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The Educational Weekly,

Edited by T. ARNOLD HAULTAIN, M.A.

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JAMES V. WRIGHT, *General Manager.*

TORONTO, NOVEMBER 11, 1886.

A CORRESPONDENT writing to the *Mail* of the 4th, inst. Over the signature "Professional Man," gives his opinions at some length, upon the subject of overcrowding in the professions. He thinks one of the causes of this over-crowding is the fact that the professors in our universities do not point out to the students, that they had far better, from a pecuniary point of view, engage in some calling other than a professional one. "Would it not be acting more honestly with these students who come before these college professors," he says, "if these professors would tell them their honest opinion as to the desirability of their entering upon a professional life? No, these professors are not in the habit of doing so, because they know full well that in nine cases out of ten, if the "freshman" were fully persuad-

ed that he was about to spend his four years of college life and then his three years of professional training only to enter upon a life where the income would be miserably disappointing, he would at once renounce his contemplation of a literary life and betake himself to some other employment where the work would be fully as easy and the remuneration equally as certain and much more profitable. We read at each annual reopening of the medical schools of the professor who delivers the opening lecture "welcoming" to the particular medical school all the students who may intend to ally themselves with the institution. Would it not, I ask, be a much more honest proceeding for such professor to tell these young men of the rocks ahead, to tell them that it would, in his opinion, be with great difficulty that many of them would make any sort of a decent living, and that if they had plenty of money to live upon it would be all right to choose medicine; but if they had not, to be prepared to find it a herculean task to support themselves and family? All this, I claim, honesty demands from those who occupy these collegiate positions. Young men do not know what a professional life is until they have actually entered upon it. They are induced to take roscate views of it by the unscrupulous statements of some of these infamous professional liars who talk so blatantly about their income from their practice." And he continues. "Look at the innumerable number of High schools in existence throughout our land. High school masters will have to bear their part of the blame for the present overcrowded population in all the professions. Some ambitious B. A. takes charge of a High school. In order to gratify the spirit of rivalry existing between his own school and the school of the neighbouring town, he, by humouring the fancy of some indulgent parent, tells him that his son would make a great success if allowed to take the full course and enter a university. The parents, though poor, in order to do a favour, as they suppose, to their child, will let noth-

ing henceforth interfere with the child's attendance "at school." He must go regularly to the High school until he gets "learning" sufficient for him to enter upon a professional training, for they want their son to be either a lawyer or a doctor, so that he may be in a position to accumulate vast wealth. Would it not, I ask, be only an honest act on the part of these *High school teachers* if they would tell the truth to the parents of these youths committed to their charge? Would they not in doing that be doing only their duty to themselves, the scholars, their parents and the public at large? An evil exists, which is admitted by all, and to cure the evil the speediest way is to strike at its root. Higher education is all very well, and it is much to be desired; but I speak only the truth when I repeat that honesty and candour on the part of High school masters and college professors in Canada at the beginning of the course of those committed to their care would cause an enormously large proportion of these aspirants to professional fame to at once renounce their contemplation of a literary life."

The *Mail* well replies to this that "in the first place the proper function of teachers and professors is simply to aid scholars and students in obtaining a liberal education. It is no part of their duty to offer advice save as to methods of study and kindred matters. In the second place it is scarcely to be supposed that people in other walks of life would regard with equanimity any attempt to turn the whole tide of competition from the professions upon them. Thirdly, such advice might have the effect of making very poor farmers or merchants or artisans of young men who would be ornaments to the learned professions. Many who would be almost certain to succeed in law or medicine might be deterred from adopting these professions if they were told that there was no room for them. The old saying, 'There is always room at the top,' is as true now as ever it was, and men are wanted at the top even in the overcrowded walks of life."

Contemporary Thought.

ONE teacher looks at his pupils and sees nothing in their faces but an exhaustive demand on his strength and patience; another sees in each face a mute appeal to all the wisdom, sympathy and love that are in him. So says the *Christian Union*.

It is stated on the authority of an American contemporary that the watercress destroys the toxic principle of tobacco without damaging its other qualities. It is said to be sufficient to moisten the tobacco with the juice of the watercress to deprive the tobacco of its deleterious effects. If this information may be relied upon, it will prove of especial service to beginners, and may help to spare them the pangs of physical remorse which not unfrequently attend the earlier efforts to acquire what is at best an expensive and wasteful habit. It is open to question, however, whether if this end be obtained, smokers would not after all prefer the unsophisticated article; tobacco without nicotine is like certain tectotal beers without alcohol (some tectotal beers are, however, not exempt) which only satisfy when thirst is very urgent.—*Med. Press & Circular*.

WE can no longer shut our eyes to the fact that the American democracy is destined to burdens of which none of its members dreamed five years ago. It must solve new problems for the race, and it must do it, as it has supported other burdens of the kind, soberly, manfully understandingly. It must, then, study anew the art and practice of considering all the circumstances of a case propounded before giving a deliberate judgment. That frame of mind which is shown in going off at half-cock in a hasty verdict of approval or disapproval on a half view of surface circumstances never was so dangerous as now. There is a new responsibility on our newspapers, on our other periodicals, on our public men, on our clergymen and other teachers, and it behooves them to meet it and to carry on the consciousness of it to the generations which are pressing on for the future. Hence alone can we have that sober and trained public opinion without which democracy is a foredoomed failure.—*The Century*.

It may be asked, What harm can result from allowing persons to believe in "faith-healing?" Very great indeed. Its tendency is to produce an effeminate type of character which shrinks from any pain and to concentrate attention upon self and its sensations. It sets up false grounds for determining whether a person is or is not in the favour of God. It opens the door to every superstition, such as attaching importance to dreams, signs, opening the Bible at random, expecting the Lord to make it open so that they can gather His will from the first passage they see, "impressions," "assurances," etc. Practically it gives great support to other delusions which claim a supernatural element. It greatly injures Christianity by subjecting it to a test which it cannot endure. It directs attention from the moral and spiritual transformation which Christianity professes to work, a transformation which wherever made manifests its divinity, so that none who behold it need any other proof that it is of God. It destroys the ascendancy of reason in the soul, and thus, like

similar delusions, it is self-perpetuating; and its natural, and, in some minds, its irresistible tendency, is to mental derangement. Little hope exists of freeing those already entangled, but it is highly important to prevent others from falling into so plausible and luxurious a snare, and to show that Christianity is not to be held responsible for aberrations of the imagination which belong exclusively to no party, creed, race, clime, or age.—*E.r.*

IN these days, however, it is not the fault of the publishers if the present generation is not omniscient. Good books were never more cheap or abundant. A modest sum nowadays would buy almost the whole realm of English literature. One may purchase Bunyan's immortal allegory for a penny, all of Shakespeare's plays for sixpence; while a set of Ruskin, which not long ago was in England held at five hundred dollars, may be bought in a popular library on this side for as many cents. The wave of cheap literature, which for many years past has flung its rich wreckage on the shores of this continent, and swept up its waterways with fertilising power, has now crossed the Atlantic, and is beating with marked impression the white cliffs of Albion. There, to-day, thanks to the enterprise of the publishers and the limitations of copyright, a few pence will buy the most treasured of English classics. The sale of these popular editions on this side is, we learn, unhappily limited. This, we dare say, is owing partly to the fact that the "standard authors," till now, in the main, high-priced in England, have long been accessible to all classes of readers in this country. But is not the limited sale accounted for by the aggressions of contemporary authors—chiefly sensational novelists—whose productions have all but swamped those of the older writers, and the reading of which has in some measure perverted the taste necessary for their enjoyment? Nevertheless, the sale on this side of the Atlantic is not small of the works of what are termed "our best authors"; and though the newspaper and the illustrated periodical are the chief reading of the masses, a large and ever-increasing constituency seeks to be familiar with the masterpieces of the language which have long been our instruction and delight.—*G. Mercer Adam in the Week*.

THE most momentous intellectual conquest of our day is, perhaps, the discovery of the great law of the unity and continuity of life, generally styled the law of evolution. Not only are the remotest branches of knowledge—as, e.g., physics and psychology, or chemistry and politics—connected by it into a systematic and harmonious whole; but by it also has been realized that union between science and philosophy for which the clearest minds of former ages longed in vain. The secular feud between idealists and materialists ceases on the solid ground of the evolutionary doctrine, where every science becomes philosophical without surrendering to any metaphysical or *a priori* conception; while, on the other hand, our psychological and ethical inquiries acquire a firm basis and scientific precision and accuracy as soon as they are touched by the vivifying spirit of this theory. Since we admit the unity of life, and since we consider cosmic phenomena, in spite of their amazing apparent diversity, only as various manifestations or consecutive degrees of one evolution, we are compelled to infer that our methods of political or

historical knowledge ought to be essentially identical with those generally prevailing in physical or biological researches. Metaphysical speculations on social matters, in which the greatest philosophers of former centuries delighted, lose their hold upon the skeptical mind of our age, and even the economic empiricisms of Adam Smith, Malthus, and Ricardo grows inadequate to the modern demand for positive knowledge of the natural laws pervading the evolution of human societies. Sociology, i.e., a strictly scientific statement of these laws, is considered nowadays as an integral part, as the necessary "*couronnement l'édifice*" of a methodical conception of the world.—*From "Comte and Spence on Sociology," in Popular Science Monthly for November*.

AND here I am tempted to allude to an old cry which seems at present to be reiterated with more than usual zeal, that we are over-educating the people, and tempting the rising generation to forsake the desk, the forge and the plough for the learned professions. There lies at the foundation of this the mischievous error which confounds mental and moral culture with professional training. The aim of all true education is mental breadth, moral elevation and such a mastery of the great truths that furnish the best antidote to sloth and ignorance as shall awaken the dormant intellect and kindle it into living power. Of all the educational solecisms of our day this cry of over-education seems to me one of the most foolish; as though the hope of Canada's agricultural future depended, like that of Egypt with its degraded felahs, or of Cuba with its praxial negroes, on the ignorance of the tillers of the soil. . . . Let us not discourage the idea that in the world's future, and above all, in this centre of freedom and industry, the good time is coming; though, doubtless, for us of the older generation at least,

"Far on in summers that we shall not see,"

when intellectual capacity shall not be thought incompatible with mechanical toil; when another Burns, dowered with all that culture can lend to genius, may "wake to ecstasy the living lyre" while following the plough; another Watt or Stephenson, trained in the mysteries of statics and dynamics, may revolutionize the economic service of mechanical forces; another Hugh Miller, rich in all the latest revelations of science, may interpret more fully to other generations the testimony of the rocks. Meanwhile we may look forward, without any dread of the fancied evils of "over-education," to a widely diffused culture, broad and thorough; with its few eminent scholars and specialists rising as far above the general standard as the most cultured of our own day excel the masses. . . . We need be in no fear that Canadian Bacons and Newtons, Porsons and Whewells, will multiply unduly; and for the rest, we may safely leave the chances of an excessive crop of lawyers, doctors or teachers to the same law of supply and demand which regulates the industry of the manufacturer and the produce of the farm. But of this we may feel assured, that in the grand struggle of the nations in the coming time the most widely-educated people will wrest the prize from its rivals on every field where the value of practical science and the power which knowledge confers are brought into play.—*Dr. Daniel Wilson in a speech at Convocation*.

Notes and Comments.

WE remind our readers that candidates for high school entrance at the December examination on December 21st, 22nd and 23rd, 1886, must notify the headmaster of the school at which they intend to write, no later than November 15th. The promotion examinations will be held on December 22nd and 23rd, 1886. Teachers whose pupils intend writing for promotion at the time must send the number of such pupils in each of the three classes, to the Inspector of the division, no later than December 1st.

THE *American Teacher* gives the following very sensible advice: Despise not your own talent. Most teachers succeed in some department of their work. There is more good teaching than the profession gets credit for. But some teacher who unduly magnifies her own special tact or skill makes other teachers distrust their own worth. While holding yourself ready to learn of any one and every one who has a fresh, live, idea, do not allow any one to undermine your confidence in yourself. Better be yourself than an imitator. Use the thoughts of others to season your method. Do not permit yourself to be used to season other people's theories.

A SUBSCRIBER asks us to publish the work for the next second class non-professional examinations. The following is the list of subjects:

ENGLISH.—Thomson—*The Seasons*—Autumn and Winter.

Southey.—*Life of Nelson* (last three chapters).

LATIN.—Cæsar—*Bellum Britannicum*.

Cicero—*In Catilinam, I*.

VIRGIL.—*Æneid, I*.

FRENCH.—Lamartine—*Christophe Colomb*.

GERMAN.—Hauff—*Das Kalte Herz*.

Schiller—*Der Gang nach dem Eisenhammer*.

THE following ironical remarks found in a letter addressed to the editor of a western town, may amuse our readers:

"I look forward to the period when the teacher shall be relieved of every drudgery, and the duties above mentioned, with receiving and considering the excuses of parents who may have failed to perform the full task of educating their children, will be all that shall be required—when, in fact, the 'home work' now assigned to both parents and children shall cease to be even nominally additional to the school work, but comprise the whole prescribed course; when school buildings shall be for the use of the 'teachers' and children go to school only to play in the yards.—Yours truly, WORKINGMAN."

"No credit, as we are aware," says an exchange, "has heretofore been given in any college in the Dominion or in the United

States to students in their examinations, for any colloquial knowledge of French or German. As these languages are of such importance, especially to professional men, this state of things seems to be an unaccountable paradox. It makes no difference how fluently and elegantly a candidate for examination in moderns might speak French, German, and Italian—as well, indeed, as Gambetta, Bismarck, or Manzoni—he might not pass a more successful examination than a man who had never heard pronounced a word of either language. The professor is wont to dissect, for the benefit of his students, dead Latin or Greek, French or German, with the knife, forceps, and hook and chain of grammar, philology, and rhetoric, and the result is that these two modern languages are now as dead, in most colleges, as their honoured predecessors."

A WRITER signing himself "Trustee" writes as follows to the *Kingston Whig*:

"We ask space in its columns for the purpose of passing a few strictures on what has lately become a veritable nuisance in some of the country schools. We refer to entertainments and concerts, given by the scholars, mostly towards the close of the year. It is decidedly disagreeable, possibly dangerous to criticize the methods of others; but it is none the less a necessity sometimes. The public school is sustained on the principle that children are of essential value to the State, being expected to form the productive capital of the future. Every boy or girl who attends a public or high school has mostly a definite object in view in doing so, but the ability to give a recitation or act a part in a dialogue is no adequate return for the heavy taxation necessary for the support of our schools. But we might logically conclude from what we have seen and heard recently that schoolhouses are built and ratepayers heavily taxed, for the sole purpose of bringing together all the idle young people in the locality to be entertained by a few infantile 'stars,' and to gratify a morbid desire for notoriety on the part of an inferior teacher, while the large majority of the children are learning nothing of any practical value. The whole time for weeks, often months, is spent in hearing and rehearsing for what will flatter the vanity of the parents of a few precocious children, and bring heartburning to a large number of other children. But why speak of the sufferings of these timid, reserved children? A teacher, who probably could never pass a third class examination, has thus gained undying local fame, and a gaping crowd of idlers entertained at the expense of the nervous exhaustion of children who should be at home in their beds. If school trustees and parents have no more than the necessary share of common sense the general public must be credited with

more than the ordinary share of the Christian virtue called patience or much dissatisfaction would be expressed in reference to the inferior work done in some country schools."

AN interesting letter appeared recently in the *Peterborough Daily Evening Review*. The writer, Mr. L. Seward, advocates the teaching of some orchestral instrument. He says, "No better remedy can be found for those who are deficient in lung breathing power and nerve strength than the study of brass instruments, say the B flat cornet. The exertion needed for sounding it expands the lungs and vivifies the system generally. Bandsmen are as a rule very healthy men, and looking over the annals of crime we very rarely find musicians brought before the courts for offences against the law. Let a boy in his earlier years learn the use of an orchestral instrument and you add to his life many hours of innocent pleasure. Music always refines a youth, drawing his attention from the coarser vices of gambling, drinking, cards, etc. With regard to boys' voices, they all change about the age of fourteen and do not become fit for use for several years. Thus the best years of a boy's life when memory is at its best are lost as regards music. Now, we find that all boys are very fond of band music. Let our boys take up the study of band instruments, and in one year's time with one hour's daily practice surprising results are obtained, even to the extent of playing together as a uniformed band, easy marches, etc. A few years elapse and the lads find themselves indispensable factors in the social life of the city they live in. I have consulted with members of the Board in this city, and find that teachers can be secured for teaching boys in large classes, as is the custom in Germany and Austria, thus reducing the price of tuition to a very low figure. The classes could be taught from five to seven p.m., thus enabling the lads to get to their houses in due season. The instruments can be sold in the instalment plan on very easy terms, or by paying extra tuition fees, the use of the instruments allowed only in the practicing rooms. There is no earthly reason why, if our citizens will take this matter up with some little enthusiasm, why we should not see in one year's time a band of one hundred performers in becoming uniform marching through the streets of this bright and pretty city of Peterborough. I have spoken to many of the boys, and they are delighted at the idea. Now it only remains for the ladies of Peterborough to take the matter up, coax the hard-hearted fathers to purchase an instrument, and we shall have in a short time the happiest lot of boys in all Canada, as they find themselves continually improving, and giving pleasure to their parents and friends."

Literature and Science.

CHASE OF A SPIDER.

A SIMPLE LESSON IN ZOOLOGY.

ON my return from school one warm afternoon about the beginning of September, I threw myself on the grass to rest a few minutes in the shade of a fine hickory that stands a few rods from my window. I had been there only a minute or two when I found a spider—a brown, feathery, disagreeable-looking spider about half an inch long—on my coat sleeve. Having a constitutional horror of spiders, I quickly shook it off. To make sure that I had got rid of it, I began to look for it on the ground, and soon caught sight of it running along in the grass, and seeming to be in a great hurry about something. The cause soon appeared. Several inches behind the spider, and on its track, was a winged red-bodied ant, which was pursuing its prey as closely and inveterately as a blood-hound follows his larger quarry. The spider would run into a thicket of grass and turn quickly at right angles to his former course; the ant would follow directly in his track. Sometimes the spider would run up a leaning stem of grass or clover and drop from the end of it, hoping to throw his pursuer off the scent; but up the ant would go, drop from the same place, and, recovering the track, persistently resume the chase. For about five minutes the spider kept his distance ahead of the ant; then the former grew tired and lost ground. Several attempts to hide were vain, for the ant held the track directly to the place of concealment, and the spider had to spring forward again. At last he was overtaken. There was a brief struggle, and then, on looking closely, I saw the spider limp and lifeless on his back, while his enemy seemed to be sucking his heart's blood.

What struck me most during this observation was the evident dependence of the ant on the sense of smell for keeping the track of his prey. I had additional evidence of this. The ant started off dragging the body of the spider after him, but soon left it for a time while he went off on some other errand. While he was away a young friend, who had witnessed with me the latter part of the chase, picked up the spider to examine it. Meantime the ant came back to look for his prize. My young friend let the spider fall not far from the scene of the capture, and the ant soon found it. Once more the ant went away, and again my companion picked up the spider, this time putting it on a dry clover head two or three inches from the ground and a little removed from the place in which it had been left. The ant came back to the exact spot where the spider should have been, but, not finding it there, he set off at once and searched all over the

ground they had run over in their chase. Then he circled about, once coming near where the spider was placed, but did not succeed in finding it, and at last flew off. I observed that he scarcely ever used his wings during the chase.

T. W. STANDING.

THE SCIENCE OF EATING.*

BY PROF. C. C. JAMES, M.A., ONTARIO AGRICULTURAL COLLEGE, GUELPH.

* * * THE choice of foods, their arrangement in courses, and their preparation, have all arisen to a great extent from a gratification of the palate. Experience, not scientific reasoning, has guided man. But an experience that results in the pleasure and development of man will always be found to rest upon true scientific principles. This is not overthrown even when the experience has been partially the result of necessity, as in the case of the rice of the Chinaman, the potatoes and buttermilk of the Irishman, the bacon and corn-cake of the Southerner, the oatmeal and herring of the Scotchman, or the brown bread and mackerel of the New Englander.

The development of physiological chemistry, or of chemical physiology, has been slow and difficult. We shall enumerate only a few of the leading facts so far recognized.

An average man of 150 pounds weight will be made up chemically as follows:—

Water.....	93.0 lbs.
Protein.....	22.5 "
Fats.....	23.5 "
Carbo-hydrates.....	0.2 "
Mineral matters.....	10.8 "
	150.0 lbs.

Animal and vegetable compounds are first divided into two classes, *nitrogenous* (those containing nitrogen, as well as carbon, oxygen, hydrogen, sulphur, and sometimes phosphorus) and *non-nitrogenous* (containing carbon, oxygen and hydrogen). The nitrogenous compounds, of which cheese, (casein) white of eggs (albumen) and lean meat (fibrin) are familiar examples, are also known under the names of *albuminoids* and *protein*. In the animal frame the protein constitutes the flesh, muscle, tendons, etc.—the machinery of the body. The composition of protein is, nitrogen, 16 per cent.; carbon, 53.5 per cent.; oxygen, 22.5 per cent.; hydrogen, 7 per cent.; sulphur, 1 per cent.

The non-nitrogenous compounds are divided into two classes, the fats and the carbo-hydrates. The latter are compounds of carbon and water, and are found in the sugars, starch and cellulose. But little is found in the body (in the glycogen of the liver), sugar especially being readily soluble,

and therefore not of a permanent or stable character.

In the fats the carbon, hydrogen and oxygen are united in proportions different from those of the carbohydrates.

The mineral matters are found mainly in the bones, and consist principally of calcium, phosphorus, chlorine, fluorine, potassium, sodium and magnesium compounds. Salts are necessary for the building up of the bony structure or framework, and are therefore most requisite in the case of the growth of children. But there are other uses of the mineral matters which have not yet been determined. Animals fed on pure nutrients entirely free from mineral matters become languid, droop, and finally die. Prof. M. Foster, F.R.S., writes, as quoted by Dr. Fothergill, of London, England: "All food contains, besides the potential substances which we have just studied, certain saline matters, organic and inorganic, having in themselves little latent energy, but yet either absolutely necessary or highly beneficial to the body. These must have important functions in directing the metabolisms of the body. The striking distribution of them in the tissues, the preponderance of sodium and chloride in blood-serum, and of potassium and phosphates in the red corpuscles, for instance, must have some meaning; but at present we are in the dark concerning it. The element phosphorus seems no less important, from a biological point of view, than carbon or nitrogen. It is as absolutely essential for the growth of a living being like *Penicillium* as for man himself. We find it probably playing an important part as the conspicuous constituent of lecithin; * we find it peculiarly associated with proteids, † apparently in the form of phosphates; but we cannot explain its role. The element sulphur, again, is only second to phosphorus, and we find it as a constituent of nearly all proteids; but we cannot tell what exactly would happen to the economy if all the sulphur of the food were withdrawn. We know that the various saline matters are essential to health, that when they are present in proper proportions nutrition is affected, as is shown by certain forms of scurvy. We are aware of the peculiar dependence of proteid qualities on the presence of salines; but beyond this we know very little."

The constituents of the body, then, can for all present purposes be divided into five classes—water, nitrogenous compounds, fats, carbo-hydrates and mineral matters. Water is the all-important, universal solvent found in all parts of the body, and serving as the vehicle of transport or communication between the body and its food supply. The mineral matters represent the solid frame-

* Lecithin is the principal food of the nervous system (C₄₄H₇₆N₂PO₈).

* Taken from *Animals* by kind permission of the editor and writer.

† Proteids, another name for the digestible albuminoids. After digestion in the stomach they are termed peptones.

work of the machinery, giving a general plan to the structure. The nitrogenous matters are the pulleys, the bands, the ropes and all the delicate appliances attached to this framework. The fat and carbo-hydrates are the fuel, a certain amount being necessary to maintain a workable temperature (bodily heat), and a constant supply being demanded to keep the machinery running.

Each of these constituents must be daily supplied, and in the proper proportions, the amount varying with the condition of life. Thus the extra heat required in winter demands more fuel—more fat, sugar, and starch foods. The movement of muscles and limbs produces a certain friction, a wear and tear, which demands a constant supply of nitrogen compounds: the man of sedentary habits needs but little nitrogen, the man of manual toil demands "strong food," such as meat, eggs, cheese. Upon this over supply of nitrogen compounds depends most of the cases of indigestion. "High living" is nothing else than a too liberal use of nitrogenous compounds. It is very easy for the body to dispose of an excess of sugar, starch or fat, but its efforts to utilize a surplus of nitrogen compounds too often result in blood-poisoning, rheumatism, gout, and the thousand and one other diseases resulting from indigestion.

The daily average ration required for an average developed man is about as follows:

Protein.....	4.2 oz.	Lean steak.....	8 oz.
Fat.....	2 0 "	Butter.....	1 "
Carbo-hydrates..	17.6 "	Bread.....	20 "
Mineral matters.	0.8 "	Potatoes.....	30 "
Water.....	71.4 "	Water.....	37 "
	96.0 oz.		96 oz.

Milk is a complete, natural food, consisting as follows:—

Water	87.4	per cent.
Cheese or nitrogenous compounds,	3.4	"
Butter or fats.....	3.8	"
Sugar or carbo-hydrates..	4.8	"
Mineral matters.....	0.6	"
	100.0	

It is perfectly adapted, we see from the above, for the development of the body, blood, bone and sinew.

(To be continued.)

BALLISTICS, or the science of projectiles, is to be studied with the aid of photography. In the interest of the German admiralty, Krupp, the cannon-founder of Essen, is to employ an expert to photograph projectiles in transit, the recoil of gun carriages, the penetration of armour plates by projectiles, and similar phases of artillery practice. As projectiles have an average velocity of 1,500 feet per second, the obstacles to be overcome in obtaining satisfactory photographs are very great, necessitating the most delicate apparatus and the most skillful manipulation.

Special Papers.

SCIENCE TEACHING.

(Read before the Ontario Teachers' Association.)
(Concluded from last issue.)

ANOTHER alleged hindrance to Elementary Science Teaching is *want of time*. The teacher is so pushed that he cannot find time to *prepare* for giving science lessons, and when the lesson is over, time is required to put away apparatus. There is some show of reason in this as also in the difficulty presented by the expense—cost of apparatus.

Notwithstanding all the disheartening things that have been said, there is much to be thankful for. Though our ideals are never reached, perhaps never will be, progress has been made, and there ought to be hope in the breast of the most despondent. Little as Science Teaching appears to have accomplished in reality, much has been done. Science has permeated history, law, language; everything has its scientific aspect or treatment. The comparative indifference with which Science Teaching is now commonly regarded is a reaction. It is only natural that a period of great activity should be followed by one of less activity. There are now signs of a revival of former enthusiasm and interest.

The whole history of education during the last few centuries is laden with encouragement. In *Education*, No. V., Vol. III., you may read that in "1843 the English Parliament was debating whether £30,000 should not be appropriated for the encouragement of the schools of the common people, when they had just appropriated twice as much (£60,000) for the Queen's horses and hounds. This sounds like something done away back among the centuries rather than events of forty-three years ago.

The influence of education in ameliorating the condition of the Scotch also encourages us. Towards the end of the seventeenth century personal slavery was proposed as a means of bettering the condition of the common people. Instead of this it fortunately happened that schools were established for them. This was the outcome. In spite of the physical disadvantages of climate and soil, "Scotland became a country which had no reason to envy any part of the world, however richly gifted by nature." The material advancement of the Scotchman was marked. He went everywhere, and everywhere his intellectual and moral training told in his favour. His success in everything to which he turned his hand was phenomenal. "A hundred years before Scotchmen of the lower classes were spoken of in London as you speak of the Esquimaux, or as we hear the North-west Indians spoken of; but such was the difference when this system of State education had been in force for only a short

time (one generation), the language of contempt, was at an end and that of envy succeeded. Then the complaint was that whenever a Scotchman came he got more than his share—that he rose to the top like oil on the water."

The way things are done in Germany is often held up to us as a model. It was not always so. The time was when the German standard would not furnish an acceptable model. One of Melancthon's colleagues, a professor of mathematics, cheered the hearts of the despondent students of the University of Wittenberg by telling them that "the first elements of arithmetics are easy; the doctrine of multiplication and division requires more diligence, but may be comprehended by the attentive student without great difficulty. Of course there are more difficult parts in arithmetics, but I speak now of only those rudiments which will here be taught to you, and which are very useful." These words addressed three centuries ago to the young *men* attending that great university would now not be out of place if uttered in one of our humblest public schools and addressed to the little children attending it: "Multiplication and division may be comprehended by the attentive student." Just imagine the professor of mathematics of University College thus addressing his class. We may smile, yet Science Teaching is but in its infancy, and the splendid work in Science Teaching now done in our universities, may in a few generations be the common work of the public schools.

It is, in part, probably, due to this side of the mind's training being so greatly neglected that an ordinary education is regarded as detrimental to the future prospects of pupils, that one so educated makes a poor farmer, manufacturer, merchant or business man of any kind. It may not be a fact that such is the observed result, or that there is any real connection between these two things, but there is a wide-spread belief in the reality of this connection. There is something in this general dread of the deadening influence of "education," if we are to regard the views already expressed respecting the inadequacy of the education heretofore commonly given. Little need be said about it. It is well known—too familiar in fact.

The following story seems to involve this. Not very long ago I was present where two public school inspectors were talking earnestly over school matters as found in their counties. One of them said he gave a certain simple question in arithmetic, a question involving little more than good common sense. This was the result, only one *little* fellow in all the school gave a correct answer. The explanation given of this success was: "But the little fellow had not been long at school perhaps, not long enough to mak:

him stupid." Whether Science Teaching is the cure for this or not, there can be no doubt that one of the needs of modern education is something to "keep awake and develop the natural practical intelligence of our young people," something to increase their common sense, *i. e.*, "good sense about common things," the ordinary affairs of life. "The object of education is not only to produce a man who *knows*, but one who *does*; who can solve the problems of nature and of humanity as they arise. Men of action are needed as well as men of thought. There is no doubt in my mind that this is the point in which much of our modern education fails." Fail it must, because it does not embrace the whole man.

There is another view of the value of Science Teaching. It is that it gives an accomplishment. This is the opinion of an English reviewer of one of the United States Bureau of Education circulars. He says. "Such information however is also rising in value as an accomplishment, and the lack of it will soon be looked upon as an ignorance of classics was a generation ago. It will be felt that no knowledge of language can atone for an ignorance of nature, and that a neglected 'h' or a false quantity is a very venial offence compared with the wondering why eclipses never take place when the moon is half full."

Dr. Harris, in a recent number of *Education*, expresses a kindred view: "The person who has not learned the technical terms of science, passes by unedified by the scientific information that runs at large, and remains a scientific illiterate his life long."

If there is to be Science Teaching, where and when are we to begin? With the diffidence becoming to "rough, raw Canadians," let us learn from others. Harris, an American, whose article I have just quoted from, says: "Science should come in for its share in the curriculum of the common school." Mr. G. H. Bailey, writing from Heidelberg to an English paper, said: "If science is to be taught effectually it must begin with the earliest years of the educational career, and there is surely no subject that lends itself more appropriately to the youthful mind. Children delight to talk of flowers, of insects, and of the wonders of nature; they are ever asking suggestive questions."

In 1883 the Bureau of Education, Washington, issued a series of questions respecting the teaching of a science subject. The answers were collated by Professor Wead. A review of Wead's report, published in *Nature* last year, says: "The replies seem to show that in the lowest schools, lessons on the elements of science should be given."

I next propose to enquire why the attempt to introduce and teach science has not produced the satisfactory results its friends and votaries expected, for there are not wanting

those who think the attempt has been followed by something remarkably like failure. Now one reason assigned both in the United States and England is *lack of suitable teachers*. In the United States this hindrance it appears to be generally recognized. Professor Wead says, in reporting on replies received to questions respecting the teaching of Physics:—

"Many of the replies emphasize the difficulty of getting proper teachers for the subject, both for the schools and colleges; for the teacher should have a knowledge *far exceeding the amount* he must teach, a training in methods of teaching, and a manual skill in making and using apparatus that is called for in scarcely any other subject; otherwise mistakes in method and fact will be common in his teaching, and his instruction will be a constant appeal to the textbook or other authority, thus losing the very thing that is of peculiar value in the training derived from the study of the sciences. In such cases little information is really gained or retained, and as the study is not vitalized by an appeal to nature the phenomena are not understood, or are misunderstood, and the results for good are slight. Even the time may be worse than wasted, for it is difficult for future teachers to undo the harm of bad training." Prof. Rowland, of Johns Hopkins, says: "Those who have studied the present state of education in the schools and colleges tell us that most subjects, including the sciences, are taught as an exercise to the memory. I myself have witnessed the melancholy sight in a fashionable school for young ladies, of those who were born to be intellectual beings, reciting page after page from memory without any effort being made to discover whether they understand the subject or not. * * * Words, mere words are taught."

The want of qualified teachers appears to be more strongly felt or more fully recognized in England than in the United States. In a paper read at the recent International Conference on Education, held in London, occurs the following: "The ordinary teachers and pupil-teachers of our schools have not as a rule the sound knowledge of principles and practiced powers of manipulation which are necessary in order to teach science with power and effect."

In another English paper read at the same meeting I find amongst "the causes which operate against the teaching of science," "the ignorance of even the barest elements of science, of the majority of teachers in charge of schools" * * and the want of "good method" is severely condemned. "I believe this to be the most important of all the causes which operate against the teaching of science, the imperfection of our method of teaching, there can be little doubt in fact that the majority of

teachers of the generally recognized subjects who have themselves no scientific knowledge, see clearly enough that very little good comes of teaching science in the manner in which it is commonly taught in schools."

Another hindrance is alleged to be found in want of suitable courses or programmes of study or of work.

For those whose instruction in science stops with their school-days, the educational value of the *course is the first thing to be considered*, and next the general knowledge of nature given by it. These two considerations are much lost sight of in framing courses of study. To take a particular subject, it is obvious that the best curriculum for those who are to be professional chemists or even physicians is not the best for those who will not carry the study of chemistry beyond their school days. If the course of study is the same, except as to extent, in school as in medical college—the course is not likely to suit in both cases.

In addition to want of properly qualified teachers and defective courses of study, the heavy hand of the examiner has proved a hindrance to Science Teaching, at least so it is said.

An English Science Master of many years' experience says: I wish to point out how entirely Science Masters are at the mercy of the examiners. He then relates his own experience and his own attempts to reform his instruction and ends thus: Consequently my attempts had to be abandoned and we returned to our test-tubing—the old way.

Another says: When any one proposes to himself a change in his mode of teaching, unless his position is quite exceptional, he always finds himself confronted with one solid difficulty, *viz.*, public examinations of one kind or another. Teachers at first inspired the examiners, now they find themselves too often helpless before them. In the face of our various examining boards individuals are nearly powerless. Whether well founded or not, the complaint is made and reiterated that Science Teaching is much injured by the character of the examinations.

Thus Professor Galloway in his work *Education, Scientific and Technical*, adds all the weight of his authority to the support of this complaint. Contrasting the German with English practice, it has been said that in Germany "the principle of competition is almost entirely excluded as tending to foster a servile view of education, and to lead to spasmodic and exhausting efforts, a feverish excitement rather than the healthy and harmonious development of the mental powers. The students' powers are carefully husbanded for employment in the serious toils of mature intellectual life: in England they are wasted in a ruinous and unmeaning

rivalry of striplings." Instead of teaching how to do a thing we cram to pass an examination in it.

I believe that Cooke, of Harvard, is responsible for saying that when Science as an element in college education was first urged upon the two great English Universities, Oxford and Cambridge, it was objected to on the ground that "the experimental sciences could not be made subjects of competitive examination."

The end and aim of education is not (as some say by their acts if not by their words) to pass an examination better than some one else.

Once more let me present you with an additional condemnation: "Now there is scarcely a man whose opinion is worth the smallest scrap of paper upon which it could be written, but condemns more or less openly our examinational system. Still it survives and there is no immediate sign of its breaking up. The schoolmaster who should rise to a higher ideal of education would simply lose his pupils." GEORGE BAPTIE.

HOME LESSONS.

In answer to the question: "To what extent are teachers justified in assigning young people 'home lessons'?"

"Young children should never have home lessons assigned to them, as they need the careful supervision of a teacher and will not make a profitable use of their time without direct guidance. If the school sessions require pupils to spend four or five hours a day in the school-room, the judgment of the best physicians is against the practice of requiring home lessons for pupils under twelve years of age. The need of home lessons for pupils of secondary and higher schools cannot be questioned; but they should not begin at too early an age, nor should they be made too exacting. They should never deprive pupils of any age of needed exercise and healthful recreation.

"We wish to enter our protest against a custom, quite prevalent among many otherwise judicious teachers, of requiring pupils to write exercises at home in order to save the time and attention of the teacher in school hours. Such demands are a torment to parents and absolutely injurious to the pupils when they are assigned as tasks or as punishments for delinquencies. No teacher who is guilty of so serious a mistake can be regarded as fully understanding the work either of instruction or of discipline of young children."

JAPAN, according to John Milne, contains 129 volcanic peaks, of which fifty-one are still active. The loftiest is Fujiyama, near Yokohama, a little over 12,400 feet high, which does not appear to be extinct, as is generally supposed.

Educational Opinion.

DELICATE GIRLS.

In a recent discourse before the Massachusetts Medical society, Dr. R. M. Hodges said:

A justly distinguished master of the Girls' High and Normal School in this city is reported to have said that a principal qualification for the office he held should be a good medical education. The first hour of his school day was spent in going from room to room, at the call of teachers, to see pupils who had fainted or vomited, or were in "spasms," in hysterics, or in some other way had come to a pass which alarmed the inexperienced. These phenomena he clearly recognized as due to fatigue, insufficient sleep and the want of an adequate breakfast—a meal which these girls were too tired to eat, or which they did not think worth wasting time upon, when home duties demanded their co-operation, a morning lesson was to be looked over, or a neglected task to be made up, and a long walk intervened between their homes and the school.

The report of Sir James Crichton Browne on educational overpressure in London, which attracted such universal attention two years ago, states that out of 6580 school children examined, 3034, or more than forty-six per cent., suffered from headache. He attributes this state of things largely to innutritious and insufficient food, and takes pains to say that partial and occasional starvation is not confined to children of the lowest class. The inference from these statistical facts, or from a single teacher's experience, is not necessarily that school taxes should be devoted to dispensing new milk rather than education, though they seem to hint that a part of the public money might thus be judiciously appropriated. The alleged overpressure in schools is, in the main, a fallacious assumption. Sound study is an advantage, if the general rules of health are attended to, and for one youthful person injured by excessive application, there are a hundred whose physical condition is deteriorated by want of wholesome mental exercise. The special provocatives, of "delicate health" in young females are in great part social. The deleterious influences of a multiplicity of engagements, of the exacting demands of ambition, fashion and gayety—and not unfrequently of an early betrothal—are intensified by the capacity for endurance which belongs to the so called weaker sex. A girl can tire out her partners in the "german," one after another, and a feeble wife can carry her baby twice as long as her athletic husband. The more strain there is upon the strength of women, the more completely do they forget themselves and their

material wants. They submit, and give no signs of their emotions, to the depressing influences of misfortune or an unhappy home. They suffer and are silent with what have been called "bad-husband headaches." They stifle a wounded pride which is deep in proportion to the smallness of the family income, and yield to the aggressive attacks of neurotic influences (the least wearing of which may be the mental) only when the limited energy their bodies possess is exhausted, and which, when once lost, they rarely have the physical capacity or power of mechanism to replace.

The bodies and brains of young women in the wealthiest and most luxurious circles of society constantly reveal their imperfect nutrition. Refined emaciation, fair anemic complexions, eyes made brilliant by dilated pupils, decorous concealment of undeveloped busts and slender arms, excitable and restless temperaments—wanting sometimes in self-control, but oftener sobered by over-conscientiousness—are the retributive symptoms which betray a lack of food, sleep, fresh air and repose. Some of those who embody these conditions delight to think that Providence has distinguished them from the common herd by certain peculiarities of constitution, and they cherish with great self-satisfaction their supposed idiosyncrasies in regard to what they eat and in reference to various habits of life. They do not know, or are unwilling to admit, that "want of tone," of which they complain, is only another name for the inertia of exhaustion. —*Hall's Journal of Health.*

A FARMER went out one bright morning in the deep winter, when the snow was thick on the ground, and he took his little boy with him. By and by they came to a very steep roadway, and it was dangerous climbing, for the snow concealed a great many ugly gaps into which they might fall, so the father went ahead, and his little boy climbed after him. When they had gone this way some distance, the little fellow called out: "Father, be sure you take the right road, for I am stepping in your footprints!" "My son stepping in my footprints!" thought the father, and the thought troubled him, and made him think, and at last made him pray and become a good man; for he thought, "If my son is following me, surely I should be following Christ."

It is proposed to make the Lick observatory truly a gift of science as well as to California by placing the great telescope at the disposal of the distinguished astronomers of the world during certain hours of each twenty-four, thus giving visiting specialists an opportunity of attacking the unsolved problems of astronomy with the most powerful optical aid to be obtained.

TORONTO:

THURSDAY, NOVEMBER 11, 1886.

"OVER-EDUCATION."

DR. DANIEL WILSON, in his recent address at University College Convocation, touched, in his rich and fascinating style, upon what he calls "an old cry which seems at present to be reiterated with more than usual zeal, that we are over-educating the people, and tempting the rising generation to forsake the desk, the forge, and the plough for the learned professions." "Of all the educational solecisms of our day," he continues, "this cry of over-education seems to me one of the most foolish; as though the hope of Canada's agricultural future depended, like that of Egypt with its degraded felahs, or of Cuba with its pradial negroes, on the ignorance of the tillers of the soil."

Beautiful thoughts beautifully expressed are these. The President of University College always takes refreshingly broad and open views of educational subjects. No one can disagree with him when he says: "The aim of all true education is mental breadth, moral elevation and such a mastery of the great truths that furnish the best antidote to sloth and ignorance as shall awaken the dormant intellect and kindle it into living power." All will heartily endorse his prophetic and hopeful assertion that "in the world's future, and above all, in this centre of freedom and industry, the good time is coming; though, doubtless, for us of the older generation at least

'Far on in summers that we shall not see,' when intellectual capacity shall not be thought incompatible with mechanical toil; when another Burns, dowered with all that culture can lend to genius, may 'wake to ecstasy the living lyre' while following the plough; another Watt or Stephenson, trained in the mysteries of statics and dynamics, may revolutionize economic service of mechanical forces; another Hugh Miller, rich in all the latest revelations of science, may interpret more fully to other generations the testimony of the rocks."

There is one thought here, however, upon which a brief comment may be permitted: upon that, namely, which refers to the time when "intellectual capacity shall not be thought incompatible with mechanical toil." Dr. Wilson has in this

sentence, we venture to think, laid his finger upon the Gordian knot of the educational problems which Ontario, nay Canada at large, is endeavouring to solve. It is surely undeniable that, at the present moment, a very large proportion of the rising generation of Ontario *does* think that intellectual capacity (and often this phrase is a tremendous hyperbole) is, if not incompatible with, at least, degraded by toil. How to eradicate this—that is the problem for us. Dr. Wilson cuts the Gordian knot at a stroke, and says: "We may safely leave the chances of an excessive crop of lawyers, doctors or teachers to the same law of supply and demand which regulates the industry of the manufacturer and the produce of the farm."

It is at this point that we feel inclined to criticise Dr. Wilson. We do not actually join issue with him, our differences are not great enough for that; but we put in a counter claim, as it were: we venture to think that instead of leaving the existing want of equipoise between intellectual capacity and mechanical toil to the law of supply and demand, it is within our power to a certain extent to aid that natural law by artificial means—or rather to remove certain obstacles to the operation of that law. That obstacles do now exist Dr. Wilson allows, if only by implication; that the obstacles are removable he does not seem to consider.

What, then, are the obstacles? Not certainly the "mental breath," the "moral elevation," the "mastery of great truths" which the learned President rightly points out as being the aim of all true education. If the system of education adopted by the Province of Ontario inculcated these, truly we should not now be discussing such question as over-education. It is because our educational system is lacking in this that we find obstacles existing to the proper fulfilment of the law of supply and demand, that we find so unequal a balance between intellectual and manual labour.

For what vocations in life do the great majority of our high schools best prepare pupils? Not certainly for mechanical toil. The public schools very rightly point in no direction; their function is merely to inform and train the mind. But the high school, it seems to us, does more. It gradually draws the minds of the pupils into one groove, and the end of that groove is—the university, or the teacher's

desk—at all events something called "intellectual."

Now we hold that this is one of the chief obstacles to the operation of the law Dr. Wilson would rely on, and an obstacle by no means insurmountable. Our system of education fails exactly where, in a country like ours, it should be strongest. It makes of paramount importance, it holds up as a tempting goal, particular walks of life, and these supposedly "superior" walks of life. Everybody is fully aware of the fact that of the girls who pass 'rough the classes of the high school nine out of every ten, if they cannot be university graduates, will be certified teachers; if they cannot be certified teachers, will be mantle or dress makers; if they cannot be mantle or dress makers, will be seamstresses—anything rather bring to bear upon the vocation of their mothers' choosing—be it the dairy, or the farm, or the gentleman's kitchen—the information and the mental power they have gained in the high school. And why? Because the *curriculum* of studies in that high school is not formed for this purpose. It is not formed with the purpose of pointing out the true meaning of the work "intellectual." It is not formed for the purpose of pointing out, in Dr. Wilson's apt expression, the compatibility of intellectual capacity and mechanical toil.

It is the same with our boys. The sole aim of many head masters seems to be to prepare as many pupils as possible for examinations for teaching certificates or for matriculation at the various universities. And the pupils who pass, who gain honours and scholarships—do they feel inclined to turn their backs upon what they have been taught to consider a brilliant professional career just when they have entered the portal with so much *edat*? Experience proves the contrary.

How, then, is this obstacle to be surmounted? This question need not here be fully discussed. It is enough to have pointed out the chief obstacle to the operation of the law of supply and demand, and to have shewn that it is not an insuperable obstacle. As to the means by which it may be eliminated we have already made one or two suggestions. More stringent tests of the qualifications of would-be teachers is one of them. The introduction of elementary agricultural, or physiographical, as we should prefer to denominate them, subjects as an optional

branch of study. But these are after all subsidiary matters. A general and radical, even if gradual (as it must necessarily be), change is perhaps necessary. A thorough overhauling of our courses of study is needed.

We agree with Dr. Wilson: we are not over-educated; over-education in the proper sense of the term is impossible. But we are one-sidedly educated—that is our contention.

OUR EXCHANGES.

Babyland (D. Lathrop & Co.) will have two enticing new features for the babies and their mammas, in addition to the little two minute stories and verses with which the magazine always has abounded. Especially calculated to occupy the eyes and ears of little ones are the monthly pictorial pages called "Puzzles about Peter and Patty," texts and pictures by Margaret Johnson; and kindergarten delights called "Nursery Finger-Plays," by Emilie Poulson, with picture instructions by L. J. Bridgman.

THE numbers of *Littell's Living Age* for the weeks ending October 30th and Nov. 6th contain "Poetry Compared with the Other Fine Arts," by F. T. Palgrave, *National Review*; "Statesmen of Eastern Europe," *Temple Bar*; "John Bunyan," *Contemporary Review*; "Prince Rupert," *Gentleman's Magazine*; "A Dartmoor Picnic," *Belgravia*; "My Success in Literature," *Macmillan*; "Mr. Tupper's Autobiography," *Spectator*; "The Religion of Southern Italy," *Saturday Review*; "A Negro Revival," *Spectator*; "Prisoners as Witnesses," *Nineteenth Century*; "Alexander I. of Bulgaria," *Contemporary Review*; "Sir Greenhat," *Temple Bar*; "The Scotland of Mary Stuart, part II," *Blackwood*; "A Week in the Pine Region," *Blackwood*; "Power of the Irish in American Cities," *Times*; installments of "This Man's Wife," and poetry and miscellany.

REVIEWS AND NOTICES OF BOOKS.

MR. RUSKIN has begun another series of volumes. It is called "Dilecta," and comprises correspondence, references, and other documents illustrative of his autobiography. The first part is already in press.

MACMILLAN & CO. will publish shortly a work on Madagascar, which comprises a narration of the principal operations in the recent war between the French and the Malays.

THE first portion of a "Dictionary to the Divina Commedia" is shortly to be published by Mr. Paget Toynbee. The completed work will probably form one thick volume.

AN English translation of Ranke's "Origin of the Seven Years' War," undertaken by a lady at the author's request a few months before his death, will be ready at the beginning of the new year.

THERE is a report that Lord Rowton's "Life of Beaconsfield" is indefinitely postponed because there are in it some references to Mr. Gladstone which it would be wiser to publish after his death.

SIR WALTER SCOTT'S "Christmas in the Olden Time" has been chosen as the text for six and twenty illustrations by E. H. Garrett, Harry Fenn, J. Steeple Davis, Geo. A. Teel, Henry

Sandham, Childe Hassam and H. P. Barnes, engraved under the supervision of Geo. T. Andrews, for Cassell & Company to publish.

MR. ANDREW CARNEGIE has written to the Lord Provost of Edinburgh offering \$125,000 for the founding of a free library on condition that Edinburgh adopt the Free Libraries Act, by the terms of which a tax, not exceeding one penny in the pound, is charged to defray the current expenses of public libraries. The offer has been accepted.

MR. BRANDER MATTHEWS, an American author and journalist, is writing to the Philadelphia press letters descriptive of the inner life of our London newspaper offices. In one of them he speaks of British respectability "with its thousand gigs." This is sheer nonsense. Mr. Matthews has heard something about respectability and gigs, and makes his own quotation. The connection dates from the trial of Thartell for the murder of William Weare, when one of the witnesses having stated that Weare was a respectable man, and being questioned what he meant, said, "Well, he kept a gig." By the way, Mr. Brander Matthews wrote a comedy, which was produced in London, at the Court Theatre, if I mistake not. I wonder what the *Daily Telegraph* said about that comedy! I wonder—after reading what Mr. Matthews says about the *D. T.* and its old and young lions.—*From the London World.*

We have heard a great deal, since Lord Brougham's time and the societies for the diffusion of knowledge, of the desirability of cheap literature for the masses. The Congressmen place cheapness above honesty in their sincere desire to raise the tone of the American people. There is no product that men use which is now so cheap as newspapers, periodicals and books. For the price of a box of strawberries or a banana you can buy the immortal work of the greatest genius of all time in fiction, poetry, philosophy or science. But we doubt if the class that were to be specially benefited by this reduction in price of intellectual food are much profited. Of course some avail themselves of things placed within their reach which they could not own formerly, but it remains true that people value and profit only by that which it costs some effort to obtain. We very much doubt if the mass of the people have as good habits of reading as they had when publications were dearer. Who is it who buy the five, ten, and twenty cent editions? Generally those who could afford to buy, and did buy, books, at a fair price, to the remuneration of author and publisher. And their serious reading habit has gone down with the price.—*C. D. Warner, in Harper's Monthly.*

TO succeed as a bibliographer a man must, besides a natural power of distinguishing, have an eye which comes to the work as a correct ear comes to the study of music; but he must also have a wide education, must know all the dead and most of the living languages; he must be enough of an artist to recognize an artist's touch; he must have an extensive knowledge of all kinds of books in different libraries; and, above all, his memory must be unerring. With these qualifications he may begin to learn water-marks, founts of type, lines in a page, and all the mysteries of early printing, paper-making, and binding. These are but the preliminaries of bibliography, and must be

acquired apart altogether from any literary or critical study of books. If they can afterwards be combined, well and good; but at the beginning they are independent. The man who, like Hil Burton, can write pleasantly about old books is not to be trusted for scientific bibliography; and Lutdin, with his ignorance of things in general and his wretched style, is often after all a safer guide. But Ohlys and Davies, who could combine knowledge and easy writing, published very little that will interest the bookworm. Cotton and Maitland are too dry, and hardly up to the latest lights. A book like the late Mr. Henry Stevens's "Recollections of Mr. James Lennox," though it gives us little or no bibliographical instruction, is certainly well calculated to show us how to acquire it, and is very entertaining besides, as is so often the case when a writer is willing to tell stories against himself.—*The Saturday Review*

At what will educational reformers stick, or any other reformers, for that matter? In the *Pall Mall Gazette* a gentleman signing himself "Observer" lifts up his unhallowed hands against one of the classics of childhood, the immortal work of Mr. Day, the perennial "Sandford and Merton." This venerable text, after resisting the advance of time and the burlesque of Mr. Burnand, is still used in board schools. "Observer is shocked by the endurance of so antiquated a volume. He is not content with clamouring for a revised version or an expurgated edition of "Sandford and Merton," calculated for the moral needs of little boys and girls to whom the tale of Eliza Armstrong has been already unfolded. We could understand that, in place of Mrs. Holford's "Stolen Boy: a Story Founded on Fact," there should be a proposal to substitute "The Stolen Girl: a Story Practically Unfounded." That would be natural; the mere spirit of rivalry would suggest that course. But what has "Sandford and Merton" done to deserve expulsion from board schools? Its enemy asks it such a work "is not likely to make prigs and snobs of the rising generation?" "Prigs" palters with a double sense. There is nothing in Mr. Day's old book to encourage theft, unless the anecdote of the Spartan boy begets a desire for illicit bag-foxes, a desire which board schoolboys can hardly hope to gratify. As to prigs in the other sense of the word, where is the prig in "Sandford and Merton?" Is it Mr. Barlow? The very question sounds impious. But if it must be faced, Mr. Barlow is certainly prone to give information and to draw morals from everything, like the Duchess in the adventures of Alice. He may share these foibles with prigs; but then, to instruct and moralize was Mr. Barlow's business. He was not more of a prig than a schoolmaster is bound to be, and not so much as most schoolmasters succeed in being. When Harry and Tommy were tucked away in bed, we doubt not that Mr. Barlow, at such a little supper as even the father of Emma Woodhouse gave, would have unbent in any decently clerical manner. In the holidays, of course, he did not tramp off to make life hideous in the Engadine or the Tyrol, but he probably enjoyed himself in a harmless and decorous manner at home. He was not always reading "Plutarch's Lives," we may depend on it, any more than the most earnest board schoolmaster is always reading the edifying "Life and Adventures of Rebecca Jarrett."—*The Saturday Review.*

Methods and Illustrations

LITERATURE FOR ENTRANCE INTO HIGH SCHOOLS.

II. A FORCED RECRUIT AT SOLFERINO.

The Fourth Reader, page 287.

To understand this poem it must be remembered that Italy was for a long time divided into several states,—their rulers much at variance with one another, and their governments much interfered with by foreigners. At the time referred to by the poem (1859) the divisions were something like the following:—Austria exercised authority over Venetia and Lombardy; Piedmont and Sardinia were united as the Kingdom of Sardinia under Victor Emmanuel; there was the kingdom of the Two Sicilies, including Naples and Sicily; there were also the Pontifical States, including a large part of central Italy; and besides all these there were the Grand Duchy of Tuscany, and the Duchies of Parma and Modena, independent states as well. It was the hope of the Italian patriots that these divisions should become united (as they now are) into one nationality. Louis Napoleon, Emperor of France, had promised Victor Emmanuel to help him and the patriotic party to drive the Austrians out of Italy; and in June, 1859, the great battles of Magenta and Solferino were fought, in which the French and Italians were victorious. As a result of these battles Austria yielded up Lombardy to the Italians, but not Venetia; and Lombardy, Parma, Modena, and some of the Pontifical States were then incorporated with Piedmont and Sardinia as the Kingdom of Sardinia. In 1860 Tuscany and some more of central Italy, and the Two Sicilies, were annexed to the Sardinian Kingdom. In the great Austro-Prussian war of 1866, the Italians sided with Prussia, and as a result obtained Venetia from Austria. In 1867 all these states were united as the Kingdom of Italy, with Victor Emmanuel as king and Florence as capital. Finally, in 1870, the States of the Church were annexed, and the present Kingdom of Italy established with Rome as capital and Victor Emmanuel king. Victor Emmanuel died in 1878, and was succeeded by his son Humbert, the present king. Mrs. Browning keenly sympathised with the Italian patriots in their desire to form a united Italy, and especially in their endeavours to free the Italian provinces from the authority and dominion of Austria. It will be noticed that although the young hero-patriot of the poem is a Venetian, Magenta and Solferino, the battles in which he fought and died, did not obtain the freedom of Venetia; Venetia was not liberated till after the great battle of Sadowa in 1866.

STANZA 1.—“you found him . . . to you all.” Mrs. Browning addresses the

people of Italy, as represented by the patriots who fought at Solferino.

“With his face to you all.” What is the meaning of this line?

“Yet bury him *hero*.” Where?

“You honour your bravest.” What comparison is intended here?

STANZA 2.—“Venetian.” Why should a Venetian be in the Austrian army?

“With a smile on his lips,” Why should he have smiled in dying?

“Over tender . . . dead mouth.” Explain the meaning of this phrase. Why was the smile too tender for the mouth of a mere dead soldier?

STANZA 3.—“No stranger,” etc. Explain this line.

“Alien the cloth.” What does this line mean? What does “cloth” mean?

“Underneath it how seldom a greater young heart, has a shot sent to rest.” Mrs. Browning does not always use exact phraseology. Here the poetess means to say:—How seldom has a shot sent a greater young heart to rest than that which beat under the cloth that covered this young soldier's breast. The meaning is clear, the expression not exact; but these lapses are frequent in the writings of this author.

STANZA 4.—“By your enemy.” Whose enemy? What enemy?

“Tortured and goaded to march with them.” Scarcely true expressions; in some respects poetical exaggerations. “Forced” would have been a perfectly correct expression. Venetia was a province subject to Austria, though peopled by Italians; the Austrians forced the Venetians to take up arms against the Sardinians and Piedmontese, who were fighting Austria to free Lombardy and Venetia from Austrian rule.

“To march with them,” . . . “stand in their file.” Poetical descriptions for the same thing; what is it?

“His musket never was loaded.” Why?

“See!” Notice how the introduction of this word makes the description more graphic. The poetess supposes herself standing with her auditors on the battlefield, looking at the “fair-haired Venetian” in his death.

“He facing your guns with that smile.” An absolute expression; graphic and pathetic. Why “facing?” Why “with that smile?”

STANZA 5.—“Yearn on to.” Explain “on to.” The use of these two prepositions (or of this adverb and preposition) is irregular, and a poetic license, abandoned, as may be seen, in the next line. “Yearn upon,” or “yearn for,” is the more common expression.

“Your patriot bands.” Whose? Why “patriot?”

“Let me die . . . hands!” Explain all this. Who speaks it; to whom is it supposed to be spoken? Why could he not

have died in their ranks? Why should he prefer to die by their hands?

STANZA 6.—“Spare me.” What is the meaning of this? [“Me” is not the direct object of “spare,” but the *indirect* object. “Spare *for* me one of your musket balls which may set free my heart, and tear away this Austrian badge *for* me.”]

“This badge.” What badge?

STANZA 7.—“This morning.” Notice again how the poetess supposes herself present not only in place but in *time* also.

“What then?” Explain the meaning of this phrase.

“Many others have died.” Who is supposed to have spoken this sentence?

“Ay, but easy . . . side for side.” “Yes, that is true; others *have* died; but it is easy for men who fight side by side, together, in a common cause, helping one another and sympathising with one another—it is easy for men banded together and fighting in that way, to scorn death, to die for liberty.”

STANZA 8.—“Tricolor.” The French flag is called the “tricolor,” because it is composed of three colours, red, white, and blue, arranged in three vertical bars. The Italian flag is also a tricolor, being composed of three vertical bars, red, white, and green. At Solferino there were present the tricolors of both nations, but the poet refers only to the Italian ensign.

“Struck down.” What is the grammatical construction?

“Acclaims.” “Shouts of jey.”

“Rescued.” From whom?

“To love them.” Whom?

“And blazon the brass.” “Put their names on brass monuments and tablets in public halls and churches.”

STANZA 9.—This stanza is difficult to understand, or even construe. As punctuated in the *Reader*, and as punctuated in many excellent editions, the two lines “mixed . . . her” comprise an attributive adjunct to “he,” with a parenthetical part also attributive, viz., “shamed in his country's regard;” thus:—“But he, mixed with [*that is*, forced in among] the tyrants who march in upon her [*that is*, his country] (shamed in his country's regard), died without witness or honour, faithful and passive.” But the latest edition of Mrs. Browning's works, edited by Mr. Browning himself, punctuates the stanza a little differently, and omits the dash after “her”; so that, if punctuated, the stanza would mean something like this:—“But he—[*that is*, but as for him—(*an aposiopesis*)], mixed (shamed in his country's regard) with the tyrants that march in upon her, *he* died without witness or honour, faithful and passive.” “Mixed” certainly ought to be taken passively as a participle, not actively as a verb, although in the latter way the grammatical construction of the sentence is more easily seen.

STANZA 10.—"Twas *sublime*." The climax of the poem.

"In a cruel restriction . . . of sons." "In the cruel circumstances which fate has ordained, cut off (*that is*, deprived from hoping to obtain) the guerdon of sons (*that is*, the rewards and honours which a rescued Italy would give to her faithful sons)."

"With most filial obedience, conviction." "Obedient as the most dutiful son should be."

"Conviction." The use of this word is not clear; it is evidently forced in to rhyme with "restriction," a fault of hasty composition from which our poetess is by no means exempt. It seems to mean that the hero's sense of obedience due to his country Italy was so strong that it became a conviction of his whole mind and heart; so that expanded the clause would read something like this:—"With the sense of duty to his country so strong that it was a conviction of his heart and mind to obey her even unto death."

STANZA 11.—"The others who died." Who? "Says your poet." Alluding to the well-known line of Horace, *Dulce et decorum est pro patriâ mori*, "A blessed and glorious thing it is for father-land to die."

GENERAL REMARKS.—This beautiful poem, one of the very finest Mrs. Browning ever wrote (and she wrote many other beautiful ones, similarly inspired by her love of Italy and her sympathy with the movement for Italian liberty), should be committed to memory. The whole poem also should be paraphrased stanza by stanza; in no other way can the teacher be certain that the pupils understand it. K. H.

LITERATURE FOR ENTRANCE INTO HIGH SCHOOLS.

THE BELL OF ATRI.

How much we owe to poetry, and how many have puzzled their brains in the endeavour to discover why the same thought which in prose would have affected them but little, expressed in rhyme remains often in the memory, a part of the mind while mind exists. If you find the period when any people made actual progress in the scale—I do not mean so much when kingdom was added to kingdom, when the marts were piled with costly merchandise, and the clang of successful arms terrified the distant lands; I mean that which lays the foundation of all these—the period when learning flourished, when sturdy character was formed, when workmen cared more to do good work than to get large wages, and merchants more to achieve honest gains than great ones; search for these periods, and then you shall find that the art of poetry was studied and admired, and that for a time existed a golden age of glorious rhyme. Take the periods of advancement of the English character—when it stood highest abroad. Any one would choose the day of

Elizabeth, Cromwell, and Pitt. These are the eras of Shakespeare, Milton, and of all the co-writers of Burns and Scott. In those days, it was the pride of Englishmen that there was no hobby in their goods; now, that they sell so much of them.

The piece we have here, a little poetic parable of Longfellow's, calls for little comment. It is not one of his best. The idea is ill-carried out. The character of a knight, one of former chivalrous and genial habits, is here described, descending so low in kind as to starve his poor horse, is too unnatural an imagination to please. That such a one should have so fallen strains the belief, and if he had, his being compelled merely to treat the animal better in future is lax poetic justice. But Longfellow's reputation is well supported by many a better piece. Who is there now could write anything like "Excelsior"? R. W. PHIPPS.

THE TRUANT.

"The Truant" is a pleasant little story in Hawthorne's genial style, and brings a home truth very amusingly to our remembrances. The boy, running away from school to escape from old Mr. Toil, finds his likeness everywhere, and in the lazy fellow most of all. It gives, too, an idea of the power of an almost purely Saxon style, a style almost going out of fashion in these later days, when each literary aspirant seems to consider that the longer the words the greater the writer, and plain men have to consult their big dictionary in order to understand the morning's editorial. But, for all their worship's notions, the men of monosyllables are the masters of the mind. Here is a sentence from this at random, "I, too, have had a good deal to do with Mr. Toil, and should be glad to find some place where he was never heard of." The power such a sentence possesses of pleasing is that, through a medium very clear and easy of quick comprehension, one grasps without effort the meaning of the author, and finds that each little set of words is a glass which reflects an extended prospect. The few I have quoted, simple though they be, yet picture a long vista of past and disagreeable transactions, and suggest an extended search for a haven of rest, and quiet repose at last. But, passing from the method to the moral of the story, what a picture—how true a resemblance—of life it gives. Most lives may be said to be passed in the effort to obtain means to place people beyond the necessity of labouring, obstinately oblivious of the fact that it is only in labour of one sort or another that pleasure is found, and that the idle man is of all others the most uncomfortable, and the most fatigued. Lucky those who, like the boy in the story, walk constantly through life with him, and find him the most agreeable companion after all. R. W. PHIPPS.

ANECDOTES OF AUTHORS.*

(Continued from page 634.)

[The following anecdotes of authors are selected from old numbers of *Literary Life*,—a magazine of high literary merit, published at Chicago.]

SIR WALTER SCOTT declared that he could believe anything of dogs. He was very fond of them, studied their idiosyncrasies closely, wrote voluminously in their praise, and told many stories of their unaccountable habits. Once, he said, he desired an old pointer of great experience, a prodigious favourite, and steady in the field as a rock, to accompany his friend Daniel Terry, who was then on a visit to Abbotsford, and who concluded to go on a sporting excursion. The dog wagged his tail in token of pleased obedience, shook out his ears, led the way with a confident air, and began ranging about with the most scientific precision. Suddenly he pointed and up sprang a numerous covey. Terry, bent on slaughter, fired both barrels at once, aiming in the centre of the covey, and missed. The dog turned round in utter astonishment, wondering who could be behind him, and looked Terry full in the face; but, after a pause, shook himself again, and went to work as before. A second steady point and second fusilade followed, but with no effect. The dog then deliberately wheeled about and trotted home at his leisure, leaving the would-be sportsman to find for himself during the day. Sir Walter was fond of repeating the anecdote, and always declared that it was true, while Terry never said more in contradiction than that it was a good story."

WHEN quite young at school, Daniel Webster was guilty of a violation of the rules. He was detected in the act, and called up by the teacher for punishment. This was to be the old-fashioned flogging of the hand. His hand happened to be very dirty. Knowing this, on his way to the teacher's desk, he spat upon the palm of his right hand, and wiping it off on the side of his pantaloons. "Give me your hand, sir," said the teacher, very sternly. Out went the right hand, partly cleaned. The teacher looked at it a moment, and said, "Daniel, if you will find another hand in the school-room as filthy as that I will let you off this time!" Instantly from behind his back came the left hand. "Here it is, sir," was the reply. "That will do this time," said the teacher, "you may take your seat, sir."

A. M. R.

KINDERGARTEN is being specially encouraged in Irish infant schools, 5,029 children having been examined last year and 4,947 having passed.

*NOTE.—These anecdotes might be found by teachers to be of great use in various ways, especially as themes for composition.—Etu.

Mathematics.

ARITHMETIC.

THIRD CLASS EXAMINATION PAPER, 1886.

Examiner—J. C. GLASHAN.

1. A had \$7 less than B had, and B had \$10 less than C had. A gave \$5 to B and \$12 to C. How many dollars had C more than A then? [16.]

2. One-quarter of the time which a man spent on a journey from M to T he travelled by steamboat at an average rate of 14 miles an hour; two thirds of the time he travelled by railway train at an average rate of 25 miles an hour; and the remaining hour of the time he rode the remaining 7 miles of his journey. Find the distance from M. to T. [16.]

3. At what time between 4 and 5 p.m. is the minute-hand exactly two minute spaces ahead of the hour-hand of a watch marking correct time? [16.]

4. A man, assisted part of the time by a boy, completed a job in 15 hours. The man received five-sixths of the pay, and the boy received one-sixth, but the man was paid at double the rate the boy was, in proportion to the amount of work each did. How long would the man unassisted have taken to accomplish the work? [16.]

5. How much water must be added to a mixture of 15 gal. of vinegar costing 52 cents the gal., and 13 gal. costing 40 cents the gallon, that \$5 may be gained by selling the whole at 15 cents the quart? [16.]

6. A total of 250 marks is to be allowed to a paper of 10 questions. To the first seven questions the average is given. Divide the remaining marks so as to allow seven marks to the tenth question, and 5 marks to the ninth for every three marks allowed to the eighth. [16.]

7. A bookseller charges on certain books 35 cents on the shilling of the published price, and gives a discount of 35 per cent. What is the actual rate he charges on the shilling? [16.]

8. A bill of \$253.03, dated 7th October, and payable at London in 3 months from date, was discounted in Toronto on the 20th October, the discount being at the rate of 9 per cent. per annum, and 45 cents being charged for exchange. Find the proceeds of the bill. [16.]

9. A cubic foot of water weighs 62.246 pounds, and a gallon of water weighs 10 pounds. How many gallons will a cylinder cistern of 5 ft. diameter by 4 ft. deep hold? [16.]

SOLUTIONS.

No. 1. B has \$7 more than A; C has \$10 more than B; ∴ C has \$17 more than A. A gives away \$17, ∴ C has \$34 more than A; C received \$12, ∴ C has \$26 more than A.

No. 2. $\frac{1}{4} + \frac{2}{3} = \frac{11}{12}$; $\frac{11}{12}$ of time = 1 hour. $\frac{1}{12} = \frac{1}{12}$; $\frac{1}{12}$ of time = 12 hours. $\frac{1}{12}$ of 12 hours = 1 hour. In one hour he travels 14 miles; in three hours he travels 42 miles. $\frac{2}{3}$ of 12 hours = 8 hours. In one hour he travels 25 miles, in 8 hours 200 miles; 7 miles remain to be travelled; 7 miles + 42 miles + 200 miles = 249 miles.

No. 3. The minute hand gains 55 minutes out of 60 minutes, 1 minute of $\frac{11}{12}$ minutes, and 22 minutes out of 24 minutes.

No. 4. The boy should receive $\frac{1}{4}$ of pay; ∴ the man should receive $\frac{3}{4}$ of pay. The man should do $\frac{3}{4}$ of the work in 15 days, $\frac{1}{4}$ in 7 $\frac{1}{2}$ days, and $\frac{3}{4}$ in 22 $\frac{1}{2}$ days.

No. 5. 15 gallons at 53 cents a gallon = \$7.80; 13 gallons at 40 cents a gallon = \$5.20; 15 + 13 = 28 gallons; \$7.80 + \$5.20 = \$13. 28 gallons at 15 cents a quart = \$16.80; \$16.80 - \$5 = \$11.80; \$13 - 11.80 = \$1.20. Water is sold at 15 cents a quart, or 60 cents per gallon; ∴ number of gallons = 2.

No. 6. Average = 25; 7 × 25 = 175; 250 - 175 = 75; 7 + 5 + 3 = 15; Out of 15 marks they have 7, 5, 3; out of 75 marks they have 35, 25, 15.

No. 7. $1\frac{1}{8} - 1\frac{1}{8} = 1\frac{1}{8}$; $1\frac{1}{8}$ of 35 cents = 22 $\frac{3}{4}$ cents.

No. 8. The bill is legally due on Jan. 10. From October 20th to this date number of days = 52. Bank discount \$253.03 × $\frac{3}{100}$ × $\frac{32}{360}$ or \$5.116. Deduction to be made is \$5.566, hence proceeds = \$247.56.

No. 9. Cubic contents of cistern = $\frac{3}{4} \times \frac{3}{4} \times 4 \times 3.1416$ cubic feet. 1 cubic foot of water = 6.2246 gals., number of gallons of water = $\frac{3}{4} \times \frac{3}{4} \times 4 \times 3.1416 \times 6.2246$ or 488.88. A. R.

Educational Intelligence.

EAST BRUCE TEACHERS' ASSOCIATION.

THE semi-annual meeting of this association was held in the Model School, Walkerton, on Thursday and Friday, October 21st and 22nd. The number present at the opening session was about seventy, while about twice this number was present at the afternoon and following sessions.

Dr. McLellan spoke on "Elementary Lessons in Arithmetic," "Reading," and "Grammar."

Mr. McKay, of the high school, was called on to take up the subject, "The College of Preceptors." In a speech of some length he argued against the establishment of the college, holding that it would have no beneficial effect on the standing of the teachers, and that the scheme was originated by parties who desired office for themselves.

A lively discussion followed, participated in by Messrs. Leyes, Hutchard, Telford, King, Campbell, the chairman and others.

It was moved by Mr. King, seconded by Mr. Campbell, that the question be referred to a committee, consisting of Messrs. Telford, McKay, Campbell, McIntosh and the mover, for consideration.

The committee reported as follows: "This Association is in sympathy with the general principle of the establishment of a College of Preceptors, as set forth in the circular issued by the promoters of the scheme, but considering the radical nature of the change contemplated, and lack of opportunity for studying the details of the scheme, we prefer to delay assenting to the latter until after further consideration." On motion of Mr. Telford, seconded by Mr. McKay, the report was adopted.

The subject, "Writing," was introduced by Mr. Graham. He first explained the principles underlying all writing, and then gave an analysis of the different letters, showed the order in which

they ought to be taught, the manner of holding the pen, suitable exercises at the different stages, etc., etc., concluding with some ornamental forms that might be taken up in the schools.

Phonic reading was introduced by Mr. Simons, who stated that he used the system with great success in his school, and believed that if all teachers would introduce it the result would be great pleasure to the little ones, while their progress would be more rapid.

The president now called upon Mr. Elliott to take up the last subject on the programme, namely, "Orthography and Orthoepy." The subject was well handled, and it was considered by many that it was one of the most profitable matters brought before the Association.

NOTES.

The opinion was general that this was one of the most successful meetings held by the Association. Paisley was selected as the next place of meeting—time, the second week in May.

Messrs. Clendenning and D. McKay were appointed delegates to the next meeting of the Provincial Teachers' Association.

A motion introduced by Mr. McKay to the effect that the public school teachers of the Dominion should be represented in the central committee, received the hearty assent of the Association.

In order to encourage the taking of educational journals by the teachers, it was decided to pay thirty per cent of the cost out of the funds of the Association.—Condensed from the *Brute Herald*.

EAST KENT TEACHERS' ASSOCIATION.

THIS body met in Ridgetown on Thursday and Friday, October 21st, and 22nd. Mr. Wallis, of Bothwell, presiding.

The president gave an interesting account of the last session of the Ontario Teacher's Association in Toronto, which he attended as a delegate from this Association.

Mr. Boyes then read an interesting paper on the teaching of history, and illustrated his methods.

After dinner, Messrs. Frampton, Johnston and Colles discussed the paper.

The president then delivered an address, dealing with the subject of memorizing in schools.

Discussion was then had upon the scheme proposed at the late Provincial Association for founding a College of Preceptors.

After discussing several clauses of the scheme the debate was adjourned, and Inspector Dearness took up the subject of the proper methods with junior classes, and read a very interesting and instructive paper.

The secretary's salary was raised to \$6 per annum.

Resolved to hold the next meeting of Association, at Bothwell.

A proposal to hold only one meeting per annum instead of two was laid over.

Mr. Dearness then ably discussed the subject of memory and attention.

The subject of promotion examinations was taken up by Mr. H. F. Johnston, who pointed out the several advantages of the system. He closed by moving a resolution in favour of promotion examinations. Carried.

Mr. Dearness explained the working of the system in East Middlesex.

On motion a vote of thanks was tendered Mr. Dearness for his services at this session of the Association.

Mr. Richardson's paper on drawing was then read and considered.

After general business it was moved by Mr. Colles, seconded by Mr. Johnston and carried, That until it is made clearer to this Association how the proposed Preceptor's College is to accomplish the results set forth as likely to follow its institution, that this Association does not see its way clear to recommend it.

Messrs. Wallis, Johnston, Rothwell and Colles were appointed a committee to carry out the wishes of Association in regard to promotion examinations.

Mr. Colles was appointed delegate to the next meeting of Provincial Association.

DURHAM TEACHERS' CONVENTION.

AMONG the principal features of the Durham Teachers' Convention was Mr. J. J. Tilley's paper on "Discipline," founded upon Fitch's lectures. It was recommended that teachers having unmanageable pupils should endeavour to get their good will by visiting them at their homes, and interesting himself in the pupil's affairs.

Mr. Keith outlined the scheme brought before the Ontario Teacher's Association for organizing a society of teachers, to be known as the College of Preceptors. After some discussion on the general principles, it was referred to a committee which reported that the majority were in favour of the general principles of the scheme, but objected to a few of its clauses, and proposed amendments.

It was moved by R. Davidson, seconded by R. Lee, That in the opinion of this convention the scheme of a College of Preceptors, as set before us, would not be productive of such benefits to the teachers as would justify us in approving of it. Carried.

Mr. J. J. Tilley also gave a lecture on "The Teaching of Fractions," and illustrated his method by teaching a class of small boys.

Dr. Parslow took up the subject of "Grammar," his chief object being to correct a habit existing among teachers of receiving careless answers in grammar from their pupils - answers not prompted or preceded by thought.

Moved by Mr. Wood, seconded by Mr. Keith, That the teachers now in convention of the county of Durham, having realized the benefit of the very efficient services of Mr. J. J. Tilley, Inspector of Model Schools, during the present session, desire to express its indebtedness to him for such services, and to record its unqualified approval of the action of the Minister of Education in appointing men so practical and able as Mr. Tilley and his confere, Dr. McLellan, to infuse new life into the work of Teachers' Association. Carried.

On motion, it was resolved, That the meetings of the convention should be annual instead of semi-annual.

Moved, seconded and carried, That we as an Association, memorialize the Attorney-General, with a view of removing certain disabilities under which teachers labour, viz., exemption from municipal offices, etc.

WEST KENT TEACHERS' ASSOCIATION.

THE meeting of the West Kent Teachers' Association was very well attended. Mr. Kirk dealt at considerable length with "Dictation." Mr. Nichols took up the subject of "Teachers' Reading Course." As a result of his remarks a committee was formed for the purpose of making an expenditure of money for the purchase of books for the benefit of the members of the Association, and also to make arrangements for the removal of the teachers' library from the rooms of the Mechanics' Institute. Mr. Christie, as chairman of the library committee, reported in favour of buying some \$40 worth of books, and also that arrangements had been made for their proper care and distribution by Mrs. McPherson, present librarian of M. I. Report adopted. Mr. Blanchard gave a paper on penmanship. Mr. Christie took up the subject of "History and Literature." Mr. Moir came next with a paper on "Physical Geography." The College of Preceptors was discussed. It was generally conceded to be a scheme to control the examinations and embarrassing the government, and might possibly do more harm than good. Mr. Skinner read a paper on "Science," and Mr. Killacky gave some good advice on how to retain attention. Mr. Christie's remarks on "Inflection" brought the business of the Association to a close.

NORTH HURON TEACHERS.

THE regular semi-annual meeting of the North Huron Teachers' Association was held in the central school, Seaforth, on Thursday and Friday of last week. A number of highly interesting papers relating to school work were read and duly discussed. W. E. Groves, Principal of the Wingham Public school, tendered his resignation as secretary of the Association, which was accepted, and he was tendered a unanimous vote of thanks for his long and faithful service in that office. His successor is Mr. A. Burchill, Blyth. In commenting upon Mr. Groves' step, the *Clinton News Era* of this week, says: "The resignation of Secretary Groves was a matter of much regret. Mr. Groves has been secretary for five years; has worked hard to get the members of the institute discuss subjects at the meeting; has at nearly every meeting taken a subject, sometimes two or three, himself, and has attended to the multifarious duties of secretary. He stated his reasons for withdrawing from the office, and the teachers felt constrained to accept his resignation. We trust that his freedom from the many duties of secretary will be the means of still further leading him to devote himself to the welfare of the institute."—*Wingham Times*.

Mr. R. MOYER, of Fletcher, has taken charge of a school near Chatham.

MISS M. FOSTER, of Ingersoll, has been engaged for the junior department of the Springfield School.

MR. W. FERGUSON has been re-engaged as teacher in the Chatsworth School at a salary of \$450 a year.

MR. NEIL S. McEACHERN has been re-engaged as teacher of the Massie School, at a salary of \$400 a year.

MR. S. ROBILLARD, for the past two years teacher of Wanstead School, has resigned to attend Ann Arbor College.

MISS E. SANSON, Miss L. McRobie, and Miss J. Harley have been engaged as teachers for the ensuing year in Chatham schools.

WEST BAY CITY is building four large school buildings to add to the thirteen already in use. It is estimated that the schools will cost the city \$20,000 the coming year.

DR. HARPER, formerly of the Quebec High School, has been appointed Inspector of Academies and High Schools in the Province of Quebec, and will during four months of the year make a friendly visit to the different institutions.

MR. D. C. LITTLE, B.A., Toronto University, formerly Classical Master of Trenton High School, has received the appointment to the Headmastership in place of Mr. B. N. Davis, B.A., who purposes entering on the study of Law.

AT the close of the North York Teachers' Convention at Aurora, the teachers presented Mr. Fotheringham, who retired from the Inspectorship of North York, with an address, accompanied with a well filled purse. Mr. Fotheringham made a suitable reply.

THE following teachers have been appointed for the Meaford Public School: the salaries are affixed: H. H. Burgess, principal, \$700; Miss Eliza Pye, 2nd division, \$350; Miss Bremner, 3rd division, \$300; Miss Elliott, 4th division, \$275; Miss M. Sheppard, 5th division, \$265; Miss Mary Pye, 6th division, \$225; Mrs. John Raymond, 7th division, \$210.

INSPECTOR SEATH visited the Whitby Collegiate Institute on Wednesday, October 20th, and inspected the new apparatus that had been introduced, and the changes that had been made since his last visit, and expressed his satisfaction at the efforts the board was taking to comply with the new regulations. He went east on the afternoon train, intending to visit Bowmanville. Many of the candidates that failed at the recent examination expressed a desire to hear him give a lesson in literature, but time would not permit.

AT the last meeting of the Peterborough School Board Miss Eliza Johnston tendered her resignation as teacher in the Public School. It was accepted. Mr. Stratton, Public School Inspector, made his monthly report. He stated that the teachers were now thinking of holding monthly conventions with the object of conferring as to the best modes of teaching, especially primary. He asked the Board to allow the teachers to dismiss half an hour earlier once every month on Friday afternoon, and that a room be set apart in the central school building for the purpose of holding the meeting. The report was adopted. Dr. Tassie announced that Mr. Seath, High School Inspector, had been in Peterborough, and that he acquiesced in the recent changes which had been made in the collegiate institute building. Mr. McWilliams moved, seconded by Mr. Kendry, That the Secretary of this board be requested to write to the Registrar of the Toronto University, asking him to give the name of the candidate from this institute ranking highest in general proficiency at the last junior matriculation examination in arts. After a hot discussion lasting about half an hour the motion was carried.

Examination Papers.

EDUCATION DEPARTMENT,
ONTARIO.

July Examination, 1886.

HIGH SCHOOL ENTRANCE.
LITERATURE.

Examiner—JOHN SEATH, B.A.

NOTE.—A maximum of 5 marks may be allowed for neatness.

1. Burned Marmion's swarthy cheek like fire,
And shook his very frame for ire;
And—"This to me!" he said,
"An 'twere not for thy hoary beard,
Such hand as Marmion's had not spared
To cleave the Douglas head!
"And first, I tell thee, haughty peer,
He who does England's message here,
Although the meanest in her state,
May well, proud Angus, be thy mate:
And, Douglas, more I tell thee here,
E'en in thy pitch of pride,—
Here in thy hold, thy vassals near,
(Nay, never look upon your lord,
And lay your hands upon your sword)—
I tell thee, thou'rt defied!
And if thou saidst, I am not peer
To any lord in Scotland here,
Lowland or Highland, far or near,
Lord Angus, thou hast lied!

(a) Explain the meanings of "Burned like fire," "his very frame," "An 'twere not for thy hoary beard," "Spared to cleave," "thy pitch of pride"; "peer," ll. 7 and 17.

(b) Arrange the words in ll. 1 and 2 in the usual order of the words in a sentence.

(c) "This to me". Supply the words left out here, and explain how Marmion came to leave them out. By means of a paraphrase express fully what this exclamation means.

(d) What opinion does Marmion hold of England. Give your reasons for your answer.

(e) To whom are ll. 14 and 15 addressed, and what did those addressed mean by their actions?

(f) Explain the reasons for the unusual punctuation marks in ll. 12, 14, and 15.

(g) Give in a few words the statement Marmion makes here, and tell why he uses the words "Such hand as Marmion's," and the words in ll. 17-19.

(h) Point out a very bad rhyme in this passage.

(i) Name the emphatic words in ll. 3 and 5-10. What feelings should be expressed in reading "This to me"?

2. The closing scene of French dominion in Canada was marked by circumstances of deep and peculiar interest. The pages of romance can furnish no more striking episode than the battle of Quebec. The skill and daring of the plan which brought on the combat, and the success and fortune of its execution, are unparalleled. A broad open plain, offering no advantages to either party, was the field of fight. The contending armies were nearly equal in military strength, if not in numbers. The chiefs of both sides were already men of honourable fame. France trusted firmly in the wise and chivalrous Montcalm. England trusted hopefully in the young and heroic Wolfe. The magnificent stronghold, which was staked upon the issue of the strife stood close at hand.

For miles and miles around, the prospect extended over as fair a land as ever rejoiced the sight of man—mountain and valley, forest and waters, city and solitude, grouped together in forms of almost ideal beauty.

(a) What is the subject of this paragraph?

(b) Give for each of the following a meaning that may be put for it in the above: "The closing scene of French dominion," "execution," "unparalleled," "equal in military strength, if not in numbers," "which was staked upon the issue of the strife," "in forms of almost ideal beauty."

(c) Name some of the "circumstances of deep and peculiar interest," and show that the statement in the second sentence is a just one.

(d) Justify, from what you know of the lives of Montcalm and Wolfe, the use of the italicised words in "France trusted firmly in the wise and chivalrous Montcalm. England trusted hopefully in the young and heroic Wolfe."

(e) Explain the reason for the arrangement of the nouns in "mountain...solitude."

(f) Distinguish the meanings of "success" and "fortune," and "sole" and "event."

3. Make a brief statement of the lessons you have learned for your guidance in life, from the selection entitled "The Truant."

ARITHMETIC.

Examiner—J. E. HODGSON, M.A.

NOTE.—A maximum of 5 marks may be allowed for neatness.

1. (a) Multiply the sum of forty-eight thousand six hundred and thirty-nine and thirty-nine thousand and five hundred and thirty-seven by their difference, and divide the product by sixty-four.

(b) The product of four numbers is \$27,658,432; the first number is 12, the product of the second and third is 144; find the fourth.

2. Make out a bill of the following articles:

1 piece of flannel 28½ yards at 68 cents a yard;
35 yards of calico at 15 cents a yard;
3½ doz. pairs of stockings at \$2.10 a doz.;
7 pairs of gloves at 90 cents a pair;
12½ yards Irish linen at \$1.12 a yard;
4 pairs of muslin curtains at \$4.20 a pair.

3. What will it cost to fence a lot of 49 ft. front and 180 feet depth at \$1.15 a foot?

4. (a) A horse worth \$170 and three cows worth \$36 each, were exchanged for 14 calves and \$52. Find the value of a calf.

(b) A farmer sold an equal number of horses, cows and calves, receiving \$3,540 for the whole. Valuing a horse at \$69, a cow at \$37, and a calf at \$12, find the number of each.

5. (a) What sum of money will produce \$300 interest in 2½ years at 6%, simple interest?

(b) At what rate per cent., simple interest, will a sum of money amount to three times itself in 25 years?

6. Divide \$1,000 among A, B and C, so that A may have \$60 more than B, and twice as much as C.

7. Five men can do a certain piece of work in 20 days; after working 15 days they are joined by

another man, and the whole work is completed in 19 days. What fraction of the whole work is done by the 6th man?

18. In a 440 yards bicycle race A can give to B 20 yards start, and to C 30 yards. B and C ride a 440 yards race starting even. By how much does B win?

GEOGRAPHY.

Examiner—J. E. HODGSON, M.A.

NOTE.—A maximum of 5 marks may be allowed for neatness.

1. Draw an outline map of the County in which your Public School is situated, and (a) mark the position of the chief towns and villages, (b) name its boundaries, (c) indicate the course of any railways within it.

2. Name in consecutive order the waters which separate Ontario from the United States.

3. Give the situation of five important cities in the United States, and show how their importance is affected by their situation.

4. Define and give an example (with situation) of each of the following: First meridian, strait, archipelago, firth, volcano.

5. Account for the formation of: dew, winds, tides, ice-bergs, fogs.

Name and give the situation of the capitals of the different countries of Europe.

7. Where and for what noted are the following: York Factory, Port Moodie, Father Point, Liverpool, Portsmouth, Suez Canal, Khartoum, Japan Islands, Australia, Portland, Philadelphia.

8. Mention the chief natural products of Canada under the following heads: The farm, the mine, the forest.

DRAWING.

Examiner—JOHN SEATH, B.A.

1. Draw two horizontal lines 3 inches long and 1 inch apart. Lay off the intervening space into squares. Divide each square into sixteen smaller squares. On this plan draw any variety of the Greek-Fret. Draw a horizontal line ½ inch above and below the plan.

2. Draw a square with 1½ inches side. Sketch its diagonals and diameters. By the aid of these construction lines and any guide points you may wish to add, draw the outline of the Dog-tooth ornament.

3. Draw an upright line two inches long. Through each extremity sketch a horizontal line extending ¼ inch to the left and the right of the upright line. Join the ends of the horizontal lines by perpendiculars. By the aid of these guide lines and any others you may require, draw the outline of a side view of a vase, with neck ½ the height of the body—the body being based upon an oval.

4. Draw the side view of a key of a common door lock.

5. A block of wood 1½ inches long with ends ½ inch square, is standing in an upright position. Make a drawing of the upper end, and also of one of its sides.


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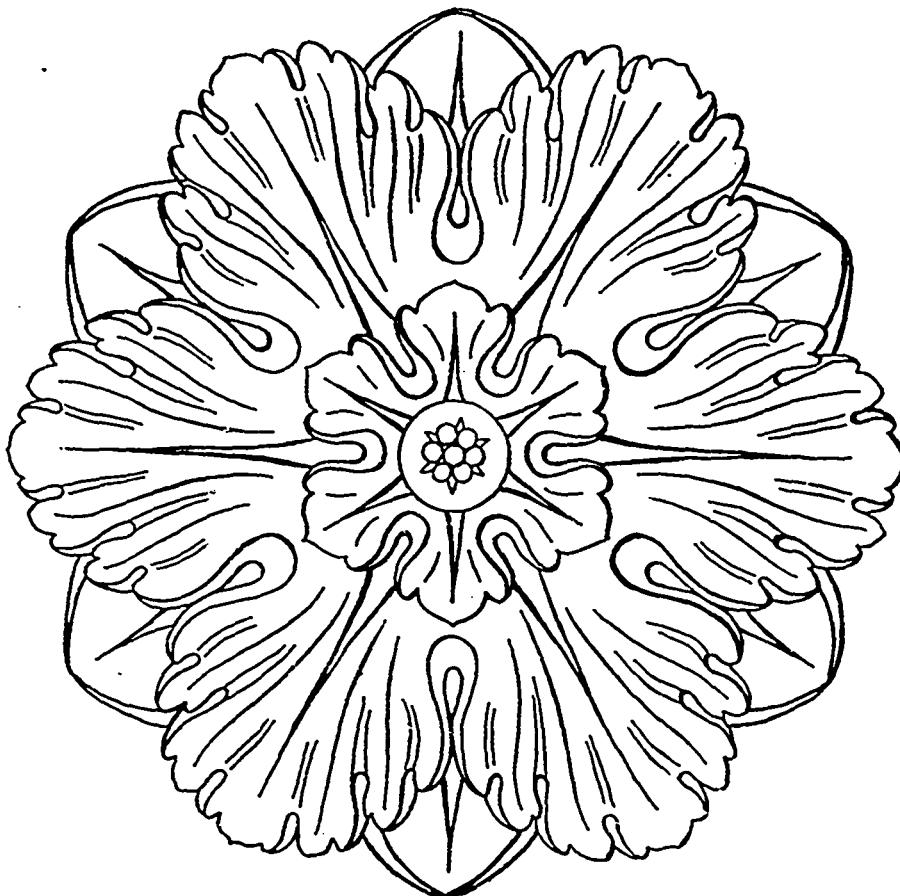
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Monday, December 6th.—The Science of Education, School Management, Methods in Mathematics and Science.

Tuesday, December 7th.—Methods in English, The History of Education, Methods in Classics and Moderns, School Law and Hygiene.

II.—PRACTICAL EXAMINATION.

The examination in Practical Teaching will be held on **Wednesday, December 8th**, and the succeeding days. Each candidate will be expected to have one lesson prepared in each department covered by his Non-Professional Certificate. The examination of each candidate will last at least one hour and a half. For further details see regulations Nos. 241, 242, 246 and 247.

Second Class—At the Normal Schools, Toronto and Ottawa.

Thursday, December 9th.—Arithmetic, Principles of Education, Hygiene, Practical English.

Friday, December 10th.—Language Lessons, Grammar, etc., History of Education, School Organization and School Management, Science of Education.

Saturday, December 11th.—English Literature, Algebra, Physics, Chemistry, Botany.

Drill Calisthenics and Oral Reading to be taken on such days as may best suit the convenience of the Examiners.

December 13th-17th.—Practical Teaching.

December 17th.—Closing Exercises, etc.

Third Class—At the County Model Schools.

The closing examinations of the County Model Schools will begin on **Monday, 13th December**, and continue as many days as the Board of Examiners may deem necessary:—

Monday, 13th December.—Education (Theory), Education (Methods).

Tuesday, 14th December.—Physiology and Hygiene, School Law.

Optional subjects on Tuesday afternoon. Practical Teaching to follow Written Examinations.

ENTRANCE EXAMINATIONS—At the High Schools and at certain Public Schools approved by the Minister.

Tuesday, December 21st.—Composition, Drawing, Arithmetic, Orthography.

Wednesday, December 22nd.—Grammar, Geography, History.

Thursday, December 23rd.—Literature, Writing.

Reading to be taken on the above days at such hours as may suit the convenience of the Examiners.

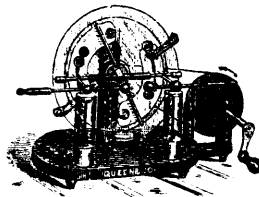
There will be no formal paper in Orthoëpy, but the Examiner in Oral Reading is instructed to consider the pronunciation of the candidates, in awarding their standing.

Candidates are required to submit Drawing Book No. 4 or No. 5, not Books Nos. 4 and 5.

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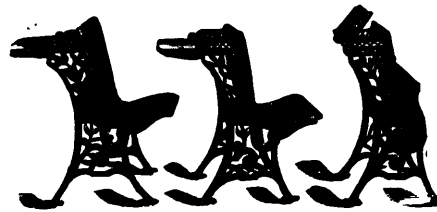
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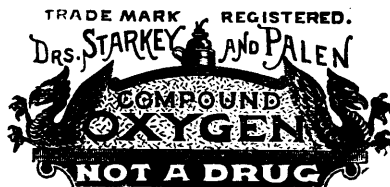
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