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THE

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Education *vs.* Information.

Education, according to Webster, is properly to draw forth, to discipline the mind, to establish the principles, and regulate the heart, while information, although sometimes used synonymously, but improperly so, is only that part of education which furnishes the mind with knowledge.

Without doubt, the common estimation of education is to acquire knowledge, regardless of order, time or quality, and consequently, the chief duty of the teacher is to inform or communicate.

A school conducted under this conception of education, would be aptly pictured by this illustration: conceive if you please, a room with one great vat (supposed to be full) standing conspicuously on a platform, from which syphons extend to each of some forty or fifty little kegs arranged in rows, and supposed to be empty more or less. The great vat gives and gives and gives; and the little kegs receive and receive and receive; until the great vat is exhausted, or the little kegs are filled, and then the work is supposed to be completed. This illustration is not very elegant, but it scarcely exaggerates the crude notions of many with regard to education and schools. Knowledge is not education, not is the getting of knowledge the end of education. It is true, it is an inseparable means, but not the thing itself. No one can be truly educated, without being well informed, but any one may be the possessor of vast treasures of knowledge, and still be uneducated.

"The true end of elementary mental culture, is to enable a child to use with promptness, precision and effect, the faculties which God has given him. He who can so use his intellectual powers which are ever on the alert, is educated, be his knowledge more or less. He whose faculties have not been thus trained for use whose powers are not thus available in the time of need, and in the affairs of life—is not educated, though his knowledge be of encyclopedian extent." What a man can *do* or *achieve* in thought or physical strength, is the true test of education. The question is not what does the man know, but what can he do. A man's power to acquire knowledge may be much greater than his ability to use it. Very frequently do we see men whose minds are filled to repletion with knowledge, yet they can not do any thing with it. Such men are not educated they are simply filled. A man may be said to be educated only as far as he can put into use the knowledge he has acquired, and no farther. In the language of another; "Knowledge may be heaped up as wood is heaped up, but education is the capacity to work the wood into various forms and uses. Knowledge is clumsy. A great many men bury themselves in knowledge, so that they are never heard of afterward. They know and know, and keep on knowing, till they lose their power of doing. Up to a certain point, knowledge is food for strength, but if you disregard the proper limit, and go on knowing and knowing and knowing, the mind gets stupid. The stupidest people in the world are those who know everything, but do not know how to do anything." True education consists in the power of using the faculties so as to achieve beneficial results; but mere knowledge may not only not do this, but exactly the opposite.

Much is said, and very properly too, about waking up the minds, and rousing the dormant faculties of our pupils, and getting them to work. This is all very well, but this is only the first step. You may be gratified by those sparkling eyes that gleam in admiration and manifest interest for your apt and quaint lectures and illustrations; you may tell them about the plants; and you may inform them of the human system; you instruct them in grammar—carefully demonstrating

every point; but unless you train them to use this knowledge, it will be of no avail. Yes, you may give your school a mighty impetus, such as will carry it on and on, and it may work wonders for a time but sooner or later it will come to rest and will be able to do nothing more of itself; no more than the cannon ball, which, impelled forward with terrific violence, works havoc for a time, but is finally overcome by opposing forces, and ceases to act forever, unless new impulses are given it.

Waking up the mind, as was previously remarked, is the first step; these mental forces are still to be trained and this is the hardest as well as the most essential part of education. Teaching and training are by no means alike. Many can teach but few can train; and hence many are taught, but few are trained, and only the latter are educated.

In Holy Writ we find, "Train up a child in the way he should go," and immediately follows the promise, "when he is old he will not depart from it," observe that it is *train*, not teach. A child may be taught ever so well, and he may not depart from it, but it is rare indeed that he will depart from those things to which he has been effectually trained; for the continued using of a faculty ends in the confirmed habit of using. Here lies the great secret of education; it is the hope and peril of the same, for the law of habit applies to wrong training as well as to right training. If the channels of feeling, thinking and acting, be cut in the rock of habit, nothing less than the Creator can change their course. Train up a child in the way he should go, until these habits of right thinking and doing are established and then we may be certain that he will not depart from them, but go on in the same way—steadily, firmly and surely.

It is this great law of mental growth that makes it a matter of vast importance that none but masters in the art of training and educating should be placed in the schools, and lowers into insignificance the idea that would place blunderers and imperfectly educated persons in the schools as teachers.

How often do we hear remarked, "Oh, our school is small and not very far advanced; the scholars are nearly all quite young; we can't afford to pay much; almost any one can teach our school." What fallacy! What a stupendous error! There is nothing which should be so studiously avoided as such a policy. Deny your children the high school, cheapen the academy, abridge all their future course, but do not commit their early part of their mental cultivation properly begun, and it matters but little with regard to the latter.

You can scarcely imagine the mischief that may be done. Day by day—week by week—the sad work goes on—faculties are being aroused, habits are being formed—careless repetition hardens into unalterable habit—the pliable twig becomes the unbending oak—and mental distortion and imbecility become the inheritance of your child forever.

You do not the same in other things. If you wish to rear an edifice, grand and lofty, you do not apply to any common workman or unlearned architect, to superintend the work; no, none but a master workman and skilled architect would be permitted to receive your order. When, on a foreign journey, you wish to scale some rugged mountain cliff, you will be diligent in ascertaining the proficiency of your guide, that you may be sure he will lead you along the narrow and obscure pathway with safety and security.

There stands your boy—his mind, tender and plastic—ready to be shaped and molded into form—there he stands, ready for his intellectual guide. What a wonderful mechanism is that—his mind—of all in God's creation, the mightiest, most delicate, and intensely grand—containing germs of thought, feeling, power and action,—now fresh from the hand of its Creator—like a new bright coin from the mint—it is ready to begin its immortal career. Will you be indifferent as to who shall guide its first steps? Would you expect to place that intricate and powerful piece of machinery the steam engine, in the hand of an untaught engineer, presuming that he would direct its movements safely and correctly? By no means; none but the skilled and trained machinist would be allowed to guide the levers and adjust the machinery. There are men and women,—intellectual enginers—who have patiently studied the mind from the mighty mainspring down to the minutest cog, and who are able to a very great extent, to preside over its complicated movements with exactness and precision; others there are, who are daring enough to assume charge over his wonderful intrument, who, having eyes, see not its divine skill and beauty, and having ears, hear not the music that sleeps among its silent strings and motionless cogs; and who know as little, comparatively, of its construction and mode of action, as does the Hottentot, of the microscope. Will you still say, "No matter who is his first teacher?" Better say, "No matter who is his last teacher." Let his education be well begun—till right habits are formed, and it will be of little moment who is his last teacher.

As the teacher is, so is the school. The pupil of a school may be likened to a mirror, in which—if you carefully scrutinize—you may see the image of the teacher sharply and boldly defined. If that teacher has no well defined views of his work, and is ever in a shadow of doubt, whose thoughts are tangled and muddy, and is continually in a mist, and above all does not know how to evoke each faculty in its order, and train it properly, just so will be his pupils. On the contrary, that teacher who has carefully studied his work, and is able to grasp with master hands the wand, and and guide aright the faculties—who is ever on the alert to bring in play the proper levers and wheels, and thus conduct carefully, steadily, and surely, his pupils along the highway of wisdom—who is continually in the bright light of the radiant sun of truth—leaving nothing unturned, but studiously training and developing each faculty, that teacher's pupils—if you please to observe—will be STRONG, not in fogs and twilight, but in the beamy splendor of intellectual sunshine, able to *do* and *achieve* something in themselves.

But how, the question may arise, how are the faculties to *be* so effectually trained that they may spring into action at the time of need?

Exactly the same as the mechanic acquires dexterity in the use of his tooools, or the soldier in the manual of arms—in short by *use*. The master workman does not array his chest of tools before his apprentice, and proceed to deliver an elaborate lecture on their uses, giving their names and explaining the relation which one bears to another, and then leave him to make use of them in the details of the trade; but he begins with the simplest tool; placing it in his hands, he instructs and trains him in its use, until he can handle it as deftly as his own right arm, and then he is ready for the next; and so on, he continues to lead him step by step till the just relation of the whole circle of instruments is understood; and when long continued use and training have ripened into habits of successful skill, then and not till then, he is recommended as a master workman.

The officer does not form into line his "raw recruits," and proceed to read to them from books on military

tactics, and deliver learned lectures on the art of war, and thus expect to make efficient soldiers of them ; but he immediately puts a gun into each man's hands, and begins with the alphabet of the manual of arms, and drills him in the squad, battalion, regiment and alone, day after day, hour after hour, until he has completed the manual of arms, and is as quick to use his weapons as he is a part of himself, and with as much precision; then is he ready and not till then, to march to the battle-field and enact the perilous duties required of him there.

This is the kind of training, the results of which will abide, and *this very same kind of training* applies to the mental as well as to the physical man.

"Considering the mind as a unit, its various faculties may be viewed as the instruments through and by which it acts. Some of these are: observation, perception, conception, attention, memory, judgment, discrimination, taste and will. And some of the habits to be formed are : industry, patience, perseverance, caution, order, method and exactness." How shall these powers be trained, and these habits established ? Just as the officer trains his men, or the mechanic his apprentice, and in no other possible or conceivable way. Is it any more preposterous for the carpenter to array his chest of tools before his apprentice and harangue him upon their uses, than for the teacher to summon before him these faculties in the person of a pupil, and descant upon the relations and uses of his (the pupil's) powers, and then send him away ? Yet how many teachers do this and but very little more. The teacher or the book tells the scholar about grammar, arithmetic, geography and history ; the pupil remembers what is told him; he repeats it at the examination ; friends applaud, parents blush and smile, and thank God that their children are being educated.

But are they being educated ? Has the perception been aroused and trained to act ? Have your pupils been taught to observe and receive with avidity each atom of knowledge as it is presented, strengthening, and, by assimilation, making it a part of their own minds and matter ? Yes, have all the faculties been aroused, and trained systematically ? Have they gone up step by step, securing a firm and steady footing on each round of the ladder, before the next was taken ? If not, they are hardly educated, but are simply filled, and are as helpless as the little kegs filled from the great vat. Then it becomes us to make our work practical, to train our pupils to apply the knowledge which they receive to every day life.

Very frequently do parents complain that their children are not progressing satisfactorily, that they are not "going through the book" as rapidly as they would desire. Be careful that you do not estimate the attainments of your child by the number of lessons it has learned, or by the shelves of duodecimos or octavos it has perused. Ascertain whether your child is able to accomplish anything, whether he is master of his present situation, whether his memory, his observation, his perception, and other faculties are being trained by activity. And here let me remark, that all can not attain to the same force and skill in the use of their intellectual powers. There is a great diversity of natural endowments, which no education can overcome, or in the least diminish, and how wisely has it thus been ordered. In some the faculties of observation and will may predominate ; in others attention and judgment ; in others still, discrimination and taste ; while all have special faculties adapted to his or her career in life, and they should be sought out and effectually trained, in order that each may play well his part in the grand and eventful drama of life.

And again : this training can not be achieved in a day, it requires time, the work must progress slowly and carefully ; but when it is attained, its benefits are unspeakably rich and enduring. The faculties by long training and continued use, become almost self moving. The reasoning powers are sharpened until the complicated elements of a proposition are sifted with the celerity of thought, and thus argument enters into the safe harbor of logical conclusions, while the undisciplined mind is floundering still in the depths of obscure conception. Practical questions of the day are seized and solved by the disciplined thinker and observer, before others are able to perceive any way of escape from the perplexing intricacies which they seem to present.

Let two young men of equal natural abilities be instructed for the same length of time ; one on the principle that knowledge is the chief end of education, and the other, that the great end is to form right habits by rigorous training, and then let them be left to make their way in the world. Though possessing less information at the outset, you will soon see the latter distancing the former in the great race of life. You will see him hewing his way through obstacles which are invincible by the other with all his knowledge, and sooner or later, he will distance him in the acquisition of knowledge, for with his trained powers, fully equipped, he is able to inform, *instruct*, yes, *fill* himself.

Finally, let me ask the question, are we training, truly educating our pupils ? Or, are our voices heard in the school-room, day after day, grinding away in ceaseless moil, pouring forth labored sentences, fraught with obscurity to the immature intellect, and carrying with them clouds of blinding sands and seas of untold perplexities ? I know there are innumerable difficulties which present themselves ; that the work is arduous; but let us do more systematic training, more true educating, and we may be gratified and rewarded in the end by seeing our pupils grappling and conquering all intellectual obstacles, climbing onward and upward to the pinnacle of fame, being borne thitherward by their trained intellectual forces. — *National Teachers' Monthly.*

HOME JUSTIN CLARK.

Culture and Facts.

There are fashionable words which every body uses, but of which nobody knows the exact sense. Inquire what they mean and your question is answered by its own hollow echo. Words of this kind are the fractional currency of thought, they pass from hand to hand and every body accepts them because his neighbor does the same. They have a conventional value that frequently is no indication of their inherent worth. They belong to the class of terms and adjectives that are so expansible as to suit all the requirements of polite life. Good, nice, splendid, delightful, have no definite social meaning, they are used indiscriminately for almost any quality from execrable to excellent. They are conventional terms which are passed not at their proper but at their conventional value.

A friend of mine sometime ago attended with me a wretched performance, in which the principal actor, an acquaintance of each of us, took the step from the sublime to the excessively ridiculous with the coolest unconsciousness imaginable. On our way home we were joined by our acquaintance with the radiant smile of artistic triumph on his face. Sooner than expected he asked the dreaded question : "How did

you like my acting?" I looked hard at my friend, who after a pause said in his usual cool way, "I have *enjoyed* your acting very much." Our acquaintance was pleased to his heart's content and left to hear his praise from the lips of others. He was satisfied with the conventionalism "I have enjoyed," which of course meant one thing to him, but quite another thing to us.

In the same way the word "culture" is a conventionalism. If there is a man who has no remarkable quality whatsoever, except that he can keep quiet, you will find people who call him a man of culture. If there is a so-called science or an art which has no inherent reason why it should invite attention and study, somebody will discover its necessity and advantage for culture. If there is any book that is void of common sense and interest, you will certainly hear somebody recommend its perusal on account of the culture that is said to lurk mysteriously in its pages; and if there is a study in a course of instruction of which nobody knows any use, it is called a culture study and that, of course, settles the matter in its favor. Culture is one of the watchwords in which our time deals overmuch.

The word culture belongs to the world, its meaning belongs to us; it is a conventionalism to which each is at liberty to attach his own meaning. If we make use of this liberal permission, we are readier to say what culture is not, than what culture is. The scholar that could make Virgil ashamed of his Latin, may perhaps be a person in whose company you will not be willing to take dinner a second time. On the other hand the gentleman, for whose manners you have the greatest admiration, may perhaps arouse in your breast the kindred feeling of wonder if you look at the spelling of the note which he has written to you.

If we are thus at liberty to choose our own meaning for the word culture, we shall not take it as a synonym for learning, nor for social manners, but rather as the even combination of general human qualities that fit for a life of inter-communion with others, by enabling us to understand others and to be understood and appreciated by them. In this sense, culture presupposes a knowledge incarnate of the common things within the sphere of social, political and natural life, and the ability of correct intercourse with others, which language and the even tenor of a good life alone can give. In this sense culture is not the luxury of which the lips of the social rhetorician overflow, but a necessity recognized by all, except the churl, when they strive to be pleasant in the intercourse with each other. The great mass of the people seem to gain a good deal of this social culture by novel reading, in which the forms of polite society are depicted, hence, persons that read a good deal are sometimes apt to have this peculiar ease of speech and manner which may be gained by light reading of this sort.

Culture is certainly the product of education, which of course must find the germs for culture ready in the mind if it is to be of any avail. In this respect as well as in many others we find the two opposing views about the power of education. Some hold that education can do wonders and with creative power develop talent and genius out of nothing; others hold that it can do nothing to check or to promote individuality, that its future lies in the human soul and will burst forth with irrepressible force.

As the Turk believes in his *Kismet* so some persons believe in the predestined fate of each human being; the scoundrel and the saint are foreordained, they must be what they are and no education can change their predestination. Truth lies midway between the two extremes. Talent is one of the conditions in education, but training or education is another, without which the talent may rot in the mind. Genius may make its way in spite of lacking education, but it would succeed very much better with it. Goethe says: "Let no one cherish the idea that he is able to overcome the impressions of his youth; if he has grown up in proper freedom, surrounded by beautiful and noble objects, in the intercourse with good people—if his masters taught him what he had to know first in order to find it easy to understand the rest,—if he has learned what he never needs to unlearn,—if his first actions were guided so as to fit him to do what is good in future without trouble or difficulty, without being obliged to abandon any of his habits,—such a man will lead a purer, more perfect and happier life than one who wasted the strength of his youth in resistance and error."

When teachers speak about education, they frequently do not realize that they should be careful not to ignore its wide limits. On the stage of education the walls of the school-room are neither the first nor the last nor the principal pieces of scenery, nor is the teacher the hero. The day of school-life fills out but one act. Like a Chinese play, education requires several days to be acted.

Family, life, church, state, society and nature educate and they are more than the teacher's peers in this process. With all modesty we may confess that the great intellectual progress of the time is not the work of the teacher alone, and with firmness we can decline to be responsible for all the defects of the education of our times. But as is it, these blessings are showered on the head of the teaching profession: the world does not offend their modesty by giving them credit for the intellectual and educational advancement of the age, but they attribute to them the responsibility for any defect physical or psychical discovered in the youth of either sex in education.

Fault-finding with others is one of the inalienable rights born with each individual, and we must confess that the most extensive use is made of this prerogative. The widest field for argument opens itself to those that dwell with emphasis on the deeds that some great man has *not* done, on the objects some great movement has *not* accomplished. The negative mind will always find the amplest "room for speculation when panegyric is exhausted."

It cannot be doubted that while school systems have developed to a degree of perfection, the social and commercial life of the nation have advanced still more. Our age is the age of city builders. Not only in our country, but throughout the world. mankind forsakes country life and by a kind of natural attraction crowds into cities. With this great advancement a problem of less pleasant aspect presents itself. We see arise side by side the highest culture and the basest crime. The city most proud of her system of schools is shocked to its very heart by the most fiendish deeds. The people of the metropolis of the East, who with lavish hands have spent millions for the education of the young, witness with horror and apprehension the daily occurrence of a brutish murder or some other execrable crime. Public indignation is aroused; the cause of such great evils is sought for in order to find the remedy, and the question is raised, In how far is education responsible for crime; what can it do for its repression?

Education is, no doubt, one of the factors that is not less important: the natural and the inherited dispositions. Education is, no doubt, responsible for the training of the pupil's character, but it has not the sole responsibility. If we speak of education, we think

almost involuntarily of schools, quite forgetful of the fact how small a fraction of the educational work is done by school instruction. The family is a more constant element in the process of education than the school can be. During his school-life the pupil passes through the hands of many a teacher, but his family surroundings remain the same always. Errors of omission and commission there frequently leave a deeper impression than the strongest school influence, as the last through a longer period of time. The more the position of the teacher is made a permanent one the more influence she will have on the training of character. The biography of many a great man tells us how great the influence of good family life and surrounding is for good, and the evil tendencies of wicked surroundings appear from the annals of crime. The latter truth finds a sad illustration in one of the recent circulars sent out by the Commissioners of Education, in which Robert L. Dugdale, of New York, chairman of the committee on sources of crimes, among other things, gives an account of his attempt to trace the descendants of a family of criminals, consisting of five members, to the sixth generation.

Of the 709 persons living belonging to the 5th and 6th generations of this family, 240 where criminals, 142 were living on public charity. But even in regard to these terrible statistics Mr. Dugdale says in summing up: "It would seem that limits to mental and physical power are fixed by heredity. But when we come to that proportion of character which is the result of the will and the establishment of just moral conceptions, I find that the hereditary characteristics of the parents are greatly modifiable by the nature of the social environment. In other words, capacity is limited and determined by hereditary features, but the use to which that capacity will be put is mainly governed by the impersonal training or agency of environment. For instance where hereditary kleptomania exists, if the environment should be such as to become an exciting cause, the individual will be an incorrigible thief, but if on the contrary, he be protected from temptation, that individual may lead an honest life with some chances in favor of entailment stopping there."

If we leave it to others to arraign school education for what it does not, cannot do, we can easily see what help it is able to give in the repression of crime. In the school-room the child is brought into the society of his equals; he will learn to respect their rights and see that his own rights are respected. Instinctive respect to the rights of others is one of the great safeguards against crime.

The means by which success in life is made easier are placed in the child's hands by the instruction which it receives; the value of his future labor is enhanced, and this will help to keep him from poverty and need.

He learns to respect the laws of the school; this prepares him for citizenship and helps to arouse in him respect for social laws.

The mind is made more plastic; reading acquaints him with the thoughts and feelings of others; his emotional nature is refined and his sympathy strives to drag him away from cruelty and violence to others.

All these objects school education may accomplish if it busies itself with the formation of character as well as with the imparting of knowledge. It must recognize that there are three possible methods of dealing with the individuality of the young. We may let the pupil's individuality alone so that it develops by hap-hazard; this of course is the easiest, and I am sorry to say a favorite method. By it the teacher, as the saying is, "keeps out of trouble." She indulges the pupil, but is heartily glad when he leaves her room for that of a higher grade. Another most abominable method is the crushing of individuality, when the character of the pupil is ignored and independent action tyranically suppressed. The last and only legitimate method is to ennoble the character by wiping out—even if it must be done with an iron hand—the blemishes of the child's nature and by allowing the vital force of individuality to run in the direction of those tendencies which are good and characteristic at the same time. This method requires strength and wisdom, but it is the only one worthy of the name education.

Aside from these considerations we have direct statistical proof of the fact that school education is a very important factor in the repression of crime. The Bavarian Government tested this question in 1870, by a careful census. Let me present to you some figures show how many school houses among, 1,000 buildings; the second how many criminals among 100,000 inhabitants. You will notice that the numbers stand in an inverse ratio to each other; *i. e.*, the more school houses the less crimes.

Provinces.	No. of School-houses per 1000 Buildings.	No. of Criminals p. 100,000 souls.
Lower Bavaria	4½	870
Lower Palatinate	6	690
Upper Bavaria	5½	667
Upper Franconia	7	444
The Palatinate	11	425
Lower Franconia	10	384*

* See Report of Bureau of Education.

If we leave this subject of moral training and return to our topic of intellectnal culture, we shall not presume too much if we assert that school education, contributes an indispensable share to the work of education for which no other *substitute* is possible.

School education is efficient if it yields the two elements of culture—knowledge and ability, within the limits stated before. The preparation which school education gives towards earning a livelihood consists in imparting the means of intercourse which enables the child to fit himself easily for becoming an active wheel in the whizzing loom of life.

If the teaching of a knowledge of facts and the training of ability are the tasks of school education, we may ask, What facts are to be taught, what abilities to be trained? Our answer lies in our definition of culture, which is, to train the child's soul, intellect and character so as to fit him for intercourse with others.

The child's mind is fascinated by what is wonderful and strange, and longs for it; it half and half expects a living fairy to turn up some day; to meet Cinderella or Red Riding Hood on its way to school. It lives in the world of wonders, in the distant and remote. While primary education must consider and calculate on this peculiarity of child nature, it must gradually lead to reality by teaching the child to find an interest in what is necessary as well as in what is beautiful.

Now, in selecting facts for instruction, some teachers seem to have grown toward the children by their continual intercourse with them.

They teach their pupils to look with interest on China and Hindoostan, and forget the green plains of a beautiful home before their feet. They press the cold and stony tablet of history on the mind of the child, to leave there the fading trace of a few hundred data, but they cannot endow with life again the noble human characters of the great men of the nation. They cannot make the child feel the presence of departed greatness that fills his mind with the glow of admiration and love. The historical person who steps out of the frame of history into the heart of the pupil is familiar to him he understands human beings and he dimly feels greatness, but the actions of state, the dreary list of battles lost and won is something remote and impalpable. We are apt to teach the remote, the distant and the contingent, and ignore what is near and necessary.

The child should know about his surroundings, his native city, its resources, its character, about his State and its features. The story told by one of the School Journals of December, '75, is sad and amusing at the same time: In one of the Western islands of Scotland, a visitor to a primary school was requested to examine a particuliar scholar on the capitals of Europe. The boy named one after another with perfect correctness. It occurred to the visitor to ask the boy the name of the island on which he lived. He could not answer, and when at last the examiner said: "Now tell me what a capital is?" no answer. "Is it a man or a beast?" "It is a beast," replied the boy quite decisively.

This is of course but a sequel to the same story in Goethe's Goetz von Berlichingen. Goetz, Lord of Jaxthausen returns to his home and meets his son Charles, when the following conversation ensues:

Chas. Good morning, father. *Goetz* (kisses him). Good morning, boy How have you all spent your time? *Chas.* Well, good father. Aunt says I was right good. *G.* Indeed! *Chas.* Have you brought any thing for me? *G.* Not this time. *Chas.* I have learned a great deal. *G.* Indeed! *Chas.* Shall I tell you the story of the good boy? *G,* After dinner. *Chas.* I know some thing else. *G.* What may that be? *Chas.* Jaxthausen is the name of a village and castle on the river Jaxt, belonging to the lords of Berlichingen for the last 200 years. *G.* Do you know the lord Berlichingen? *Chas* Looks at him in mute astonishment. *G.* (aside—The boy has become so learned that he doesn't know his own father.) To whom does Jaxthausen belong? *Chas.* Jaxthausen is the name of a village and castle on the river—*G.* I did not ask for that. (Aside—I knew all the paths, roads, and fords, before I knew the name of river, village and castle.)

Let education like charity begin at home (but not like modern charity improve upon the proverb by ending where it began) and then proceed to what is remote. Fact knowledge that is to lead to culture should begin with instruction about the child's home in its widest sense. It should lead the child to observe and should explain the common phenomena of nature.

The abilities which should receive training are those that enable the child to become a link of society by giving him the means of connection with it, the instruments of intercourse. Hence instruction in language ranks above all other things in a course of study. Reading, writing, spelling, grammar, are but the faces of this educational diamond. Ability in regard to language, not knowledge—which at the best must take the place of a means, is the aim of instruction in language.

Grammar is useful, grammatical language necessary. Oral list spelling is serviceable; correct writing essential. Beautiful reading is praise worthy, intelligent reading indispensable. For the sake of having intelligent reading, correct writing and grammatical language, I should willingly slaughter a hecatomb of Chinese river names and historical dates. We are beginning to realize the importance of composition in common schools. We shall yet learn the importance of committing to memory, regularly, poetical gems for the sake of both linguistic and æsthetic culture.

The length of a school course enables us to make the transition from the near to the more distant before the child leaves school. There will be no difficulty in finding a sufficient number of facts to fill out the whole time of the course. But the question then arises, "What shall be done with the facts?" The mere remembering of detached facts does not give to the child the ability to handle them well in his intercourse with others in after life, hence does not tend towards culture.

There seem to be three processes to which all facts must be grouped or classified, and they must be remembered.

To teach children to understand a fact is not as easy as many consider it. The silliest mistakes are made in this respect. Above all others one most especially pernicious practice should be exposted which feeds children hungering for an explanation with the empty husks of definitions. Definitions do not explain; a glibly-repeated definition does not at all show that the subject or word defined is understood. Every educator can record the most preposterous errors arising from this abuse of definitions.

Let me mention a few of them:

One, I quote from the periodical before referred to while I take the others from what has come under my own observation:

In assigning words for spelling for the following day a teacher had given the word schism to a class of grown pupils. In order to remind the pupils of the meaning, a short definition was given with each word. The short definition in this instance was: Schism, a division in a church. The pupils were to hand in sentences showing the meaning of the word. One of the sentenees handed in the following day was: "As there was a schism in the middle of the church, people sitting on one side could not be seen by those sitting on the other." Another pupil showed his lively appreciation of the difficulties with which the ancient Romans had to deal, by the sentence: "Romulus dug a furlough round Rome." A sentence about the word stature read, "The stature of Washington was made of white marble." A sentence on the word amputation read as follows: "The soldier died from the effects of his wound as amputation set in after a few days." The term *pediment* gave up its place in architecture in the following sentence: "The boy could not recite well as he had a pediment in his speech." In general history a pupil modified the victory af the French over the Aquitanians into the statement: "The Franks subdued the Antiquarians." A little girl at school was once reading in the presence of a visitor a passage in which the word dice occured and was asked what it meant. To the surprise of the questioner she replied, "Little cubs at play," and on inquiry it was found that she had been crammed with columus of meanings as they are called and among them this, "Dice, little cubes used in gaming."*

The teacher should not assume that a child knows a term, or a fact, but ascertain it by questions which must touch the point directly and not merely take the following favorite form: "Any one who does not understand this?" which question will of course not receive an adequate answer, as a pupil may in some cases not care to betray his ignorance on a point which all others seem to know and in other cases may erroneously believe that he knows all about the fact when he does

* Quebec Journal of Education.

not. Even the most common terms are sometimes not understood.

In explaining a fact recourse must be had to adequate illustrations, nor must the subject be dismissed before the children are able to explain it themselves.

In the grouping of facts, the new knowledge must not only be connected with the knowledge possessed, but by frequent general reviews of the whole subject the principal points must be brought again before the pupil's mind, so that the topics rank according to their importance in the general picture of the science. The sooner and the more frequently diagrams are used, the better the result. Self-activity of the pupil is required. He can in many cases do the grouping himself. He can find the causal group by finding the cause and effect of a given phenomenon, or the logical group by giving the reason for a certain inference, or bring a new subject in relation to other topics by comparing it with them.

Facts that have been understood and grouped must also be remembered. This last process is greatly facilitated by the second. If the mind is kept in good order, knowledge takes its place in it according to a good classification, recollection will do its work more easily and better than otherwise.

In remembering facts that have not become part of our mind, we must make an effort, which is not always successful. By sufficient practice and working with the facts it is possible to lead them to that chamber of the memory from which they appear automatically, as it were, whenever they are needed. The tables of addition, and of multiplication, for instance are remembered in this way. Knowledge, which is to last, must pass over into that state, and hence practice when working with the facts appears necessary; without them the knowledge of facts is futile and vanishes soon. Knowledge must be transformed into skill. The mind is encumbered by the fact until it has subjected and conquered it completely and made it entirely its own.

If the teacher is to do so many things with the facts, will not this occupy the greater part of her recitations which otherwise might be profitably used in the acquisition of a number of new facts? I do not doubt that it will; but at any rate the time would be well spent. I thing it might be said with a show of justice that our pupils know too many things, although they may not know much. Knowledge might be made more intensive and less extensive. Not so many things but more of each. As it is, a spirit of restlessness seems to pervade many school-rooms. The fact seems to crowd out the explanation and the thought. There is a kind of competitive race over the pages of the text-book.

"The teacher in the other school is five pages ahead let me see in what time I can 'catch up' with," seems to be the watchword with some. And so the opportunities for heart-opening conversation are stolen from the pupil. The teacher cannot enter into the characters of the children under her care—she has no time, nor seems a recitation a proper place for such communion. And so the pupil remains a stranger to the teacher, who stands in place of the parent—and all this in order to gain time. One can well understand Rousseau's paradox: "the idea of education is not to gain time, but to lose it."—(*From the Western.*)

L. F. SOLDAN.

The Socratic Method of Teaching.

PAPER READ BEFORE THE COLLEGE OF PRECEPTORS.

October, 18, 1876.

I was lying on the grass, in the holidays, under the pleasant shade of a spreading beech, and, under the pleasant pretext of reading, enjoying the delicious sense of thinking nothing, and revelling in the mental sensuality, if I may say so, of soothing quietude. But the busy mind, unused to expansive rest, betook itself to sleep, and so again, as if by habit, began, to work, and I fell a dreaming after this fashion.

I had, I thought, been dining at a friend's, where the practice is to leave the table before the men reach the funny stories, and the custom in the drawing-room is to raise social and other questions of interest, and at times to bear with greater earnestness and length, and warmth even, than society usually permits on such occasions.

There was one man I noticed at dinner, who particularly attracted my attention by his ungainly appearance, which lost itself in the pleasure of a singularly sweet attractive voice. His face was plain almost to ugliness, but there was about him a charm which made itself felt even at a distance, and his conversation kept his nearer neighbours engrossed, and apparently amused. One felt oneself subconsciously in this man's presence, and in his alone; all else seemed to move to and fro, and to be, but he alone to exist. In the drawing-room he was seated half lazily near a lady of what might be termed the dignified-intellectually-philanthropic type, a known promoter of the advancement of women, within strictly womanly bounds,—her ideal was not the strongminded, nor was her sympathy with the weak-minded. She was conscious of the throb of intellect in her own brain, and felt a sort of mission to make all women as near as might be like herself.

The conversation had turned on the characteristics of woman; certain defects had been rather maliciously exhibited—I regret to say insincerity and untruthfulness among the number,—and these had been adroitly utilized as an argument for a radically improved education. At this point the lady joined in with much warmth. "It seems to me," she said, "an unfortunate habit now-a-days to attack the higher class of women (thinking of herself as *the* higher class of woman) in order to strengthen the plea for the Higher Education. The Higher Education doesn't need it. It is a mere clever piece of special pleading. All the weakness and foibles of a woman's character are indiscriminately ascribed to want of education." Here the gentleman said deferentially, "You touch upon two questions in which I take the deepest interest. I must say I admire the frankness with which you admit that women have weaknesses and foibles—a fact which, if it is a fact, requires extreme acuteness to discover." (I learnt afterwards that this opinion was not due to conjugal experience.) "Your remark," he added, returning to the deferential tone, seems to me to imply much that should throw light on these two important questions—education and woman's character—about which so much has been said, and so little is known. These are just the social questions where I for one am most anxious to be taught." "I think," he continued, as if he felt how competent the lady was to teach him, "you hold that such faults ought not to be ascribed to want of education?" "I said, 'not indiscriminately,'" replied the lady, evidently flattered, and with the satisfaction that puts aside something as finished and done with, and with a sense of having done it well. "I had overlooked the modification," said the other; and added, with the manner of one who is making progress under able teaching, "would you mind explaining in what respects these faults should not be ascribed to want of education?"

"With pleasure," said the lady. "Faults resulting from want of character differ from those arising from want of education, and ought," she continued, getting

dogmatic under the sensation of producing effect—"ought to be carefully distinguished." Various cups of tea now crowded round, and people more or less belonging to them.

"Just so," said the gentleman, warming also into dogmatism, by a flattering sympathy,—"just so, it is very important to make distinctions where there are real differences; perhaps it would help us if you would kindly give some examples."

The lady was quite ready to do so. "Untruthfulness," she replied, "insincerity, lack of religious toleration, love of wealth and position, are put down to want of education; but they have a deeper root than any system of school instruction can reach or cure."

"Then I suppose," continued the other with more earnestness than he had yet exhibited, though the lady was too intent to notice the change of tone, "you regard school instruction and education as convertible terms?"

"Undoubtedly."

"And you think the faults of which you speak can be combated in some other way?"

"I quite think so."

"And is there actually any agency at work that you recognise in opposition to them with a view to their cure?"

"Certainly there is."

"Your tone of certainty is hopeful for progress. May I ask what that agency is?"

"It is difficult to assign a name to it. I will not call it Christianity, because it lived and worked before Christianity was born. I will content myself with the somewhat unsatisfactory title, *moral consciousness*—the admission of duty and responsibility into life, and habitual acknowledgment of them. This quality must underlie, and consequently to some extent colour, the upper and visible structure of intellectual acquirement called 'education.' Unless we allow the importance of this, we are always apt to consider mental aberration and moral delinquency as so closely allied that it is useless to try to distinguish them. Naturally, then, the remedy for faults of character would be mental culture."

I began to think that the fault of insincerity was not wholly confined to women, for the gentleman put on an air as if he understood all this, and with the look of one emerging into daylight from a tunnel, said,—

"I see now clearly your view of the matter; you hold that the faults arising from want of character in women must be remedied by mental culture."

"Precisely; you quite comprehend my meaning."

"I see you have given the subject of Education—which my experience has shown me so few understand—a great deal of attention."

"Well, I have," said the lady, "it is a matter in which for many years"—and she looked as if she did not wish it to be considered *too* many years—"I have taken the warmest interest."

"And I see," interrupted the other, "a very intelligent interest."

The lady assented with modest deprecation.

"May I ask, do you feel satisfied with the present system of education?"

"Indeed not: I consider it in many respects highly defective—it is too much occupied with technicalities."

"With technicalities?"

"Yes; certain things are taught as a matter of course; some of them no doubt highly beneficial,—*e. g.*, Mathematics and Logic tend to precision of thought (I fancied I perceived here the slightest possible smile steal out of the gentleman's eyes, and settle on his snub-nose), and thus form a corrective to the insincerity ascribed to women. This so-called insincerity is often merely a habit of inaccuracy (the smile lit up the nose and retreated to the mouth, where it died away at the corners), and just so far as it is a mental deficiency will it be corrected by such studies; but if it arises from a low moral standard, no mere studies will remove it."

"But don't you think a low moral standard comes of imperfect notions of right and wrong?" said the gentleman in a more decided tone of argument than he had yet employed, evidently taking his stand on the lady's increased confidence in her own infallibility.

"Certainly," was the reply.

"What other causes would there be for a low moral standard?"

"I should say, innate disposition, bad example, and careless habits."

"Setting aside innate disposition, would it not be possible, in a school where children act and react on each other—which is, in fact, a little world—to improve example, and correct habit?"

"Certainly; I quite think so."

"Then you think it possible, by these means and others, to raise the standard?"

"Certainly; and this is, of course, what every friend of education is striving to bring about."

"That is," said the questioner, with the faintest smile, which, however, was quite sufficient to raise in his opponent a secret desire to go back and look over the ground,—"that is, I take it, that school education is not merely concerned with knowledge-giving, but with the regulation of conduct and the improvement of character"?

"Of course," said the lady, in the tone of one who detracts from the force of an admission by implying that it is so very obvious, "it would be very imperfect otherwise."

"Exactly; but I thought, when I had the pleasure of commencing the conversation, that you asserted that the faults of woman's character had a deeper root than any system of school education could reach or cure."

The lady, not being Hegelian in philosophy, and being, like the majority of ordinary people, somewhat uncomfortable, mentally, on finding herself responsible for two contradictory propositions, subsided, and a politely suppressed smile swept round the circle, which might have been pity for the victim or satisfaction at not being victims themselves. The gentleman, however returned to the charge saying, "I fear I hardly understand how far mental culture enters into your notion of education, or what you quite include under mental culture."

This was too much. The lady remarked that the subject was too large for conversation, and perhaps hardly suited to it (a fact she had not discerned before); and, her carriage being opportunely announced, she bade the hostess good-night, bestowed the most frigid of bows on the gentleman, and took her departure.

Now, you must not credit me with too much imagination, and regard this as a purely fancy picture. I will tax your patience, and incur the blame of being tiresome, by asking you to look at it in another form, because I wish, this evening, to point to *Method*. In the July number of the *Monthly Journal of Education* there appeared a letter calling attention to certain faults of character which were declared to be characteristic of women, ascribing them to existing education, and thence urging the need of a higher and wider education for woman. To this, in the following number of the journal, an apologist replied as follows:—

"An unfortunate fashion is much in practice at present, of writing attacks on the higher class of women. The argument is often merely a piece of clever special

pleading, with a special purpose and meaning. The purpose and meaning are to write up the 'Higher Education'; too good an object to require abuse in its exposition and defence. All the weaknesses, the foibles of a woman's character are indiscriminately ascribed to 'want of education.'

"Faults resulting from want of character differ from those arising from want of education, and ought to be carefully distinguished instead of identified.

"Untruthfulness, insincerity, lack of religious toleration, of personal charity and forbearance, love of wealth and position, are enumerated as results of 'want of education.' Such reasoning is specious and unsound, for most of the faults here mentioned have a deeper root than any system of school instruction can reach or cure. They must be combated by a different kind of education from that of technicalities; and there are hundreds of conscientious women in England to-day doing their best to impart this highest training to younger generations rising around them. We may strive to ignore the presence of a mighty influence amongst us, because the method of its working cannot be relegated to any known laws. But while the effects of its operations are visible, no candid observer will deny the truth of its existence. I shall not call this great unknown force Christiany, because it lived and worked before Christianity was born. I will, therefore, be content with the somewhat unsatisfactory title of moral consciousness—the admission of duty and responsibility into the life and habitual acknowledgment of them. This quality must underlie, and consequently to some extent colour, the upper and visible structure of intellectual acquirement called 'education.' Unless we allow the importance of this, we are always apt to consider mental aberration and moral delinquency as so closely allied that it is useless to try to distinguish them. Naturally, then, the remedy for faults of character would be mental culture.

"I shall now proceed to consider in order the faults ascribed to women in the 'Plea for Wider Education.' With respect to the first accusation, that of insincerity, there is much to be urged in behalf of the higher education; for insincerity is often only a habit of inaccuracy carried out towards persons as well as things. Whatever subject of consideration, then—say, mathematics or logic—tends to increase precision of thought, may fairly be expected to benefit in this particular. But only just so far as the thought is a *mental* deficiency. If it arises from a low moral standard, no mere studies will remove it."

Here I have, you observe, presented you with the same thing in two different forms; and in the first case I have tried to exhibit the form that Socrates, were he alive now, might be supposed to adopt. My object, of course, is not to consider the questions raised, but to call your attention to the method of raising them.

Let us now attempt to apply that method to Teaching. For this purpose, I have taken three actual cases, the questions and answers being put down at the time, though not, as they ought to have been, in short-hand. The consequence is that much of the play and animation of the actual encounter is lost, and in some cases I have had to supply breaks in the continuity. If we wish to improve our teaching, we must have actual lessons recorded *verbatim*, and subject these to criticism and discussion, and this not more for the pupil's answers than for the teacher's questions. The Art of Questioning by no means comes naturally, but is, on the contrary, an exceedingly difficult one.

The first case I take is that of a child of 9 years 8 months, educated in the ordinary routine, but of good natural ability, the son of refined and thoughtful people of the upper class. I commence as follows:—

"Subtract 38 from 45." He does so, and says 7.

"How did you get 7?—By taking 8 from 15.

"What were you required to do?—To take 38 from 45.

"But, instead of that you take 8 from 15?—Yes.

"Well now, supposing I sent a servant to post a letter in the upper village, and he returned saying he had been up the hill opposite, should I be satisfied?—No.

"Well then, I ask you to take 38 from 45, and you take 8 from 15. Are you not doing the same sort of thing?—I thought you ought to say 8 from 15, then 3 from 4.

"But you haven't shown me that this is the same as taking 38 from 45.—I thought it was the same thing.

"But you have to *show* me that it is the same thing. You see I allow that taking 8 from 15 leaves 7, and taking 3 from 4 leaves 1; but how do I know that this is the same as taking 38 from 45?

Although this was put in various forms, he was unable to get beyond, "I did it because I thought it might come to the same."

"Why did you think it might come to the same?"

Here he came to a complete stand-still I had tried him a few days previously by the same method on a Latin sentence, with a similar result; but with this important difference, that it gave greater scope to his mother-wit; and whenever the opportunity arose to get clear of technicality—*i. e.*, when he was free from what he had been taught, and was relying solely on himself—he seized the occasion, and made way; but in both cases the method soon came to a stop, through the pupil's non-possession of principles. Complete ignorance, and the frank confession of it, paralyzes the method.

The next case is a pupil of 10 years 10 months, with fair average ability, not taught on the routine system, but accustomed to be pushed back to principles, and to have to render a reason. I took the following example:

"Subtract 38 from 56.—18.

"How did you get the 8?—You take 8 from 16, because you can't take 8 from 6.

"Then you do one thing when you are asked for another, and you give as a reason that you can't do the first.—Yes.

"How did you get the 1?—Paid back 1, and that made 4; then 4 from 5 leaves 1.

"You were asked to take 38 from 56, and what you do is, to take 8 from 16, and 4 from 5, and then say there was nothing else you could possibly do?—Yes."

(It must be borne in mind that intermediate questions for explanation and illustrations are necessarily omitted.)

"That is, you are asked to do one thing and you have done two things different; now, would you, in other matters, be satisfied with such a method of obeying orders?—Yes, because the two things I did amounted to the one thing you asked for.

"Very well, then, I will accept your two things for the one I ask for, if you will show me that they come to the same thing. It is your duty, is it not, to show me that what you do *is* equal to what I ask for?—Yes; I can't take 8 from 6; so I borrow 10."

(Here the unfortunate figure of borrowing and paying back led to a digression; please remark this as well as the next answer.)

"Who is the friend from whom you borrow in this case?—I borrow from the 3.

"Show that you *did* borrow from the 3.—(After a long pause)—I can't."

It was at this point, I think, he broke down under the pressure, and burst into tears. I discovered afterwards, that one cause of this was, that, conscious of his

failure to do what he felt he ought to do (*) (this deserves notice), he thought I would put him back to his former class, he having just been promoted. Being unable to extricate himself from this difficulty, we then returned to the former question—Why, supposing he was right, he could substitute something else for what he was asked to do. He came at last to this—"I know it is right, but I can't explain it."

"But, suppose I deny that it is right, what will you do?—Learn it all over again, your way.

"But I have no way; I only want to know that *your* answer is right."

Here he began to doubt his own answer [notice how the method sets the mind a-thinking], and said, "I have worked it out in my head, and it comes to 28."

"But just now you were quite sure of your answer, and now it turns out that the answer is 28,—which is it to be?—28.

"How do you know that this is right?"—Because I am sure of the way I got it.

"How did you get it?—Well, you see the difference between 30 and 50 is 20 (Yes), and 38 and 2 make 40 [just so), and 6 + 2 make 8 (I assented), and 8 and 20 make 28.

"But don't you see you have increased your difficulty; instead of the one working I asked for, you give me four, and you still have to show that these four serve the same purpose as the one?" He did see this, and—collapsed.

Now, in this case, we have to notice that the fish gives more play than before; he takes the line and bolts with it into the weeds. The pupil's anxiety is an important element of the method; he is deeply conscious of his inability. In the first case, during the pauses, the pupil was noting surrounding objects, and perfectly happy, for ignorance is sometimes bliss. Not so here; there was close attention and painful effort, but still failure.

The next case was a boy of 13, trained, I expect, throughout to render a reason.

We work on the same example.

"Take 38 from 56.—18.

"Have you any doubt?—None at all."

This point was strongly pressed.

"Why are you so confident?—Because I have done it by the right method.

"I am glad of that, because it is just this *method* I am going to talk about. Now what is your method?—Well, I can't take 8 from 6, so I add 10 to the 6, and take 8 from 16; then, as it would be unfair to add 10 to one of the numbers and not to the other, I change 3 into 4, and say 4 from 5 leaves 1."

(Here I pressed him on the question of the propriety of the term "unfair," the digression was kept within due proportion, and he got a hint which he made use of later.)

"May I add this 10 to the 3 *or* the 8?—To either."

(On being pressed, he gave this up, saying. It would be no good to add it to the 8, because we get into the same difficulty as before.") This point, you will observe, he made use of subsequently.

"You add then this 10 to the 6 and the 3, and take 8 from 16, and 4 from 5? That is 40 from 50?—Yes.

"But you were asked for one working, and you have done four?"

(Here he wanted to put the numbers out as dots, but I objected to this.) At length he urged that the four operations amounted to the same thing as the one. He was then pressed to show that it *does* amount to the same, and he arrived at this—that to take 38 from 56 is tantamount to taking 48 from 66,

that $66 = 50 + 16$
$48 = 40 + 8$

giving $10 + 8$ or 18,

and he readily saw that, though this was true, going out of his way to add 10 only left him in the same place (the previous error prepared for this being readily understood), and that the essential point of his process was not the addition of 10, but the breaking the numbers up into convenient parts, it being assumed that the whole is equal to all the parts together.

Now these three cases are instructive. Let us notice the following points:—

1. The first two are failures, and they advance towards success with age and possession of principles on the part of the pupil.

2 With principles in possession, the method sharpens consciousness, but it brings feeling (somewhat dangerously) into play.

3. Without principles, the method is sterile.

4. Digressions are unavoidable, but while they tend to distract they prepare the way for success.

5. In the last case, success was achieved not so much by breaking down error and preparing the mind for truth, as by putting into form truth already vaguely held.

6. This arose from the nature of the subject, mathematics offering *less* scope for wandering than other subjects. In other subjects error is more multiform, and more difficult to be brought to bay, and return to the direct road more wearisome. There is danger, too, of confounding what is by-way and what main road.

7. The method, then, is of the nature of a chase—error is unearthed and hunted down.

8. The method, therefore, implies previous knowledge: ignorance, clearness, and superior skill alike defeat it.

9. The method has the advantage of beginning with the pupil's actual condition, of carrying him along throughout, and moving at his own speed—it awakens intelligence and guides it—it stimulates thought and gives consciousness of power. On the other hand, in certain cases it cannot be applied, and in others is dangerous; for, if unskilfully employed, it confuses and discourages by deepening consciousness of failure. In short, it is a powerful instrument, implying skill and care in the use.

It will now, perhaps, be well to say something of Socrates himself and his method; and this has been so well told by the great English historian of philosophy that I shall cull from his narrative, and even adopt his well-chosen words.

"Socrates was born B.C. 469; his parents, though poor, managed, it is said, to give him the ordinary education. Besides which he learned his father's art—that of a sculptor; whether he made any progress in it, we are unable to say; probably not, as he relinquished it early. He did not commence teaching till about the middle of his career. We have but few records of the events which filled up the period between his first leaving his father and his first teaching. One of these was his marriage with Xanthippe. He gave a playful explanation of his choice by remarking that "those who wished to become skilled in horsemanship select the most spirited horses; after being able to bridle

(*) I selected the examples on account of their elementary character, and because the pupils had not recently had their attention directed to the point.

those, they believe they can bridle all others. Now, as it is my wish to live and converse with men, I married this woman, being firmly convinced that, in case I should be able to endure her, I should be able to endure all others."

"Before he gave himself up to teaching, he performed military service in three battles, and distinguished himself in each. His bravery as a soldier was surpassed by his bravery as a senator. He had that high moral courage which can brave not only death, but the opinion of the world. At what time Socrates relinquished his profession as a statuary, we do not know; but it is certain that all the middle and latter part of his life, at least, was devoted exclusively to the self-imposed task of teaching; excluding all other business, public or private, and to the neglect of all means of fortune. We can hardly avoid speaking of him as a teacher, though he himself disclaimed the appellation; his practice was to talk or converse. Early in the morning he frequented the public walks, the gymnasia for bodily training, and the schools where youths were receiving instruction; he was to be seen in the market-place at the hour when it was most crowded, among the booths and tables where goods were exposed for sale; his whole day was usually spent in this public manner. He talked with any one, young or old, rich or poor, who sought to address him, and in the hearing of all who stood by; not only he never either asked or received any reward, but he made no distinction of persons, never withheld his conversation from any one, and talked on the same general subjects with all. When a man professed knowledge on any point, especially if admiring crowds gave testimony to that profession, Socrates was sure to step up to him, and, professing ignorance, entreat to be taught. Charmed with so humble a listener, the teacher began. Interrogated, he unsuspectingly assented to some very evident proposition; a conclusion from that, almost as evident, next received his assent: from that moment he was lost. With great power of logic, with much ingenious subtlety, and sometimes with daring sophistication, a web was formed from which he could not extricate himself. His own admissions were proved to lead to monstrous conclusions; these conclusions he repugned, but could not see where the gist of his error lay. The laughter of all bystanders bespoke his defeat. Before him was his adversary, imperturbably calm, apparently innocent of all attempt at making him ridiculous. Confused, but not confuted, he left the spot indignant with himself, but more indignant with the subtlety af his adversary."

But the method of Socrate seems to me to be even better described in a passage of Grote, which I cannot forbear transcribing.

"On such questions as these—What is justice?—What is piety?—What is democracy?—What is law?—every man fancied that he could give a confident opinion, and even wondered that any other person should feel a difficulty." (Now-a-days, one may add, What is education?—and say, everyone, including Members of Parliament, persons, and parents, fancy they can give a confident opinion; and on the platform, in the pulpit, or in epistolary literature, never feel much hesitation in giving it.) "When Socrates, professing ignorance, put any such question, he found no difficulty in obtaining an answer, given off-hand and with very little reflection. The answer purported to be the explanation or definition of a term, familiar indeed, but of wide and comprehensive import—given by one who had never before tried to render to himself an account of what it meant. Having got this answer, Socrates put fresh questions, applying it to specific cases, to which the respondent was compelled to give answers inconsistent with the first, showing that the definition was either too narrow or too wide, or defective in some essential condition. The respondent then amended his answer; but this was a prelude to other questions which could only be answered in ways inconsistent with the amendment; and the respondent, after many attempts to disentangle himself, was obliged to plead guilty to the inconsistencies, with an admission that he could make no satisfactory answer to the original query, which at first appeared so easy and familiar.....

"The discussion first raised by Socrates turns upon the meaning of some large generic term. The queries whereby he follows it up bring the answer given into collision with various particulars which it ought not to comprehend, or with others which it ought to comprehend but does not. The inconsistencies into which the hearer is betrayed in his various answers proclaims to him the fact that he has not yet acquired anything like a clear and full conception of the common attribute which binds together the various particulars embraced under some term which is ever on his lips. He is thus put upon the train of thought which leads to a correction of the generalization, and lights him on to that which Plato calls seeing the One in the Many, and the Many in the One."

Such is an account of the man and his method—sufficient, I think, for our purpose. His trial and fate are well known, and, to my mind, not surprising. For a modern Socrates there is still hemlock, only it has to be taken in homœopathic doses. If any one should doubt it, let him realise the fact the education of the child includes the education of the parent; and if he attempts to put this notion into practice, and begins to teach on the Socratic method the present as well as the next generation, he will soon get a globule with direction that there are more to follow. "Wherever," says Lewes, quoting Heine, "a great soul gives utterance to its thoughts, there also is Golgotha;" and adds, "Reformers risk martyrdom," and, he might have continued,—"for the most part, in some form or other, they get it."

Remember, the teaching of Socrates—for teacher he was, spite of his own denial—was, for the most part, the teaching of the adult; and before we consider his method, in relation to education as commonly understood, it will be well to collect a few of the more important propositions from his philosophy.

Put briefly, these are:—

1. He professed ignorance himself; and, though he held that knowledge was attainable, he considered that in most, if not all, cases, it was not yet attained, but that knowledge so-called was a sham and delusion; and he set himself mercilessly to attack and expose it.

2. He held that no man could teach another, only help him to teach himself.

Those who are acquainted with the doctrine of our late lamented friend Professor Payne will know how well home he drove this nail. It is hardly too much to say that his entire teaching was one long series of well-directed blows for this purpose. He regarded the principle not only as fundamental, but inclusive in teaching. With him the whole art of teaching was to be deduced from this one proposition; and contrary, as I venture to think, to his own principles, he proceeded to teach the young teacher from this generality of his—not the student's—making. Though I have to differ from him in a matter of abstract thought—as I have often felt bound to do in private, and even here, when he has done me the honour to preside—I should indeed be deeply grieved if any word of mine seemed in the smallest degree to depreciate the labours of one whose

whole life was a consistent devotion to education, and whose memory is fondly cherished by me as it must be by all who knew the warmth of his heart, the vigour of his intellect, the kindliness of his smile, and the help of his hand. If this room, in which he laboured so long, contained a bust to his memory, it would be but a fitting tribute; but it could add nothing to the more eloquent and lasting language which, like the dew, settles silently and secretly, but not less surely, on deeds that are duly done.

I have heard him often refer this principle to Jocotot, whose disciple he claimed to be, but to Socrates it really belongs. In fact, it is difficult to estimate how much is due to that great professor of ignorance, who has bequeathed perennial mental life through an imperishable method.

3. Socrates denied that, because one is acquainted with language, one is acquainted with the facts which underlie the language; and here again educational reformers from Montaigne to Payne are indebted to him.

4. As a deduction from this, he held that "books cannot be interrogated—cannot answer—therefore cannot teach; we can only learn from them that which we knew before."

5. Hence, instead of general notions including what they should not include, and omitting what they should, and vague frothy language, he insisted on distinct conceptions rigorously expressed.

6. He assigned—and was the first to do so—immense importance to verification; but we must not forget that verification with him was purely *subjective*. Physics he ignored, regarding the study as futile, if not impious, in which he is not without modern disciples.

Having now endeavoured to see what the method of Socrates was, and how it may be applied to the Art of Teaching, let us try to connect the principles it involves with the Science of Education.

We now approach the real question at issue, for which I have been endeavouring to prepare your minds, and about which I wish to elicit your opinion and judgment in the discussion that is to follow—I mean the relation of this method to the Science of Education, and its value as a teaching method. I have already, in this place, attempted to show what I understand by the Science of Edueation. It is sufficient to say now that, since there are certain characteristics common to all minds—facts of action and reaction, of growth and of faculty—there are certain general principles of Education, which can and ought to be studied; and this is true also for the Art of Teaching, which forms part of the Art of Training or Educating, which in turn rests on the Science of Education, which in its turn rests upon other sciences.

When, then, we have to criticise a given method of teaching or of knowledge-giving, or rather of causing knowledge to be got, for *teach* is the modern equivalent for the old causative *learn*—we must ask ourselves, How is knowledge acquired by the human mind? In other words, methods of teaching must be limited by methods of learning. We must distinguish between *method* and plan, or arrangement, or mode of or way of teaching. One may have any number of such *modes* of teaching. One may begin at the begining of the book, or the middle, or use no book at all; one may employ persuasion or severity; one may use the interrogative, or imperative, or affirmative, form of speech; much speech, like most teachers, or hardly any at all, like Arnold. One may teach in a large room or a small one; in a university gown or without one. These, and a host of other such things, have a certain value and importance, no doubt; but they are not what I understand by *methods*, and some of them are so trivial that it is pitiful to find teachers solemnly discussing them. A *method* of teaching, then, I understand to correspond to a method of *knowledge-getting* common to all minds, which can therefore be analyzed once for all [to do something towards this, I presume, is our business this evening]; and, once completely analyzed, can be taught and applied to practice with suitable modifications. The modification to suit particular cases is just the part of the process that cannot be taught in the training-school, but is the result of individual experience and skill.

Now, when I inquire by what processes the human mind acquires knowledge, it is Logic that answers, and says that there are two great processes—*Induction* and *Deduction*; and of these the latter, strictly speaking, does not give knowledge at all.

I will try and make this clear. Suppose I put a piece of sugar into water, and observe that it melts,—I do something which leads to knowledge, but, thus far, I do not get knowledge, in the sense in which I wish to use the term. By knowledge, I mean classified knowledge, or science, implying *law*. Again, if I inquire what meaning I am to apply to the term "*melts*," I make a move in the direction of knowledge. If, after observing with care and caution, fixing the meaning of my words, trying other substances that melt and do not melt, and putting them into classes on account of their difference, and find out *why* they melt, and ultimately arrive at some general truth which includes many other things besides sugar,—I have made a real step in the attainment of knowledge.

Again, bay way of antithesis, if I take up a certain class of school-book, and learn when Columbus was born, who invented candles, when the world was created, and the distance from Charing Cross to the moon, and stop short at this; I learn some highly useful facts, no doubt; but I have not attained to what I mean by knowledge; nor, were I acquainted with a thousand of such facts, would my mind have undergone any very valuable discipline. It would resemble a village chandler's shop much more than a museum. Logicians call the process of arriving, after sufficient care and precaution, at a general truth, "Induction"; and they call Naming, Observing, Defining, and Classifying, operations subsidiary to Induction.

What, then, is *Deduction?* It is the inverse process to Induction; it is, when we have a truth of more or less generality, seeing what particular individual facts it covers, and therefore seeing whether any given individual fact is or is not included in the general statement. Suppose, after strict use of all Inductive precautions, I were justified in saying, "All parents have naturally, and without due discipline, a tendency to mischievous affection for their offspring."

Suppose that I consider the case of A. B., and find that he or she (let us say *he*, out of politeness) has never had the wish to discipline, or the knowledge or the habit or the possibility of moderating his natural affection, in regard to the child, and experience enables us to find it in large hampers and long holidays. Now, I have no wish to raise a logical question; we teachers must take Logic as we find it, and leave logicians to fight out their own battles. I shall therefore, for the purpose of this discussion, assume Mill's theory of the syllogism. His doctrine is, that there is no inference here; for whoever admits that all parents have this natural tendency have admitted that A. B. has it. All that is gained by putting the matter in the syllogistic form, is merely to make clear to oneself what one has admitted—is to take precaution against error. *Induction*

then, according to this logical estimate, is the only process of real *inference*, the only means of getting really new knowledge. He who makes a new general statement adds to the stock of human knowledge,—he who syllogizes, uses the stock already in existence. He who can put together the terms *nature* and *two elements*, so as to say, "All nature consists of but two elements," has added a new fact to science; but he who then says oxygen, carbon, and hydrogen cannot all be elements, only uses this proportion, and adds no new fact to science. Deduction can make clear to us what before we held vaguely, or it can make apparent to us what our language truly means when we have not as yet fairly apprehended its meaning. This, then, is the function of Deduction, and very useful work it is, and very far-reaching, though inferior in importance to that which forges another link in the chain of human knowledge. Professor Stanley Jevons holds that Deduction is not inferior in importance to Induction, being implied in it. This question we may leave to logicians, though I am convinced that logic would gain if every school contained, at least, one practical logician in the Teacher. Now we may ask, where does the Socratic method stand in relation to these two processes? You will see why I began with examples of the method, rather than with an exposition of it, because they enable you to answer this question at once. You will see that the method is wholly engaged in bringing home to the mind the knowledge already supposed to be possessed, in making this clear, and in showing its relation to other knowledge. Hence we are in a position to describe the method as a teaching method, thus:—

1. *Its history.*—It is due to Socrates, who however used it for a purpose wholly different from that of the Teacher. Socrates wished to discourage and to show up ignorance; the Teacher wishes to encourage and convert ignorance into knowledge. Socrates was chiefly concerned with the adult; the Teacher is almost wholly concerned with youth. Socrates professed ignorance; but the Teacher must assume, at least, *some* positive knowledge.

2. *Its character.*—It is essentially a deductive method, and therefore its object is rather to make ideas clear, and chasten language, and stimulate to thought, than to give fresh knowledge.

3. *Its procedure.*—It takes its stand on a generality, and brings this into juxtaposition with another generality, or with some particular case, and strengthens the force of congruity, or makes incongruity apparent.

4. *Its demands on the Teacher.*—He must have a stock of clear ideas, command of the various particulars included under a general proposition, ready wit in fetching up new particulars, and facility in adapting himself to different pupils. General experience and flexibility he needs especially. Travel, observation, society, more even than books, will help him; but study and training are not to be despised.

5. *Its advantages.*—It tends to clearness of thought, and accuracy of language; it quickens the perception of relation between things; it opens up practical and varied knowledge; it deepens the appreciation of truth. It never moves faster than the natural speed of the learner's mind.

6. *Its disadvantages.*—It needs previous knowledge and it demands confused thought—as the doctor must have disease; it tends to discourage by its slowness, and because it looks backward rather than forward. It tends to introduce Feeling affecting Will, to a degree with some natures amounting to complete opposition. Hence it fails with A. who says, "I don't know"; with B. who says, "I don't want to know"; with C. who is paralysed by his failure; with D. who is angered at his defeat; with E. who is already clear (a remarkably small class); and with F. who is shrewder than his teacher (perhaps a larger class than we imagine).

Of these there is a good example noticed by a brother teacher, Mr. Punch.

Teacher—"Jeremiah Muzzles, spell gold."

Jeremiah spells it.

Teacher—"Right; now what is gold?"

Muzzles (not having had much experience)—"Doan't knoah"

Teacher (exhibiting chain)—"Why, what is this, Sir?"

Muzzles—"Brass, Teacher."

Having now given you examples of the method and, my own view of what it is, I may fairly leave the subject in your hands; but I would beg to be allowed to direct your attention to three questions, beyond which it is certainly not advisable to wander.

(i.) Is my exposition of the method correct?

(ii.) What is its relation to the Science of Education?

(iii.) How, when, and where should it be employed?

If we can succeed in answering these questions, even in part, we shall not have spent the time in vain, and shall have attained the object which such meetings as these would seem to have in view, helping us in some sort to realize (for these discussions do help us to realize) Thomas Fuller's idea, that "God inurideth some for the schoolmasters' life, undertaking it with desire and delight, and discharging it with dexterity and happy success."—*Educational Times.*

Education in Servia.

A short time before declaring war against Turkey, the Servian government published at Belgrade a statement of the condition of educational matters in Servia. We offer some interesting details thereof, taken from *Le Manuel Général*, furnished to that journal by a correspondent who translated them from the Servian language:

Servia, with a population of about 1,200,000 souls, possessed at the end of the year 1873, the date when the statistics were compiled, the following educational establishments: One university with 17 professors and 196 students; one theological seminary with 11 professors and 279 pupils; 17 gymnases or academies with 59 professors and 1186 pupils; 11 professional schools with 49 professors and 546 pupils; one normal school with 11 professors and 59 pupils; one high school for girls with 26 professors and 238 pupils; 507 primary schools with 627 teachers and 22,756 scholars; and lastly, 13 free schools, or not under the control of the State. In the primary schools, there are, on an average, 44 scholars to a school, and 26 pupils to a master. The total budget for public instruction amounts to 869,769 francs; the total budget of the Principality 13,853,456 francs.

Among the recruits of the Servian army, the proportion of those who can read and write is only 15 per cent.; as the number of children attending school amounts to 22 per cent., it seems to imply that 7 per cent. forgot what they knew on leaving school. The normal school was opened in 1871; it is established at Kragourievatz, about the centre of the Principality. The pupils are all boarded, clothed, and educated by the State, on condition of agreeing to serve for six years as teachers, but they are not for that exempt from military service. The instruction imparted at the school comprises Christian doctrine, the Servian language and literature,

the Sclavonic language, (which in those countries plays the same part as the Latin among European nations), German, sacred chanting, history, geography, mathematics, natural history, physics, chemistry, agriculture, method, pedagogy, phsycology hygiene, legislation, drawing and calligraphy. The school possesses a cabinet of physics, a chemical laboratory, and a library of about 2,000 volumes.

It will be observed that there is yet much to be done; but it must be remembered that all that has been accomplished dates from 1830, when the first school was estabilised in Servia, and that a complete development of their educational system can hardly be expected until the country is free from the debasing and tyrannical yoke of Turkey. The Servians are mostly agriculrists and raisers of cattle; large towns are rare in the Principality; and considering the short time and serious obstacles that have been encountered, perhaps we may wonder that so much good has already been accomplished.

"Technical Education in Canada."

MCGILL UNIVERSITY.

The London *Mining Journal* in an article under this heading refers to McGill University in very flattering, but none the less appropriate, terms It speaks of McGill at considerable length, and from its remarks we take the following:—

"The students of all classes entered for current session number, deducting double entries, 383; in addition to which there are 119 teachers in training in the Normal School belonging to the University, and 340 pupils in the Model Schools. The college, it wi l be remembered, was founded in 1811 by bequest of the Hon. James McGill, a citiyen of Montreal, and ten years afterwards was erected into a university by Royal charter, though its successful progress can only be dated from its reorganization by an amended charter in 1852, its present very enviable position being really the result of but a quarter of a century's exertions, and due, it might be added, to the energy and intelligence of the professors who accepted office at the time of the change and of men who were then just graduating, and have since strengthened the professorial staff, fully appreciating the improved organisation, and taking equal interest in the achievements of the objects in view when the change was made. There are at present 34 professors and nine lecturers, and many of the former—the Principal; the Professor of English, the Ven. Archdeacon Leach; and the Professor of Mathematics and Natural Philosophy, Dr. Alexander Johnson, for example—enjoy a high reputation, not only in Canada and the United States, but wherever universities exist.

The statutes and regu'ations of McGill University are framed upon extremely liberal principles, and, although strictly Protestant, it is not denominational; it has full power to confer degrees in divinity, but that power has never been exercised since the re organisation. * * * * For the science students three distinct courses of study are provided—Civil and Mechanical Engineering, Assaying and Mining, and Practical Chemistry—each of which extends over three, or in some cases, two years; that is to say, candidates may enter in the second or middle year if competent to pass a special examination in Mathematics, English, and Chemistry. The double degree of B.A. and Bachelor of Applied Science can be obtained in four years, and the student will by that time be well prepared to undertake the duties of his profession with credit to himself and advantage to those employing him * * * * The technical degrees granted are those of Bachelor of Applied Science, Master of Engineering, and Master of Applied Science, and the courses of study leading to them are thoroughly practical and complete. * * As to the courses of study themselves it would almost suffice to say, as a guarantee of their practical nature, that Dr. J. W. Dawson, F.R.S., the celebrated Canadian geologist, is the principal of the College, and fills the chair of Geology and Palæontology, and that he is well supported in his utilitarian views by every member of the governing body. The student preparing for civil and mechanical engineering pursuits * * will have to take the full courses given by Prof. G. F. Armstrong, M.A., F.G.S., and by the lecturer in drawing and assistant, Mr. C. H. McLeod. The object aimed at in the course of surveying and levelling is to enable the student to be of immediate service upon entering the office of an engineer or surveyor, and, in addition to the lectures, a thorough course of engineering field work is undertaken by the class under the guidance of Mr. McLeod, during which the practical operations of the engineer in the field are actually carried out by the students. * * Each student works independently under the personal supervision of the professor, and makes such drawings and calculations as would be needed were the structure designed to be actually carried out.

For students intending to devote themselves to mining and metallurgical pursuits the course is equally extensive and complete, the special subjects being taught by Prof. Harrington, B A., Ph. D. The usual subjects in Arts have to be taken, as in the previous case, and with regard to the technical subjects those for the middle year embrace the use of the blowpipe and assaying, whilst the senior year is occupied by lectures on mining and on metallurgy respectively. The course in assaying includes lectures and practical work; assays are made by various methods for gold, silver, copper, iron, and other metals; examinations being also made of coal, peat, clay, &c. The mining course is an extensive one. and the syllabus shows that all the questions of importance in connection with modern mining practice are carefully considered. There is also a short course of metallurgical lectures, illustrated by a series of ores and metallurgical products. The Practical Chemistry section is under the guidance of Prof. G. P. Girdwood, M.D., and includes a general course of qualitative and quantitive analysis adapted to the previous training of the student, leading in the latter part of the course to special studies adapted to the future pursuits.

As the college enjoys the advantages of large and well-ordered laboratories and lecture rooms, and of abundance of apparatus for illustrating the subjects taught, the students adopting it have every facility for learning well and quickly, and, assuming that the governing body will maintain those liberal principles which have already done so much for the university, and that the same amount of skill and activity will be displayed by the professors and lecturers, it cannot fail to continue to increase in prosperity, and retain its prominent position amongst the leading institutions of the province."

Ladies' Educational Association.

The lectures of this Association were resumed yesterday afternoon 11th January, in the Synod Hall, before a large assembly of ladies, when Professor Johnson, LL. D., of McGill College, delivered the first lecture of his course on "Electricity and Magnetism," with experiments. He recommended the course of study to be pursued, viz., by text books accompanying the lectures, and dwelt on the importance of their making experiments for themselves at home, and the value of this subject particularly, as being one in which the apparatus, or more properly speaking, the articles required for experimenting, could be readily obtained in every household. Errors would, as a matter of course, be made, but these errors would prove exceedingly instructive in preventing future mistakes. There were two kinds of electricity—Frictional and Voltaic. In the former there were very few experiments that they could not perform, while those of the latter were more expensive. He drew attention to the programme, in which it was stated that the "effects of electricity would be considered. The word "effects" was intended there to be very emphatic, because no sound theory had as yet been discovered as to what electricity was, and on that point he wished them to be particularly clear, because a certain hypothesis would be presented in the lectures, in order to explain most of the effects, and to search the purposes of the theory in that respect, but which hypothesis never must be accepted as true. He then proceeded to state in what direction scientific men were looking for the true theory, viz., that theory in connection with light and heat. He referred to the explanation of the theory of light, as given by him in his previous lectures on Light, explaining the constitution of solid bodies, and of the ether, stating that light and heat were produced by the motion of the ether, combined with the motion of the molecules of the solid bodies. He briefly mentioned Faraday's ideas respecting the action of molecules in electricity, and proceeded

to make experiments, shewing specially the attractive effects of electricity. He particularly impressed upon his audience the fact that the most important part of their studies would be the repetition of the experiments by themselves at home. The first trace of the discovery of electricity, he stated, was made 2,500 years ago, or 600 years prior to the Christian era, when the fact that a piece of amber, when rubbed, attracted lighter bodies, was first discovered. That single fact was the only one known for 2,500 years, when Dr. Gilbert, in the reign of Queen Elizabeth, published a work on the magnet, shewing that not only amber, but other bodies, such as sealing was and glass, possessed magnetic properties. Dr. Johnson then proceeded to rub a stick of sealing wax swiftly through a woollen glove, and to show its magnetic influence by placing it near a quantity of paper shavings, which adhered to it until the electricity was exhausted. He also performed the same experiment with a glass rod, with an india rubber comb, and an ivory paper knife. The glass rod and the paper knife did not prove so attractive as the wax and India rubber. He next showed the magnetic attraction in a sheet of brown paper, as produced by friction, by rubbing vigourously a sheet with the rubber comb, the paper knife, and also with his hand, and placing them each time against the wall and the blackboard, to which they adhered until the current was exhausted. He again recharged the brown paper by friction with the rubber comb, and held the paper over a quantity of paper shavings, to which they were attracted, and adhered to like needles to a magnet. He also stated that by holding a sheet of brown paper, thus charged, over one's head, they would find that their hair would rush towards it, and if held over the face, a creeping sensation would be produced. In these experiments a calfskin was also used as a "rubber," it being superior to the woollen glove. Dr. Johnson next took a common cork and stuck a kitchen fork in either side, and a needle in the bottom to act as a pivot. He then placed a tumbler, bottom upwards, upon the table, and a wine glass upon it, surmounting that with the contrivance mentioned, which closely resembled in appearance, and acted in a precisely similar manner as the governor or regulator of a steam engine. He then charged the rubber comb by chafing it with calfskin, and placed it within an inch of one of the forks, when the governors revolved and followed the comb as quickly as it was made to move. Kitchen forks are preferable to silver ones as they are heavier at the end.

By the same means he stopped the "governors" and caused them to revolve in the contrary direction. The next experiment consisted in fastening two hooks made of ordinary copper wire to either end of a piece of silk. One of the hooks was suspended from a wooden peg, and to the other an ordinary wooden pointer about five feet long was suspended by the centre. Recharging the rubber comb by friction, he placed it near the pointer, which revolved in either direction as he desired. A china dish was next caused to revolve in the same way. He then placed an egg shell in an egg cup, balanced a light lath upon it, and caused the lath to revolve by the same means; also a heavy five feet long, three and a half wide, and inch thick. He afterwards showed that the charged comb, attractive in itself, could be made repellant by placing them on a pivot, and following them with the pointer or laths. He lastly showed how small particles of electricity can be detected, by taking a straw, weighted with a piece of wire at one end, and by another piece wound round it so as to be slipped up and down the straw in order to cause it to balance accurately when placed across a small bar. He then took up the rubber comb which had remained unchanged for some time, and placed it within about two inches of the straw when the latter "dipped" as often as he desired. Next Thursday the Rev. Principal Lobley lectures on "Ancient History."

—(*Montreal Herald.*)

POETRY.

When School "Lets out."

BY HENRY T. STANTON.

When school "lets out" at sundown time,
And shadows long up hill-sides climb,
With leap and romp and laugh and shout,
In kilt and smock and roundabout,
By grain-field fence, through pasture-grass,
A foot worn way, the scholars pass;
And bright-faced elf and brown-faced lout
Go heart-glad home, when school "lets out."

I sit and watch, where, white and slow,
The mistress moves in grace below;
A lithe young girl, with folded hands,
With low-down locks in wide, brown bands,
Who floats in light where deep shade lies,
With sweet, sad looks in lake-blue eyes;
I sit and watch, and hope and doubt
I know not what, when school "lets out."

Were I so young as they who know
The mild maid-rule, just there below,
Would I be glad as they who pass
By grain-field fence and pasture grass?
Would I be glad the home-bound way,
And laugh and shout and romp as they?
It might be so in roundabout,
But not as now, when school "lets out."

Some day,—how soon I cannot tell,
But some day soon, I know full well,—
My feet shall fall with beat as slow
The green-laid way that hers do go,
And I shall feel my great heart rise
To tender looks from lake-blue eyes,
And there shall be no fear, no doubt,
Her hand in mine, when school "lets out."

—*Home and School.*

OFFICIAL NOTICES.

Quebec Government School of Navigation.

This school will be opened on the first of February next, in the buildings of the Legislative Assembly, under the tuition of William C. Seaton, esquire, Professor of Navigation, and late nautical master to the Society of Merchant Venturers, Bristol, England.

The terms of time will be as follows:

The school will be opened daily throughout the year, (except from the first July till the end of August), from nine in the forenoon till four in the afternuon.

On Saturdays, it will close at noon.

The course of studies to be followed at this school will be:

FIRST COURSE.

For the preparation of candidates for the masters' and mates' certificates of competency, granted, after successful examination, by the Board of Examiners of the Dominion of Canada. This will embrace the use of logarithms; the sailings; day's work; finding the latitude by meridian altitude of the sun, of a star, by an ex meridian altitude of the sun; finding the longitude by chronometer; the variation and deviation of the compass by an amplitude and by an azymuth, to find the times of high water; the correction of soundings; to make observations for the formation of the table of deviations, its application, also the laying off and use of Napier's diagram; the use of the chart of instruments; the rule of the road and all other subjects comprised in the *viva voce* examination before the Dominion board of examiners.

SECOND COURSE.

An extended study of practical navigation and nautical astronomy. To find the latitude by a meridian altitude of the pole star, by double altitudes of a celestial body (Summer's and Ivory's methods); to find the longitude by double altitudes, by lunar observations; to rate a chronometer by equal altitudes; the use of the artificial horizon, the laws of storms, &c.

THIRD COURSE.

Theory.

Mathematical investigation of the different rules and formulæ used in nautical science.

The matriculation fees will be $15, for those studying to pass for a mate's certificate before the Dominion Board of Examiners, and $20 for those studying to pass as masters; and students, after having matriculated, will have the right to attend the school, free, for any length of time, until they have obtained their certificates from the Dominion Board of Examiners.

Should extra examinations be established before the Dominion Board of Examiners, the preparation for those extra examinations of such candidates, as will have made their studies or this school, will be free of any charge.

The tutor of the school will make a monthly report to the Provincial Secretary, stating the number and proficiency of students, and the number of candidates from the school who have successfully passed the Dominion Board of Examiners, for certificates of masters and mates.

Persons desirous of entering the school may apply to the Honorable the Provincial Secretary or to Wm. C. Seaton, esquire, at Quebec.

By order,

J. A. CHAPLEAU,

Secretary of the Province of Quebec.

MISCELLANY.

The Educated Housewife.—And yet is there no medium between the servant and the scholar? May not all reasonable wants of the body be attended to without sacrificing thereto all mental culture and spiritual grace? May not the disposition of the fringe of the towels and heels of the stockings be sacrificed to a speaking acquaintance with grammar and a written deference to rhetoric? Must an overnicety concerning the things that are seen perpetually triumph over all regard for the higher life of mind and soul? Is the raiment more than the body and the meat more than the life, that so much of the imperishable should be sacrificed for that which perisheth? And yet far be it from me to disparage the day of small things or lose sight of the often-repeated truth that "trifles make up the sum of life." The small thing is equally sublime with the great thing when it serves the same purpose or signifies a noble tendency. It is contemptible only when it loses sight of and endeavors to make subservient the great thing.

Order and neatness in a home are truly delightful when they suggest harmony of soul and its accompanying strength of mind and depth of heart; but when the affections are repressed, the sensibilities blunted, and the mind itself so dwarfed and warped that even its moral perceptions are confused for the sake of a painful exactness and regularity concerning temporal things, one can but be persuaded that the end is unworthy of the means.

Nothing seems more appropriate in this connection than the time-worn adage that "truth lies between the two extremes."

A woman need not be so mad a blue-stocking that she will walk, absent-mindedly, into the street wearing one slipper and one gaiter (as has been related of a famous authoress), nor does literature, art, or science demand of her an utter neglect of her person and family; but if by dividing her time between soul and body she can supply a greater number of needs than by devoting herself exclusively to either, surely she stands justified if she is neither a rabid blue-stocking, discoursing in unknown tongues and looking like a fright, nor yet a notable housewife, with no aptitude in her mind nor any space in her soul for any thing more important than the fringe of towels and the heels of stockings. (*From November "Home and School."*)

Book Notices.

Wide Awake for January, and February 1877.—Christmas, in the superlative degree, pervades the holiday number of Wide Awake. Mrs. L. C. Whiton opens it with one of the loveliest of this year's Christmas poems. Opposite is the frontispiece, an engraving of Raphael's Sistine Madonna. Edgar Fawcett and Mrs. S. M. B. Piatt are also represented by holiday poems, "Children's Fates," and "about a Magician." H. R. Hudson furnishes a funny Christmas." Margaret Eytinge's "What Happened to the Baby" is still funnier. But the "star" story is "Lill's Travels in Santa Claus Land." It is magnificently illustrated by A. R. Waud, with scenes in Santa Claus Land, "Santa Claus and his Reindeer" appearing on one of the pages. Mrs. Handy, of Richmond, Virginia, writes about "A Confederate Christmas Tree," while Wm. M. F. Round opens his "Child Marian Abroad" with Child Marian's jolly "Christmas on shipboard." Sophie May's serial, "Quinnebasset Girls," opens well. "Good-for-nothing Polly," who is growing in character, is still the same good for nothing boy in his daily practice. The Little Folks all over the country are represented by the letters which they have sent with their dolls to the Dolls Fair, as Christmas gifts to the children in the hospitals.

"Wide Awake" for February opens with "Little True Blue," by Lucia Chase Bell, a stirring Minnesota winter-story. Mr. Wm. M. F. Round follows with "Child Marian Abroad," in which Marian has a very funny experience in trying to see Queen Victoria. Mrs. Whiton's exquisite poem, "A Little Child's Fancies," is exquisitely illustrated by a full-page drawing from the pencil of Miss L. B. Humphrey. There are many other short stories and poems, "Valentines," by Mary C. Bartlett, "The Pink Parrot and the Gray Boy," by Ella Farman, "Lulu's Pets," by Mary Standish Robinson, "Peggy's Valentine," by Rosa Graham, "A boy and his Kittens Three," by Mrs. Frank McCarthy, "A Nut to Crack," by Josephine Pollard, the "Second Adventure of Miltiades Peterkin Paul, by John Brownjohn. The first of the promised "Flossy and Bossy" Stories relates to "Uncle Martin's Wig." Flossy and Bossy are "truly" girls, the little daughters of a "truly" minister, and everything told in these stories really happened.

Two papers in this number will attract especial attention. The "Poet's Home Series, No. VII., gives a portrait of Edgar Fawcett, and the article by Mrs. Fannie Roper Feudge, "My Visit to the Birthplace of the Siamese Twins" The serials, "Quinnebasset Girls," by Sophie May, and "Good-for-Nothing Polly," by Ella Farman, are capital. In "Daughter and I" our girls will be sure to learn a great deal of practical physiology. "A Dolls' Fair," illustrated by three engravings, is sure to be read by every little girl in the country.

Only $2 per annum. D. Lothrop & Co., Publishers, Boston, Mass.

War Maps.—Mr. E. Steiger, Publisher, New York, has just issued Schedler's Map of Turkey and Greece. With special Maps of the Black Sea, Constantinople, and the Bosphorus. Drawn by Joseph Schedler. Size 19 × 24 Inches; carefully lithographed and colored. Price, folded and in cover, 25 cents.

This Map is compiled from the very latest material and is geographically correct, having the railroad lines, etc. distinctly indicated. It comprises the whole of Turkey in Europe (including, of course, Servia, Herzegovina and Montenegro), Greece, the Northwestern and Northern portions of Asia Minor, the Caucasus, the Black Sea, Southern Russia, Roumania, Southern Hungary, etc.

A Fine Edition of the above Map, printed on heavier paper, in three colors, has been issued, supplemented also, with a Map showing the relative preponderance of Nationalities in Turkey. This classification is most interesting and shows, for instance, that the Turks proper, constitute but one fourth of the population, while considerably less than half the inhabitants are Mohammedans. Much new information concerning Turkey is given by this large and carefully executed Map which sells at the low price of 75 cents.

Both of the above Maps afford a complete and reliable representation of the scene of the present Eastern complications, and will enable the interested observer the better to understand the situation of affairs, while proving, also, a safe guide in following the future course of events, whatever shape they may assume.

E. Steiger, Publisher, 22 & 24 Frankfort St., New York.

—Publishers of Newspapers who desire to obtain Schedler's Map of Turkey and Greece, in quantities, for presentation to their subscribers, will be supplied at low rates. Prices will be quoted on application.

Duplicate Electrotype Plates of the Map showing the Relative Preponderance of Nationalities in Turkey will be furnished to Publishers on favorable terms.

Our thanks are due to Mr. E. Steiger for a copy of Schedler's Map of Turkey & Greece, and we fully endorse the description given above. It will be found most useful to those who wish to follow attentively the course of events now taking place in the East.

Printed by Léger Brousseau, 9, Buade Street, Quebec.