Harper and Bros. The present is a new edition of Prof. Hill's book. It has been revised and enlarged and made more serviceable to advanced students of English composition. The author maintains, and we think successfully, that rhetoric is an art, the function of which is to stimulate and train the student's powers of expression, so that he can say what he requires to say. The book, as our readers know,

is a valuable one, and the new edition is well worth having. The examples and illustrations alone are of no little value and some of them are selected from recent books, e.g., an example of reasoning from analogy is selected from Mr. Balfour's *Foundations of Belief*.

A Handbook of English Composition. By Prof. J. M. Hart, of Cornell University. Philadelphia: Eldredge & Brother. This is a useful, interesting, and practical text-book for the teaching of composition. The author has had a great deal of experience and the really important points are skilfully treated. Three chapters are given to the treatment of the "Paragraph," and another chapter to "Preparing a Composition," "Formulating the Subject," "Preparing a Working-plan," "A First Draught," etc. In the more advanced part of the work, there is a brief treatment of "Poetry" and of the "History of the English Language."

The Philosophy of School Management. By Arnold Tompkins. Boston: Ginn & Co. This is a sane book. It is written in a sensible, prudent, good spirit, and will carry its commendation with it wherever it goes. Not the less so because the author has a keen appreciation of our present difficulties. "The teacher," says Mr. Tompkins in his Introduction, "should not be expected to manage what all the other organizations, especially the family, fail to manage. The teacher must accept the largest responsibility and measure up to it as fully as possible; yet he should not die in despair because all imperfections in the world are not to be buried with him." The chief divisions of the book are as follows: "The Fundamental Law," "The Law Evolving the Organism," "The Organism Executing the Law." We commend it heartily to our readers.

School Classics—Cornelius Nepos. Edited by A. W. Roberts, Ph.D. Boston: Ginn & Co. "Selected Lives" from *Cornelius Nepos* are here published in one of the neat and substantial volumes of the *School Classics*. Nine biographies have been thus selected, partly for their historical value, e.g., Miltiades, Themistocles, and Alcibiades, and notes have been added by the editor, with the object of interesting the pupil as well as of helping him with difficulties and supplying needed information. Lists of Synonyms, "word-groups" and an excellent vocabulary add to the value of the book.

From Messrs. MacMillan & Co., London and New York, through the Copp Clark Co., Toronto, we have received Book I. of *MacMillan's History Readers*, containing short stories in prose and verse from English History and also,—

Ovid's Tristia III., a new volume of the *Elementary Classics*, well-edited by E. S. Shuckburgh, M.A., and with excellent notes.

We have also received three new volumes of *MacMillan's English Classics*: 1. "Lamb's Essays of Elia." 2. "Tennyson, Lancelot and Elaine." 3. "Milton's Tractate of Education." The first is edited by Prof. Hallward, of Cuttack, and Prof. Hill, of Hooghly College, and is, we need not say, a model number, the Introduction being remarkably interesting and useful. Mr. F. J. Rowe, of Calcutta, is the *Tennyson* editor, and has performed his duties with care and taste. The editor of the third is Prof. Morris, of Melbourne University, who has given very satisfactory notes and also a good introduction.

The Speech of Cicero in Defence of Cluentius. Translated into English with an Introduction and notes by W. Peterson, M.A., L.L.D., Principal

of University College, Dundee. London and New York, MacMillan & Co., through the Copp Clark Co., Toronto. The editor and translator of this book, now President of McGill College, Montreal, writes a very full and interesting introduction, which puts the reader fully in possession of the necessary facts and surroundings of the case, and shows him how to approach the study of this great oration. We then have a terse, clear and eloquent translation of the text itself and finally some valuable notes. Lawyers and classical scholars will be interested in this excellent translation and the more so as the author is now in our country.

The Cambridge Bible for Schools and Colleges. General editor, J. J. S. Perowne, D.D., Bishop of Worcester. "Joshua." Edited by G. F. Maclear, D.D. "Judges." Edited by J. J. Lias, M.A. "I. and II. Samuel." Edited by A. F. Kirkpatrick, B.D. The sound scholarship and devout spirit manifest in these three volumes of the *Cambridge Bible* prove that their writers are in every way thoroughly competent for their task, and indeed it is well known to everyone that these books are an excellent popular commentary on the Scriptures. They are great favourites among Bible students everywhere. The introductions are full of the information required by young students, the notes are clear and suggestive, and the maps, indexes, analyses, etc., are all of value.

Algebra for Beginners. Hall and Knight, revised and adapted for American Schools, by F. L. Severn, New York: MacMillan & Co. We are glad to see that this excellent text book, like others in the same series, has been issued in a form specially intended for American schools.

Heath's Modern Language Series. Le Voyage de M. Perrichon. Par Labiche and Martin. Edited by B. W. Wells, Ph.D. An excellent number of this Series, with satisfactory notes by the editor.

Heath's English Classics—Coleridge's Principles of Criticism. With Introduction and Notes by A. J. George, M.A. The frontispiece is a fine portrait of Coleridge.

Chapters I., III., IV., XIV., XXII. of the *Biographia Literaria* are the text of this volume, and we have genuine pleasure in seeing these issued as one of *Heath's English Classics*, for the thought is so valuable and the inspiration which may be caught so powerful. The editor's part, we need not add, is admirable, and recalls to one's mind his work on editions of Wordsworth's poems.

Longman's English Classics. Edited by Prof. Carpenter, of Columbia College, are announced for early publication, and the first volume, Irving's *Tales of a Traveller*, is already bound in hand, well printed, and neatly bound in brown linen. There is a brief biographical introduction and some useful *Suggestions to Teachers*, both by the editor of the *Series*.

The Principles of Physics. By A. P. Gage, Ph.D. Boston: Ginn & Co. This book of some six hundred pages, very well executed, as Messrs. Ginn & Co.'s work always is, and carefully arranged, is one of the best text books on physics for High school and College work. It is adequate in its scope, and although much matter has properly been incorporated from former works by the same author, it is really a new book, and is abreast of recent discovery in Science. There is a good index.

A neat and convenient *Geometry Tablet for Written Exercises* has just been published by Messrs. Ginn & Co., Boston.

Virgil's Æneid. Book I.-IV. Edited by J. B. Greenough and G. L. Kittredge. Boston: Ginn & Co. The publishers intend to publish in a series of volumes the greater poems of Virgil, and the present book is the first volume of the Series. It is a carefully revised edition of the work issued in 1882, the text being mainly that of Ribbeck. The illustrations are better and the various Introductions have been rendered more valuable by detailed references to the use of Epic poetry and the influence of Virgil on English literature. The notes (which, with the vocabulary, occupy about three-quarters of the book) are excellent. The edition is an exceedingly good one.

Thou hast not leisure to read. But thou hast leisure to check arrogance: thou hast leisure to be superior to pleasure and pain: thou hast leisure to be superior to love of fame, and not to be vexed at stupid and ungrateful people.—*Marcus Aurelius*.

From my mother I learned to abstain not only from doing evil, but even from thinking it.—*Marcus Aurelius*.

We now and then meet a person who, we cannot tell how, by the mere magnetism of his being, kindles our enthusiasm, and liberates our faculties.—*Bishop Huntington*.

It has been said that good taste—that is, susceptibility to truth and nobleness—is the end and aim of all education.