

CHRISTIAN EDUCATOR

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PRESIDENT J. L. SNYDER,
MICHIGAN AGRICULTURAL COLLEGE.

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CHRISTIAN EDUCATOR DEPARTMENTS FOR 1898-99.

DURING the school year 1898-99, the following general departments will be maintained: —

General Articles. — From our contributors in the United States and abroad.

Industrial Education. — Practical suggestions and directions for teachers and parents, not requiring expensive apparatus.

The Farm. — Practical suggestions for making farm life educational to every member of the home and school.

The Schoolroom. — The teacher's magazine of timely class and schoolroom aids.

The Home School. — The fathers' and mothers' department of intelligent co-operation with the teacher.

Physiology and Hygiene. — A connected course of systematic lessons on this important subject, conducted by a specialist. Beginning in Sept., 1898.

Professional Study. — For teachers and parents, looking to the fullest understanding and discharge

of their mutual responsibilities, with special attention to standard educational doctrines.

Nature's Laboratory. — A manual of lessons on "Nature Study," alike helpful to teacher and parent.

Current Interests. — Especially educational and informational. Beginning in June, 1898.

"*Observations.*" — Editorial notes and comments.

Queries for Students. — Based on the matter presented in each number of the EDUCATOR. These are designed to be used as general exercises in teaching general observation and information, and thoughtful reading. Beginning in June, 1898.

Publishers' Page. — Current book and literary notices, announcements, special offers, etc.

Do you know any other educational journal that is devoted to this special combination of important interests, valuable alike to teacher and parent? We want agents. See third page of cover.

THE CHRISTIAN EDUCATOR

An Illustrated Monthly Magazine

VOL. II.

MAY, 1898.

No. 5.

EDITORIAL NOTE.

As this number of the EDUCATOR will come before many new readers, who have not been acquainted with its past history and character, a word of introduction may be in order.

As its name implies, the EDUCATOR is an avowed advocate of a distinctively Christian type of education, a type that should characterize the educational life of every Christian nation,—if there be any such in the strict sense,—every Christian school, family, and individual. In this broad aspect of its field, the EDUCATOR raises no question of sectarian or denominational differences; but rather is devoted to the physical, mental, and moral uplift of mankind as a whole.

The words "educational life" may be regarded as merely a paraphrase of those recently uttered by a well-known American thinker,— "Education is not a preparation for life, it *is* life." This is one of the fundamental principles advocated by the EDUCATOR; and if the highest life attainable by man, is the Christian life, then all educational development and effort should be Christian in character. And again, the type of education that is good for the highest life, is good, or best, for the merely intellectual or physical. The perfect education must necessarily deal with and develop all the elements of man's being.

The EDUCATOR distinctly recognizes, however, that it is not the proper function of the public schools to teach the principles or practise of religion as such—even of the Christian religion. The public-school teacher must never trespass on this sacred ground. But every teacher teaches most surely and inevitably by what he *is* in his personal character and influence. Probably a large percentage, if not the majority, of American teachers are Christians in personal belief. Such must always feel their responsibilities, and in their personal influence and intercourse with pupil and parent must seek to appeal to the highest motive.

Apart from these considerations, it is believed that the EDUCATOR offers to teachers in the public schools, as well as in private or denominational

schools, and to all parents and school patrons, much of value that is not presented in any other educational journal. This is not the place for an advertisement (in the modern sense), but in the interest of new readers it will not be inappropriate to summarize some of the distinctive features of this magazine, as follows:—

It advocates the systematic and symmetrical education of the whole man,—hand, head, and heart.

It gives prominence to industrial training as a neglected element in education.

It emphasizes nature study not only for learning facts and acquiring the habit of observation, but chiefly for its influence on moral development.

It believes in intelligent and sympathetic co-operation between parent and teacher, and endeavors to promote the professional education of both.

It educates to a practical life of actual service for humanity, rather than for mere scholarship or personal attainment.

Any who can assist its work in these lines are earnestly invited to co-operate with the EDUCATOR.

NUGGETS.¹

THAT is the greatest nation which counts the largest number of well-trained, virtuous, well-doing citizens.—*J. Scott Russell.*

To restore the deranged balance to society, its old honor must be rendered back to labor.—*Prof. A. P. Peabody.*

THAT must be the ideally practical education which leads at each step to a better knowledge of one's natural powers and wants and of his relations to all about him.—*Pres. George T. Fairchild.*

WE have schools to teach the art of manslaying and to make masters of "deep-throated engines of war;" and shall we not have schools to teach men the way to feed, clothe, and enlighten the great brotherhood of man?—*Justin S. Morrill.*

¹ From the Michigan Agricultural College Calendar.

GENERAL ARTICLES

THE MICHIGAN AGRICULTURAL COLLEGE.

If beauty of natural surroundings has a determining influence upon educational development, then the young men and women who attend the

entire campus was laid out at the beginning by a master hand, and it is evident that the plan first conceived has been strictly adhered to as new buildings have been added to the original group.

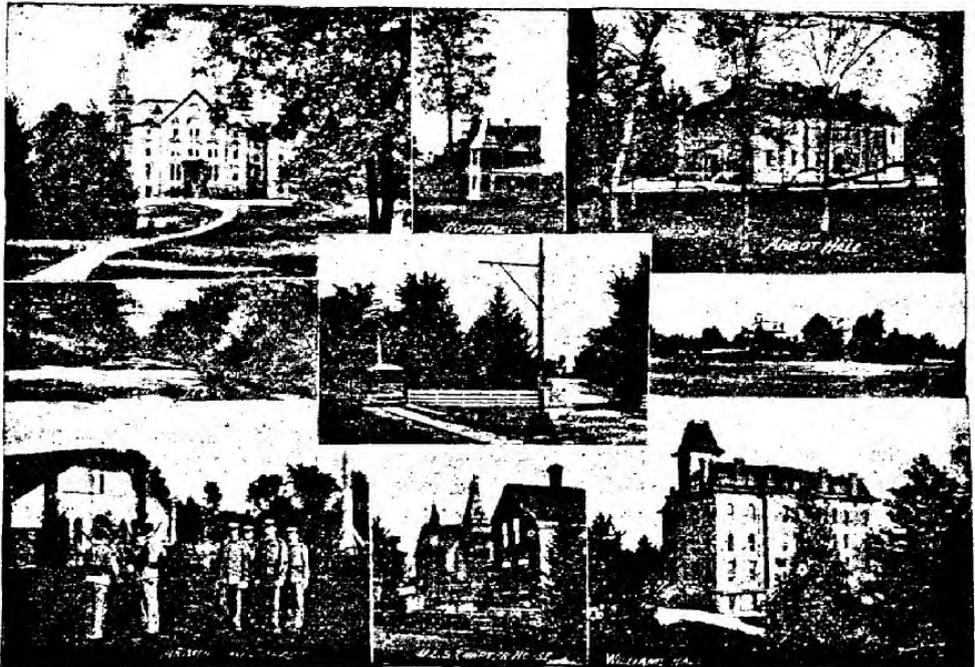
A pleasantly noticeable feature of the campus geography is that the trees and shrubbery are so arranged that to one making a tour of the place are presented ever-changing vistas, revealing in the distance some one of the college buildings.

In wandering through these beautiful grounds, one is reminded of the "classic shades" of Harvard, Yale, and other venerable schools; but if Michigan should object to the classic imputation, she certainly can not to another most appropriate ascription, "the sylvan shades of science." One should



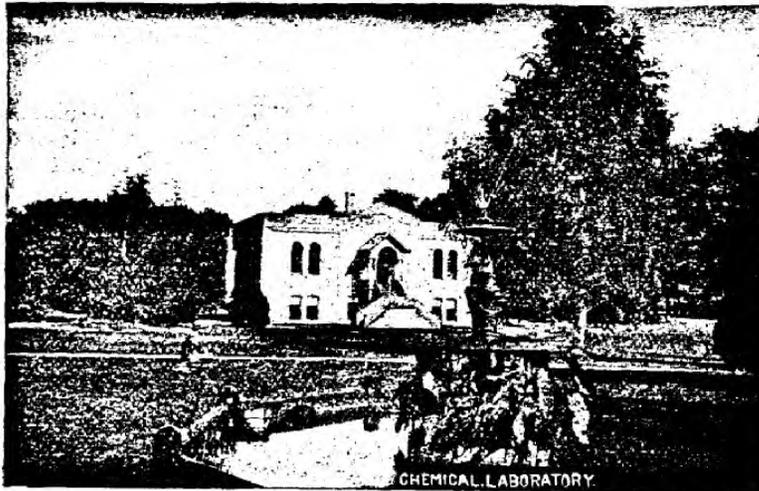
Michigan Agricultural College should count themselves most fortunate. One can scarcely imagine a more delightful scene of rural beauty than that presented by the college campus at Lansing, wherein the artistic skill of man has been most harmoniously wedded to the constant and grateful responsiveness of nature. Bordering the banks of the Red Cedar River, the grounds are traversed by a little brook, fringing a well-kept botanical garden, and scattered over this undulating tract stand the spacious college buildings, embowered by numerous and handsome native trees representing the forestry of the Wolverine State.

not conclude from these observations, however, that no attention is given in the Agricultural College to the classics or the study of correct form in its various expressions in the realms of literature, music, and art.



The Agricultural College was founded in accordance with Section 11 of Article 12 of the constitution of Michigan, as revised in 1850, which reads as follows:—

The Legislature shall . . . provide for the establishment of an agricultural school . . . for instruction in agriculture, and the natural sciences connected therewith.



Pursuant to this constitutional provision, the Michigan Legislature passed a law which resulted in the purchase in 1857 of 676 acres of land near the city of Lansing, the erection of suitable buildings thereon, and the establishment of the Michigan Agricultural College, which stands to-day as the oldest and most successful school of its kind in America.

The founding and successful maintenance of the college were made possible by reason of an enlightened and statesmanlike policy, in accordance with which the Federal Congress has made liberal provision by means of land grants for the adequate endowment of an agricultural college in each State. It is greatly to the credit of Michigan that, while some other States have quite subverted the use of these land-grant funds to other purposes than those first contemplated, she has faithfully used her portion in carrying out the original design of Congress.

The purpose of the college was defined by the Michigan Legislature as follows:—

This institution shall combine physical with intellectual education, and shall be a high seminary

of learning in which the graduate of the common school can commence, pursue, and finish a course of study terminating in thorough theoretic and practical instruction in those sciences and arts which bear directly upon agriculture and kindred industrial pursuits.

Among the studies prescribed for the attainment of the general object may be mentioned: English Language and Literature, Mathematics, Civil Engineering, Agricultural Chemistry, Animal and Vegetable Anatomy and Physiology, the Veterinary Art, Entomology, Geology, Technology, Political, Rural, and Household Economy, Horticulture, Moral Philosophy, History, Bookkeeping, and especially the application of science and the mechanic arts to practical agriculture. These and other allied studies are arranged in three general courses: The Agricultural, the Mechanical, and the Woman's Course. Those who complete the first- and last-named courses receive the degree of bachelor of science, and those

finishing the second are given the degree of mechanical engineer. As stated in the announcement, the regular Agricultural Course "is designed primarily to afford instruction along the lines that will be of particular value to persons engaged in agricultural pursuits," while the Mechanical Course is intended "to give the student a thorough training in the elementary work—both theoretical and practical—of his chosen profession."

One of the most interesting features of this institution, as in every other coeducational school, is the Woman's Department. The college has been



open to women for two years, and there are now in regular attendance nearly one hundred lady students. The experiment has proved an unqualified success from every point of view. That the Woman's Department is founded upon the best



of common sense, and the wisest philosophy, is clearly evident from the following admirable statement in the annual announcement:—

Science is but a knowledge of the laws of our own being, of the constituent elements and powers of all that we see and feel, of the currents of energy that sweep around and above and through us; and science has its beneficent applications at every moment and in every situation of this human life. If allowed, it will go into the bedroom, the dressing-room, the nursery, the dining-room, the kitchen, and there evolve a sweeter, saner mode of living, by simplifying and systematizing duties and labors that at present hold our women in practical slavery, bring on premature exhaustion and old age, and take away from life all dignity and sweetness. Recognizing these facts as pointing out a duty and mission, the college offers a woman's course, based on the same principles and having the same end in view as the other two courses; viz., the *capability to take prompt hold of life on the side of its material tasks*. It does not despise what are called "the accomplishments," yet it is equally far from intending to allow these "accomplishments" to usurp the whole domain of education. It does not design to unsex women; but it does purpose to give the sex, for its duties, the same kind of help

from the same source that has revolutionized the tasks of man. What science has done for the *workshop*, it can also do for the *household*.

As an illustration of the practical way in which these thoughts are worked out, the following epitome of the course in Domestic Science will be interesting:—

I. THE HOUSE.—Its site, construction, sanitation, heating, ventilation, lighting, water-supply, and drainage; disposal of waste; furnishing; cleaning and general care; administration of household affairs; the keeping of household accounts; the relation of income to expenditure; the significance of the "home;" its relation to the municipality.

II. FOODS.—Their nature, composition, and nutritive value; discrimination in purchasing; preparation and physiological effects; foods for the sick; for the well; for growing people; for adults.

III. THE PRESERVATION OF HEALTH.—The functions of the body; the care of the body; diets for different periods and conditions of life; work and rest; sleep.

IV. CLOTHING.—Features of healthy garments; sanitary considerations; night-clothes; clothing for children and infants; dress materials; principles of construction of dress; artistic considerations of dress.

V. EMERGENCIES.—A course of lessons in the application of the facts of anatomy and physiology, intended to fit one to render that "first aid" so often indispensable in cases of accident or sudden illness when there may be delay in summoning a physician.

As a whole the college at Lansing is conducted in harmony with the wise principle that physical labor, as well as arduous mental application, is essential to the complete education of man, and



that honest, well-directed toil facilitates, rather than hinders, the best intellectual growth. In accordance with this sound principle the Board of Agriculture requires that a daily average of two and one-half hours be spent in manual labor. "It is the aim of the department of Practical Agriculture to devote the time so spent to educational labor, and to confine the instruction given in this department largely to these hours."

Regular labor is also provided for students in other courses, and in all cases the labor is performed with special reference to its educational

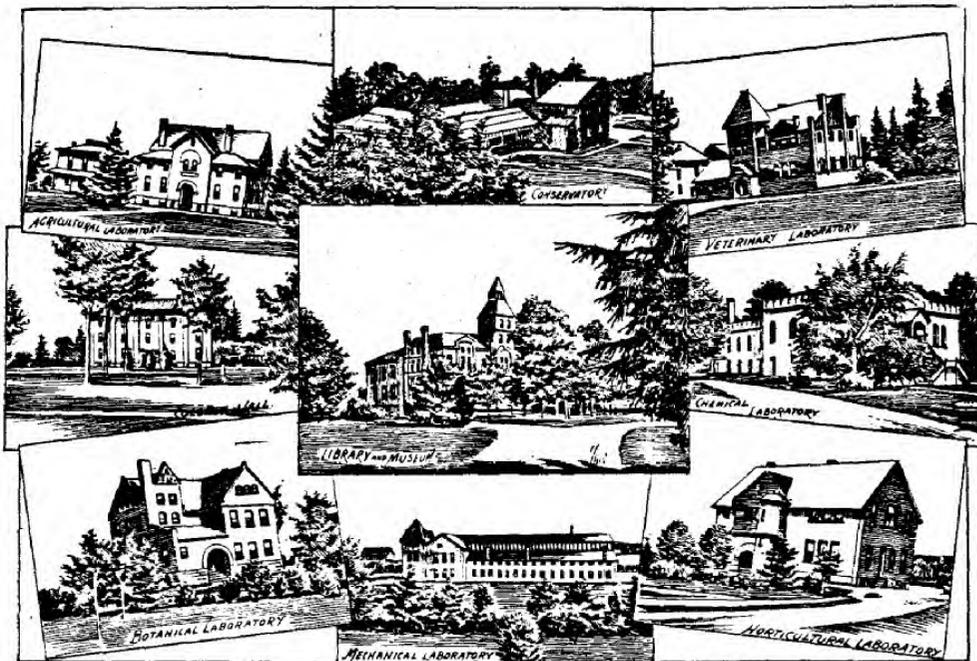
ing his stay at the college. He also gratefully appreciates the kindness of President Snyder, Prof. C. D. Smith, of the experimental station, and other members of the faculty in affording him opportunity for observing the actual workings of the college.

J. C. BARTHOLF.

WHAT IS EDUCATION?¹

THE questions you should ask yourselves are, "What am I working for? What is this work for? What is education?" I can not answer these questions fully, but

only from my tentative standpoint. What is education?—Plenty of definitions are ready. One definition, which I will give you, is an old one—a German definition of education: "Education is the realization of possibilities for good." We will suppose, then, that there are possibilities,—that in each human being there are physical possibilities. Each nerve and nerve-



value. The writer was greatly interested in work being performed by the students in the carpenter shop, machine shop, and foundry. The witnessing of such a sight vividly impresses upon the mind the truth of this educational axiom: "We learn by doing."

One of the most charming characteristics of American rural life is the unpretentious, yet generous and ample, hospitality afforded in the average farm home; and likewise one of the most pleasing features of life at the Michigan Agricultural College is that this same kindly hospitality is there dispensed. It is a pleasure to note the entire absence at the Lansing school of that supercilious snobbishness too often displayed by both teachers and pupils in some institutions of higher education.

The writer is indebted to President and Mrs. J. L. Snyder for the hospitality accorded him dur-

ing his stay at the college. He also gratefully appreciates the kindness of President Snyder, Prof. C. D. Smith, of the experimental station, and other members of the faculty in affording him opportunity for observing the actual workings of the college.

center, each muscle, the whole organism and every organ in it, carries possibilities for the future; the mind and the soul also carry possibilities to be realized in the future. Or I might give another definition, which is rather home-made, "Education is the outworking of God's design in human beings," the outworking of what God designs us to be—if we could only find out that "to be" and work it out—if we could find our destination, our function, our usefulness in this world, and then work it out.

But this outworking is all to be effected by our own self-activity; that is a fundamental law. We hear about "self-made men,"—all men are self-made in this respect. We have the highest authority for this law of self-activity,—that it is the fundamental law in all education: "Work out

¹A lecture before the students of Battle Creek College. Reported for the EDUCATOR through courtesy of Good Health.

your own salvation." "He that doeth righteousness is righteous." "He that will do His will shall know of the doctrine." What I am to be I must make myself. I have a will given me by God, and I must use that will. In that will there is reason, and self-choice, and I must choose the right thing, and choosing, execute it. I must do it.

But you say, "It has all been done for me." There seems to be a conflict here. Everything is done for you, only you have to do everything for yourself. What are you to do? Find the laws of God that control his universe,—that control all beings,—and apply them. And when you find his laws and apply them, you work with God. You have the universe to help you; but you must find the law, and you must apply it yourself. That is the dignity of your personality. Most human beings are specimens of suppressed personality, suppressed dignity. Instead of finding laws for themselves, they allow somebody else to find laws for them; they conform, bow to the human will. "Be not conformed to this world; but be ye transformed by the renewing of your mind." I don't know of anything grander than that,—the light that will come to thee when thou searchest for truth with the purpose of applying it. Let me emphasize that, for no truth comes to you unless you try to apply it. "He that doeth his will shall know of the doctrine." And when we see a law, we must apply it in no narrow sense. All the laws of God are for us to search, and find, and apply,—and only as we apply these laws shall we know them. I must do the work given me by my Father, said the Master. That is the thing that he has done. What is done for me?—Everything. What must I do?—Everything. And if you can reconcile these two, then you can work with God. His infinite grace and love is mine, but I have to take it; I have to understand it; I have to work it out.

But these are generalities, and I would like to come down to particulars. What is in education—the working out of possibilities, the out-working of the design of God—what is it?—First of all, it is good health; and this needs to be said all over this round earth. The body—what is it?—It is the instrument of the soul. It receives from the universe its gifts of light and sound and all that makes up the fundamentals of consciousness in man. It receives from God this visible world. Some people think that the senses are something that man has to have. You must have them, you know; but get rid of them as soon as possible, and go into something more abstruse. To me the senses are continual revelations of God through light, through

sound, and through all the energies of which man is capable of being the focus. Good health!—without it there can be no education,—no education without the grand instrument for the soul to use. There are thousands and tens of thousands of children in school now who should be outside of the schoolroom, and in the fields and woods—*anywhere* but in school, unless it is the right kind of school; and if it is, the pupils will find connected with it abundance of personal work out-of-doors.

You never can have an education, it seems to me, unless your motive is one of helpfulness, and helpfulness through sympathy. I feel this in the air of yours. So I say helpfulness,—the helpfulness that comes with a cheerful "Good morning!"—with a downward inflection. I wouldn't stop long when a man says "Good morning?" I would say, "What in the world do you talk that way to me for? as much as to say, I despise you;" and I despise him as much as he despises me. Say, "Good morning;" and say it as if you meant it; and when you shake hands, *shake*,—not with a weak, flabby movement, but with a good, strong, honest shake; and then be ready to help. That is a simple thing; but it binds the world in one,—helpfulness in the home, helpfulness in society, helpfulness everywhere. You must help. If there is a weak one in the class, that is the one you want to help. If there is one who is inclined in the wrong direction, that is the one you want to help. "Take time for it?"—Yes, *all* your time, but help; put your soul right into it. There are thousands of ways in which you can help others, and you know what they are.

Then your trustworthiness: There can be no education without the development of that great characteristic, trustworthiness. If you are given anything to do, do it with all your might and soul. "Whatsoever thy hand findeth to do, do it with thy might." Trustworthiness!

I must pause here to say that the world is in crying need of men and women who can be trusted to do their work thoroughly,—who do their work with all their heart. The world needs it. O, if I could sound it out so as to reach thy heart while struggling, it may be, for an education. The world needs trustworthy, earnest workers as never before; there is a great place for thee, and thou must take it; but remember that it is trustworthiness that the world needs.

And then, what more?—Taste comes into education. Taste,—I don't know of any better word,—good taste, the taste that loves beautiful things, that makes home a little heaven, with pictures, music, and other beautiful things. The owners of

some homes may be rich, and they may provide them with all that money can procure; but when you go into those homes, some way, you wish you were out. Everything looks uneasy, and you feel uneasy with all these things around you; but you go into some humble home, and you want to stay there. Taste, in literature, for instance, that chooses only the best and the sweetest. Taste in discrimination between the good and the bad. Taste in singing, taste in dress, taste in everything; it is a great work to cultivate taste. When you come to a person with good taste, you feel something coming out from him, when he does something for you with a taste that charms you. Taste, it is a great thing to cultivate.

And then there is something more than that,—vocation. What wilt thou be, young man, young woman? What helps you put your mind upon that? How hast thou means to choose? Is thy school work aiding thee to choose thy vocation? What is vocation? Let us look at that for a moment. Vocation is that by which a person puts himself into a community; it is that through which a man does the highest good. The touchstone of a man's life is his vocation. If that vocation helps not a community, it is wrong. All right vocations help the community. There is something you can do better than you can do anything else on earth. Talk about ministers being "called;" everybody is called. Now, what is the trouble with the school in general,—not your school, but schools in general. Why, there is nothing done in the school bearing upon the vocation or calling,—just words, *words*, WORDS. As I have said, there are thousands and tens of thousands of young men who get a mess of words, and become ministers, lawyers, and doctors, and they go anywhere where they can peddle *words*. These great professions require the highest education; but because these professional men think that words will do, they have learned these words, and they follow these professions.

But there is something more: If thou findest thy vocation just the thing that thou canst do with all thy might, thou art happy in that vocation. How canst thou find it? What is there in thy education to lead thee to find it? That is the question. Vocation is the means by which thou art to be useful to society, to the state, to the world, and if thou chooseth the right one, then thou canst be among the highest in thy profession.

There are many misfits in this world. There are many ministers trying to preach the unsearchable riches of Christ who could preach far better by pounding the hard iron in a blacksmith shop than

by pounding the pulpit. Many a physician would make a far better baker, making bread, than a physician, making bread pills. So it is all through,—misfits! misfits!

Then what is the next thing higher, my young friends? What is higher? Why, the highest thing that I know of in this world is citizenship. Stop a moment. Perhaps you have not looked at it in my way, and you will have to take my explanation of citizenship. This world is divided, in all humanity, into subjects and citizens. A subject is one who follows or obeys. He may obey a king, a parliament, a czar, an emperor, a central government, a political boss, or a hierarchy; he may obey these without question; that is the command first given you, "Don't question anything; just simply obey; follow." That is the reason we have had such a poor education; for the education of the past has been education of the subject. The light in the human soul, in the grandeur in which God created it, has not been recognized because of the selfishness of man. We should not keep man in metres and bounds. The citizen is one who uses his whole influence for, and studies the central question of, government,—of the state, and the good of the community,—and puts himself and all his interests into that question. I don't mean that he becomes a politician, and goes around to caucuses, using all his time in this manner; I mean that all he is goes into this question; his vocation comes first and foremost; all he has goes into the question of building up the community, the city, the state, and the nation. He is a patriot in the true sense. There is a kind of false patriotism; for instance, there is a patriotism of home; that is, *his* home against all the other homes in the world. There is a patriotism of the man for his city, for *his* city against all the other cities in the world. There is a patriotism of the state, in which a man feels that it is *his* state;—"no matter what becomes of other states, mine is to be the state against all other states." There is a national patriotism, in which a man says, "My nation against the world." There is only one patriotism worthy of the name, and that is the patriotism that takes in every child of God, every child born under the shining sun; that is true patriotism, and that has the quality of the true citizen. A woman may be a citizen, without a ballot, and she may be a far better citizen than a man if she uses the right influence at home. Most voters are not citizens. They follow; they obey, either through pelf or power, or whatever it may be. A citizen is one who puts himself into the central question of the

salvation of this world, its growth, the growing of people into a community and cities and states; he puts himself first into that question.

Now you have to be educated into these things. Where are we? That is the question, Where are we? The education of the present and of the past has been that in which pupils have not been permitted to choose; young men and women are coming in now, but that is a later thing. How is the citizen made? How is he developed?—by being a citizen. Here is the difficulty; I will try to make it plain: The child in the schoolroom is under a tyranny. He has no right to choose; he has not that right given him. His school is not a community in any democratic sense, and his school life is one of tyranny and control; that is what the school is to-day to a great extent. The child has no choice; he has not the right to work—to find his vocation.

Now let me come right down to the point: Your work makes you. Whatever your work is, that is yourself. Every act of the will has an end and aim. There develops in each human being, gradually, one central end and aim,—one thing that controls him. Every human being has this; it comes not at first, but is developed by education and by environment. There is one thing that controls you above all other things, and that is your ideal. Every one has an ideal. That ideal you work out. That ideal grew; it was a product of education and of instinct, of one's selfhood; that ideal controlled you, has controlled you in the past. And your method of work is determined by what you work for. If you work for marks, and per cents., and promotions, that controls you, that narrows you. The lower your ideal is, the lower your work.

"What knowledge shall I get?"—That which goes into you from your ideal, that which you work out. Let me illustrate: A man is trying to work out something; he is seeking to bring out some great invention or discovery; for instance, he is trying to find out what electricity is, or what heat is. Everything he does, goes into that channel; all his study centers in finding out that one thing. Now what learning does he need? He feels the need of anything that will work out the end which he has in view. What is his method?—Why, he struggles to realize that ideal, no matter what it is. Then, high or low, the ideal controls,—not the ideal which the teacher forms for you, not what he thinks is good for you, but what you feel to be good for yourself. There is the great mistake of teachers. The teacher, in his tyrannical way, says, "This is good for you. You don't know it now,

but some day you will." I have heard them telling pupils this, and it sounds like good doctrine; but it is not; it is false. It is what you feel to be good for yourself. That is your ideal. There is a far-awayness about graduation work in school; you don't know why you study Greek and Latin, or mathematics, etc., but you dig away, and you have to be incited to that work, in some schools, by a per cent., a mark, a promotion. That shows that the work which you are doing is of no natural use to you; you don't feel the need of that work, except to get your mark and your promotion. Now that is all fundamentally wrong.

The highest ideal, then, needs the highest knowledge, the best method, the keenest observation, the most healthy body, the clearest mind, and the purest soul. And what is that highest ideal? I have already said to you, It is the motive of Christ, the motive of salvation (I speak in a temporal sense) for the whole world—the motive of helping others. That is the one duty that comprehends all knowledge, making knowledge a necessity, unless it be that you have some preconceived, iron-clad plan of saving mankind by your own unaided effort.

So the community needs require that each one have a vocation,—man or woman equally, himself or herself. Let there be an intellectual action of the highest grade; I can not conceive of any great progress unless it excites the highest intellectual action. No one is educated unless he is a perpetual student. Young man, I would like to say that to you again: If you ever stop studying, you will have no education. Why?—If you stop studying, then your ideal is realized, and the ideal of the salvation of man, in the sense that I speak of—the ideal of better homes, and better everything, and the life that develops the spirit of man, that is an everlasting and growing ideal. The more you approach it by your own observation, the grander this question will be. I think the deadness in our education is owing to the lack of appreciation of the work before us, and of our great inheritance in this education. You stop studying when your ideal is stagnant—when your work has become routinist, when you feel that you have got your trade learned, and all you have to do is to turn your crank. "*Lift up your heads, O ye gates; . . . and the King of Glory shall come in.*" That King comes in only to the soul striving for a high ideal, and there is no other ideal comprehended in the salvation—in the development, growth, and progress of community life.

FRANCIS M. PARKER.

VALUE OF MANUAL TRAINING FOR DELINQUENT AND DEFECTIVE CHILDREN.

It is a notorious fact that intellectual culture, pure and simple, is quite consistent with weakness or perversion of the will. A person may have very high intellectual attainments, and yet be morally deficient. To cultivate the intellect in its own sphere of contemplation and abstraction, apart from action, may leave the will precisely as feeble as it was before. Educational manual training is an important element in disciplining and strengthening the wills of children, and especially because it is always interesting to the young, as history, arithmetic, etc., are often not. It frequently happens that precisely those pupils who take little interest, or show but little aptitude for literary study, are the most proficient in the workshop and atelier. Nature has not left these neglected children without beautiful compensations. If they are deficient in intellectual power, they are all the more capable of being developed on the active side. Thus manual training fulfils the one essential condition — it is interesting.

It also fulfils another condition necessary to be observed in the case of defective and delinquent children, who need to cultivate the intellectual in close connection with right action. Manual training consists of a series of actions which are controlled by the mind, and which react on it. Let the task assigned be, for instance, the making of a table. A table is interesting to a child, hence the first point will be gained,—lethargy is overcome, attention is aroused. Next, it is important to keep the attention fixed on the task; thus only can tenacity of purpose be cultivated. Manual training enables us to keep the child's attention fixed upon the object of study, because the latter is tangible. Furthermore, the variety of occupations which enter into the making of the table constantly refreshes this interest after it has once been started. The wood must be sawed to line. The boards must be carefully planed, the joints accurately worked and fitted. The finished table must be painted or varnished.

Here is a sequence of means leading to an end, a series of operations all pointing to a final object to be gained, to be created. Again, each of these means becomes in turn, and for the time being, a secondary end; and the pupil thus learns, in an elementary way, the lesson of subordinating minor ends to a major end. And when finally the task is done, when the table stands before the boy's eyes, well adapted to its uses, with what a glow of triumph does he contemplate his work! The

pleasure of achievement now comes in to crown his labor; and this sense of achievement, in connection with the work done, leaves in his mind a pleasant after-taste, which will stimulate him to similar work in the future. The child that has once acquired, in the making of a table, the habits just described, has begun to master the secret of a strong will, and will be able to apply the same habit in other directions and on other occasions.

The useful must flower into the beautiful, to be in the highest sense useful. We all know how important is the influence of the beautiful in refining the sentiments and elevating the nature of the young. What child is not happy if he has produced something tangible, something that is the outgrowth of his own activity, especially if it be something which is charming to every beholder?

The highest value of manual training for this class of children is in its effect on the will and disposition. Squareness in things is not without relation to squareness in actions and thinking. A child who has learned to be exact — who is truthful — in his work, will be predisposed to be scrupulous and truthful in his speech, in his thought, and in his acts. But along with, and over and above, all these influences, I hardly need to recommend the continued application of those tried and excellent methods which prevail in our best reformatories. I have taken for granted that isolation from society which shuts out temptation, that routine of institutional life which induces regularity of habit, that strict surveillance of the whole body of inmates and of every individual which prevents excesses of the passions, and therefore starves them into disuse. I have taken for granted the cultivation of the emotions, the importance of which I am the last to undervalue. I have taken for granted the influence of good example, good literature, good music, poetry, and religion. All I intend to urge is that between good feeling and the realization of good feeling there exists in persons whose will-power is weak, a hiatus, an opening, which manual training is admirably adapted to fill.

Manual training offers another advantage — it develops the property sense. What, after all, apart from artificial social convention, is the foundation of the right of property? On what basis does it rest? I have a proprietary right in my own thoughts. I have a right to follow my own tastes in the adornment of my person and my house. I have a right to the whole sphere of my individuality, my selfhood; and I have a right in things, so far as I use them, to express my personality. The child that has made a table has put a

part of himself into the making of that table,—his thought, his patience, his skill, his toil,—and therefore the child feels that the table is in a certain sense his own. And only those who have the sense of ownership are likely to respect the rights of ownership in others. Manual training thus confers upon the child a great benefit in cultivating in him the personal property sense.

From every point of consideration, manual training gives proof of its superiority as a primary method of education for defective children, and precisely because of its perfect adaptation to the educational needs of children who are favored with a more normal type of mental and physical development.

G. BAMBERGER,

Director Jewish Manual Training School, Chicago.

THE SURE FOUNDATION.

THE study of the Bible as literature, and as an embodiment of the highest practical wisdom and the loftiest moral principles, has been commended by the wisest men of all ages. Even skeptics and agnostics have acknowledged and enforced its claims upon the thoughtful attention of mankind. But of all men, the Christian should have an intelligent appreciation of all the values of Bible study, especially in their relation to the requirements of a thorough, symmetrical education of the hand, head, and heart. The following considerations may assist somewhat in understanding these relations:—

It is the purpose of Christ that Christians should show to the world the proper use of all the things of the world. Everything in this world has its proper use; naturally, however, man makes a selfish and improper use of all the things and affairs of life. Consequently, the original purpose for which God created the things of the world would be entirely lost sight of, were not his children left in this world to show what is the purpose of God in all his created works. This world and all the works therein were created by the word of God, and are upheld by that word. Accordingly, when we study the world and all its works, we are studying the unfolding of the *word* of God. His word may then be said to exist in two forms; namely, the visible world together with the things contained therein, and his written word, the Bible. The written word is given to man to enable him to understand and properly relate himself to the visible works of God, and unless man has a knowledge, and makes an application, of the Bible in his observation and study of the world and its

affairs, he will certainly fail to see in them what God designed that he should see.

I believe it to be a true proposition that everything in this world, from the little clod of earth that gives life to the blade of grass and flower, up to the mighty war-ship that hurls death and destruction, has its relation to God's purpose of man's salvation. There is not a thought, word, or action of mankind which is not for, or against, the principles which Christ enunciated as the proper rules for the guidance of man. It is necessary, then, that Christians, who profess to exemplify the work of God for all time, should have a thorough understanding of all the affairs of this life, because of the relation which these affairs thus sustain to the cause and work of God. This is Christian education. Christian parents are in duty bound to give their children an education concerning these things.

Now all the course of life is, in general, misunderstood by the children of this world. They do not see in it the true philosophy of life as revealed by Christ. They substitute for this a false philosophy, that man in the process of a materialistic evolution, slowly advances in knowledge until he comes finally to know God. There are no happenings in all the affairs of life, no facts of art, science, or commerce, which they do not make use of in the substantiation and development of this false philosophy, or theory of life, and its ultimate end. But to the diligent student of the Bible, an entirely different view of life and its object is revealed. Such students study the affairs of this life in connection with the study of the Bible, for the concerns of this life and the Bible are the complements of each other in obtaining a true education. No people should have a broader knowledge of the trend of public events, of the arts, sciences, and literature, than have those who wish to represent the highest conception of true education. But unless they take with them, into their studies, the word of God, they are certain to come to wrong conclusions with reference to the course of the events of this world.

In order that the Bible may be taken into all his studies, it must be in the mind and heart of the student. There is no other way to have this accomplished than by having it thoughtfully memorized. Then, when this student is pursuing his studies, whether in science, art, literature, or history, the Spirit of God will bring to his remembrance those words of the Bible which are related to his study, which words will give him a proper understanding of what he is studying and of the relation which it sustains to the Christian life.

All the principles of truth are contained in the Bible, and these principles are to be placed in our minds and hearts, and are to guide us into all truth, wherever it is manifested.

The only proper way to commit Scripture to memory is to consider prayerfully what the Scripture says. But if the student can not commit it in this way, it should at least be learned by repetition. The Scripture will throw a true light upon his other study, and his other study in turn will enlighten his understanding of the written word of God. It is impossible for the human teacher fully to make this correlation between the Bible and all the other subjects of study. The Spirit of God must do that; but of course this Spirit must have the opportunity to manifest itself through the teacher. The most that the teacher can do is to see that the student has learned thoroughly the word of God. In connection with the same lesson the Holy Spirit may teach different students entirely different truths. The class in Bible will often be led to see principles which have an application in their other subjects of study for the day. By this prayerful study of the Bible, trusting the Spirit of the Lord to guide into all truth, it becomes the foundation, the background, the warp and woof, of all the studies which the student pursues.

This view of the relation of the Bible to other subjects of study is well illustrated by a conversation which took place between two instructors. The one who was teaching a class in bacteriology asked the other how he could teach bacteriology from the Bible. And the other replied: "I do not know how to teach bacteriology from the Bible, but I firmly believe that the Bible can be taught from bacteriology."

This thought brings us back to our first proposition. God has created everything in this world, and everything that is said or done has its bearing upon his plan for man's salvation, and the Bible shows what this relation is; but we can never get the word of God from bacteriology unless we have the word of God to put into bacteriology. The student who knows more of Bible than he does of bacteriology will get from bacteriology the word of God, which is in it for him. And this is true of mathematics, history, music, drawing; or any other subject.

Christ's command to consider the lilies, how they grow, can be applied to all subjects of study. We must study these subjects themselves, and we need all the facts which the investigation of diligent students and those who have spent years in study can give, but we do not always need the philosophy with

which these facts are clothed. The danger in studying books of science, history, etc., which men who are not believers in the Bible have written, does not lie in the facts which they present, but in the explanation which they attempt to give of these facts. While we want the facts, we want them as far removed as possible from the philosophy of their authors, unless that is but an echo of God's philosophy; for only God's written word can give us the true meaning of all other things. In this sense the Bible must stand first, and all other subjects of study second, for the students must view these subjects in the light of the Bible in order that all knowledge may be of eternal benefit. The Bible is the sure foundation. FREDERICK GRIGGS.

GOOD ENGLISH: WHAT IT IS.

Good language is simple. It is easy to understand; so that all the reader has to do is to consider the thought. He is thus left free to follow the reasoning or the narrative. The writer who can make his readers feel that he is talking to them, has gained an important point. His thought then comes into direct contact with theirs, and may be received at its full value. But no writer can do this who puts on a stiff, unnatural style.

Good writers avoid pompous expressions. It is as much a violation of good taste to make a display in words as in dress. Prof. A. S. Welch, in his lectures to teachers used to relate the following experience:—

At a State teachers' institute, held somewhere in Michigan, he offered a prize to the boy or girl who would write the best composition on a squirrel, and hand it in to him the next day. The contestants were to be chosen by himself from the pupils of the school in that place. He was told at once that Miss So-and-So, a girl of seventeen, must not be included in the number, since she was the star writer of the town, and always carried off the palm. If she should be put upon the list, no one else would have the courage to try. But Mr. Welch determined to be impartial, and the young lady had a chance to add fresh laurels to her crown. At the time appointed, the compositions were read before the institute. It was supposed that Mr. W. would reserve the star's paper for a sort of grand finish, but he read it first of all. It appeared to be a learned production. The little animal was duly classified, and given his proper place among the *Rodentia*; but if the poor squirrel could have looked into that composition as into a mirror, he would not have known himself. There were fine phrases,

high-sounding words, and sentences long drawn out,—but there was very little squirrel. There was nothing original, nothing spontaneous. The prize was given to a boy of twelve, who wrote about squirrels just as he had seen them in the woods and on the fences. His composition was crude, it is true, but he made everybody see squirrels. He told of their mischievous pranks, their cunning maneuvers, their ways of gathering and storing food, their nests of young ones,—and all just as he had seen it with his own eyes. He was so interested in his subject that he forgot himself and the reputation he was to make; consequently he made everybody else think of squirrels, and nothing but squirrels. And the boy, and the good people of the town, were surprised to learn from the distinguished professor that the lad had made a good hit, and that he gave promise of making a good writer.

And now let me say to every one, that if you wish to acquire a ready use of good English, the first thing is to get down off your stilts, and be content to walk on solid ground. Express your thoughts simply, clearly, neatly, and let them stand for what they are worth. Do not belittle your subject by making it a clothes-horse on which to show off your fine fabrics. As in life, so in language, the first lesson to learn is that of true humility,—the willingness to appear for just what we are. The next step is that of forming a true ideal. And just here is where so many are deceived. In life, they take popular opinion, prevailing custom, as their ideal, instead of fixing the mind upon the only Pattern worthy to be followed. In language, they admire a showy, vapid style, rather than that beautiful simplicity which is sanctioned by good taste, and sustained by the example of those who are the acknowledged masters of the art.

By simple expression, I do not mean careless expression. Neatness and appropriateness should never be neglected; but the unpretentious language of such poets as Whittier, Bryant, Longfellow, Lowell, Scott, and Holmes is dignified enough for infants like ourselves who can not yet walk without tottering. Shakespeare is accounted the greatest of English writers, so far as power and pathos can go; but his language is simplicity itself. But last of all, note the language of the Bible. Skeptics have said that the charming simplicity of the language of our English Bible is one great cause for its taking such a hold upon the people. With such examples as a guide, no one should hesitate in adopting a true ideal.

Many of us who heartily approve the principles

herein set forth find it hard to realize our aims because of wrong habits acquired in early life when a false standard was set before us. It is to be hoped that younger learners will escape the toils into which we fell.

G. H. BELL.

BLUE-PRINTS IN NATURE STUDY.

MUCH has been written of the value of photography in nature study. The "Solandi process" (Sol and I as the name implies) consists of laying the object to be printed upon the ordinary sensitized paper, and then developing, as if it were a negative. The use of blue-print paper instead of the regular photographic paper is very much to be preferred, because any one can finish the prints in a few minutes.

To use the blue-print paper in nature study, the following plan is recommended: First, lay the object upon the paper, being sure that the plant is perfectly dry. Place over it a plate of glass, to hold the object down firmly upon the paper, and expose to the direct rays of the sun. Let it remain there three or four minutes, or until the exposed parts of the paper are of a bronze color. Then remove and quickly place the paper in a vessel of perfectly clean water. Keep covered with water for at least ten minutes, being careful to change the water two or threetimes. Then remove from the water, and dry between blotters. A little practise will enable the operator to take excellent prints of almost any part of the plant.

When the prints are dry, they should be spread on a drawing board, and a piece of tracing-paper should be laid over, and the outline of the print taken off with a sharp, soft pencil. Transfer this tracing to drawing paper, and either line it in with colored pencils, ink, or water-colors.

There is a great advantage in this matter of tracing the outline of these blueprints. The eye does not take in all it sees. Many features of an object take no hold on the consciousness of the pupil. Many of these details not seen by the eye in the object itself will be detected when the hand traces around it.

The results which have been obtained in some schools are indeed marvelous. Pupils under the writer's instructions have taken excellent blue-prints from grasses, ferns, and other delicate things. Another reason for employing this means of delineation is found in the fact that children are always interested in chemical action, and printing of this kind opens up an entirely new field of research to the pupil.—*Frank O. Payne, in Teachers' Institute.*

EDUCATIONAL HAND-WORK.—NO. 1.

ALL boys—and most girls—like to “make something.” The constructive instinct is one of the earliest manifestations of ability that may be educated and exercised toward the highest good of man, or else toward the undoing of the individual and of society. So it should never be neglected or repressed by parent or teacher.

“When there’s sawdust on the carpet,
 And some shavings on the beds;
 When the rugs are tossed in corners,
 And your chairs stand on their heads;
 While, if a tool you’re needing, you
 All around the house must race,
 You may know he’s making something,—
 Is the boy about the place.”

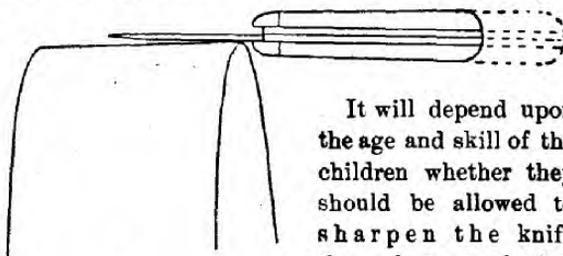
Now this natural tendency to make something demands to be exercised, and ought to be educated into useful lines. It is always susceptible of education and guidance at the outset, and any boy or girl in whom the constructive power is not normally developed must continue through life to that extent uneducated and abnormal.

Educators are coming to see that any educational system that does not make provision for this training is defective, and can not effect a well-rounded development of the student. In view of this growing interest in manual training, I have been asked to prepare for the *EDUCATOR* a series of articles designed to show that it is within the power of every intelligent parent and teacher, and without expensive apparatus and equipment, to use the ordinary tools of every household in such a way as to work out a most important element in the systematic education of the child.

Probably the most typical tool of the average American boy is the jack-knife. Every boy likes to whittle, and some boys never outgrow the habit. So the jack-knife—for either boys or girls—may well be taken as the first instrument of manual education. I will therefore begin by supposing that every boy and girl in the family, or the school grade, has a knife; but perhaps a suggestion or two in regard to selecting a good one will be in order. First, the size of the knife should be suited to the child’s hand; but it would better be too large than otherwise, for a small knife will quickly cause the hand to cramp. In the second place, the temper of the blade should be con-

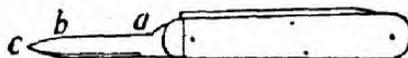
sidered, having it neither too soft to hold an edge nor hard enough to be easily nicked.

Before permitting the children to whittle, see that the knives are sharp; for it is not only wasting time to work with dull tools of any kind, but every well-informed teacher will recognize the importance of giving correct ideas of the way a tool should work from the outset. Furthermore, a child is apt to fall into bad habits of using the knife that may be safe enough with the tool as dull as some attempt to use it, but will be sure to cause him trouble should he follow the same habits with a sharp knife.



It will depend upon the age and skill of the children whether they should be allowed to sharpen the knife themselves, or whether it should be done for them; but in any case, you should make them understand that to sharpen a knife properly requires even more skill than to grind either a chisel or a plane. A grindstone of fine grit, and an oilstone with a leather strop fastened to the cover, for finishing, form a complete outfit for sharpening. The grindstone should be turned so that it will grind from the back of the blade toward the edge. This position is preferable because it enables one to see that the edge of the blade is in contact with the stone, and can not be dulled by any unevenness of the stone, as is liable to be the case when grinding from the edge toward the back of the blade. As the stone revolves, let but a small part of the blade touch it, and keep the knife moving forth and back in the direction indicated by the dot-lines of the illustration. So much for grinding the straight portion of the blade from *a* to *b* on the knife in the illustration.

In grinding the point from *b* to *c*, it is well, in addition to the motion described above, to give the hand a rocking, or up-and-down, motion. This is necessary in order to reach all parts of the blade



point. Both sides of the knife-blade should be ground alike.

After grinding, a finer edge should be obtained by whetting upon oilstone, using a few drops of sperm oil; even kerosene may be used if the other is not easily procurable. When whetting the point, place the knife on the oilstone in the position indicated, keeping the ground face of the blade in perfect touch with the stone, and making a few elliptical motions of the hand, as indicated by the dotted lines. The grasp of the hand on the handle



will easily change the motion so that all parts of the pointed part of the blade will touch the stone alike. In order to do this better, constantly raise and lower the hand about one fourth of an inch. Inspect the work frequently to see that the desired result is being secured.

In whetting the straight part of the blade, it will not be necessary to raise and lower the hand; otherwise the process is very similar to whetting the point. Treat both sides alike.

Sometimes the edge is ground too thin, leaving a "feather edge," which is shown in exaggeration in the cut from *a* to *b*. This "feather" must be removed by very light rubbing on the oilstone, or on a strip of smooth, soft leather. To test the edge when finished, cut across the grain of a piece of soft pine; the cut should be perfectly smooth, and easily made.

The true teacher, parent or pedagogue, will not fail to see and use the abundant opportunities offered in this process for starting the young mind along the lines of observation and investigation suggested by some such questions as these: "What is the cause of the 'feather edge'? Why is it necessary to use water or oil?" Apart from the ease



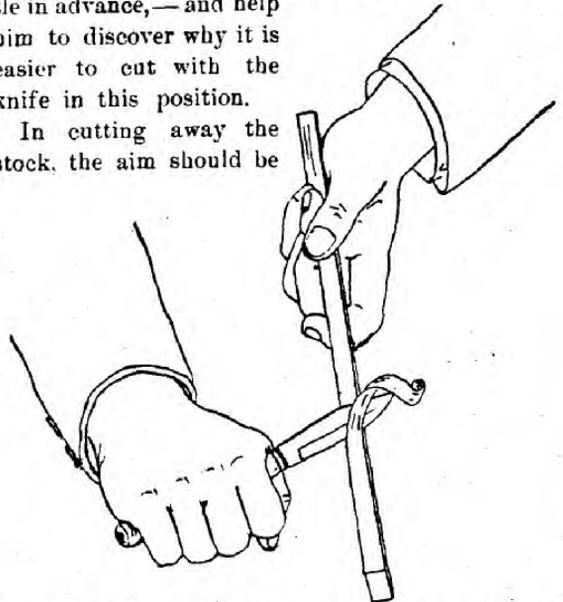
with which the work is accomplished, there are reasons more far-reaching for having the children sharpen the knife before beginning their work of whittling. It is an excellent thing to be prepared beforehand for any undertaking, and the habit of looking ahead is one most to be desired.

When the knife has been properly sharpened, the students are ready for their first exercise, which should be to learn how to whittle to a straight line. The material best suited for this purpose is thin basswood or pine with straight grain. It should be

a foot or more long, by two or three inches broad. With a straight-edge, rule a fine pencil line the whole length of the stick and quite close to the edge. In this way there will be room for several attempts to be made before the material shall be all whittled away.

To whittle easily it is best to stand erect, with the elbow against the hip, using the forearm to make the stroke. The cut illustrates the manner of holding both the knife and the stick. By keeping the thumb above the stick, and whittling from him, there is little danger that a child will cut himself. By judicious questioning, the instructor can lead him to observe the proper position of the knife-blade to the line of the piece being whittled, — not at right angles, but with the hilt of the blade a little in advance, — and help him to discover why it is easier to cut with the knife in this position.

In cutting away the stock, the aim should be



to cut a thin shaving of even thickness throughout its length. If the knife is properly held, the shavings will not only curl up at the beginning of the cut, but will also roll over to the left. This fact can be used by the teacher as a test of accurate work, and may form the basis of investigation as to the cause of the direction the shaving takes. Have the pupils observe the result when the knife is carried through the wood at various angles to the line of the edge. A bright pupil will soon discover the relation between the angle and the direction of the curl. By suggesting a trial with different substances, as crayon, slate, putty, and clay, lead them to be ready to tell at some other time why the shaving curls at all, instead of acting as these substances do when whittled.

When they have nearly reached the line, let them reverse the stick and whittle down the part which

was previously held in the left hand. Another thing requiring attention is to have the face of the cut at right angles with the side of the piece. A try-square is necessary for this, as in most wood-work; but it is not an expensive tool. To begin with, a serviceable one can be cut from heavy tin or sheet-iron at any tin-shop. The whittled surface should bear this test, as well as that of placing the straight-edge along it, holding the work between yourself and the light. When *perfectly* done, no light will be seen between the straight-edge or square and the wood. When the pupils have mastered this exercise, the teacher can easily suggest various applications of it in simple things, such as a foot rule, graduated to inches and halves, for younger pupils. In future articles in this series, directions will be given for further lessons in the use of the knife and other wood-working tools, and for simple forms of iron-work.

A. J. BRISTOL.

[During the coming school year the EDUCATOR will also present a connected series of illustrated lessons on industrial sewing. These will be addressed to teachers and mothers, and designed to give practical help in developing the educational and domestic value of this important line of hand work.—ED.]

SELECTED OBSERVATIONS ON MANUAL TRAINING.

Is industrial instruction pedagogically necessary, superfluous, or is it actually injurious?

If it can be shown that it is a pedagogical necessity, it becomes the duty of all educators and philanthropists to aid in removing the practical difficulties that oppose the introduction of hand labor into the school.

Science can not be satisfactory, because it is continually incomplete; but art can satisfy, because its creations are always complete, distinct wholes.

The labor product of the pupil can always satisfy, meeting a practical need; and hence the satisfaction of the producer. He now knows and can prove that he has created something useful.

Joy in self-activity awakens pleasure in labor. By one's own work, one learns to value the labor of others, and in this morality is promoted.

Employ the children suitably, *i. e.*, according to their power and inclinations, and hundreds of pedagogical arts and tricks for preventing and subduing moral delinquencies will be unnecessary.

If one really intends to train the taste, eye, and hand, in the school, then hand labor is needed; if one wishes to bring the principles of self-activity

in a most comprehensive manner into the school, so that it may be of worth, it can only be done by hand labor.

"Property," says Pestalozzi, "is an artificial creation of society to elevate and advance the welfare of our race, by means of the greater productivity of the earth." All Pestalozzi's work goes to show that he never regarded the education of man as merely *mental training*, but as the training of the *whole man*.

Rousseau has well said: "An hour's work will teach your pupil more things than he can remember from a whole day's explanation."

According to what has been said, industrial instruction, from an educational, as well as from a social and political standpoint, is a necessity. From an educational standpoint, it is necessary, because hand labor secures knowledge and understanding, which can not be secured by mere observation, but which for mental training and for life are, however, of the highest importance. From a social, political, and pedagogical standpoint it is indispensable, because hand labor serves in the forming of concepts which, for the peaceable intercourse of humanity, for moral conduct, and for the existence of the state, are of the greatest significance.

C. V. S. BOETTGER.

GUMPTION.

SCHOOLS should be selected for children that have teachers who teach, instead of those who merely hear recitations, and above all that have teachers who look upon each child as an entity instead of as one of the component parts of a troublesome whole that is put up with a given number of hours each week because the teacher must earn his or her living.

A great deal is said about the virtues of answering children's questions. It is a great deal more just to the child to help him to bits of pertinent information, and then lead him on to answer his own question. Train up a child with the habit of thinking, and when he is grown up, he will not be distinguished, as are ninety-five per cent. of all the men and women who are failures in life, by a lack of gumption, pitiful to see.

Poverty and riches are about equal bars to individual progress. Lack of gumption is a positive blight. With gumption one can overcome poverty, and know what to do with riches. With gumption the man or woman bereft of every other talent may evolve into a success, if not into a positive genius.

—*Dinah Sturgis.*

THE EDUCATED FARMER.

PROFESSOR CURTISS, of the Iowa station, writing in the *Breeder's Gazette* of the need for full preparation for the successful pursuit of agriculture, says:—

“It has come to be recognized that there is just as much need in training for agriculture and the industries as for the so-called professions, and just as good opportunity for the culture and discipline of a master mind. It requires a higher order of ability and more technical skill to manage a good stock farm than to manage a bank or operate a store.”

Of course there will always be need for good farm hands, and always a demand for such, just as there will always be a demand for good, reliable “hands” in our shops and factories. But the farm “hand” of the future—the man who knows only how to plow, plant, and cultivate the various farm crops—will no more be able to manage a farm successfully—to direct its work, regulate its expenses, and dispose of its products to the best advantage—than a skilled mechanic merely can operate successfully a large manufacturing establishment.

It seems very improbable now that farming will ever be conducted successfully on so large a scale as some manufacturing plants. It does not admit of concentration to anything like the same extent; and, beyond a certain point, the extra cost of working so far afield exceeds the saving in supervision and management. But it is likely the same plan of operations will be followed; and the successful farmer of the future will be known rather as a shrewd, intelligent, well-equipped business manager, than as an able-bodied, go-ahead working man. In other words, knowledge, skill, and business capacity are becoming every day more important and more valuable in farming, and mere brawn, or ability to perform the mechanical part, the less important and the less highly paid.

There is, it is true, to most people of healthy minds and natural tastes, a fascination about “doing” things—stirring the soil, dabbling in the dirt, making mud pies on a larger scale—that no other occupation affords. But in the farmer of the future these will be recreations rather than his real work. This latter will be found mostly in planning, in directing, in supervising; and every hun-

dred acres in this State would to-day afford fairly remunerative occupation to one person in doing little else if he had at his command all the force and the capital he could use to advantage.—*Farmer's Home.*

HORTICULTURE IN OUR RURAL SCHOOLS.

THAT industrial training should be made a prominent feature in our public schools, can not be successfully disputed by any one who has studied the trend of the times. Children are lovers of nature, and I have yet to find the child that would not gladly take lessons from her great book. To them it is a source of great pleasure toward which they need little or no encouragement. All they need is opportunity. Let us then, by all means, give them this chance by admitting the study of horticulture to our rural schools.

The question arises, How shall it be taught? My answer is, Let the work be practical. Do not depend altogether on books. In Germany, gardens and orchards are a part of the school grounds, and a portion of time each day during the growing season is spent there, in giving practical lessons. Such practical knowledge, gained by experience, is worth more than many terms of school where nothing is taught but that contained in books.

I wish that any one who doubts the feasibility of this work, could see the children as I have seen them, eagerly watching for the first tiny plant, and when it came, what a shout of rejoicing went up. Each day, when the weather was fine, they had their lesson from the flowers; but if, perchance, it rained, a lesson was given in the schoolroom, where seeds and potted plants were helpers. Each child would listen with rapt attention, as I showed them how each tiny seed wore a little coat, and that underneath this coat was a little plant and a store of food to nourish it until it took root in the ground and sent up its tiny leaves as they had seen it in the yard.

Transplanting the flowers opened the way for another lesson, showing them how the different plants required different soil according to their nature, and that it was just so with their fathers' orchards, that we all had to study and learn what kind of soil the trees required, and what food the soil needed to make them healthy and productive. I

then explained to them that everything that lives and grows must have food, that although trees and plants do not have mouths and teeth to chew their food like animals, they have roots and leaves which serve them instead, and obtain their food from the soil and atmosphere, taking in the gases and soil substance through their roots and leaves, that under the influence of sunlight, the leaves digest this food and use it to build up the plants and trees.

I never saw a class of boys and girls more interested than one before which I exhibited a simple specimen of clover, and told them of the wonderful work it could do. Each child was allowed to examine the plant, their attention being called to the little lumps or tubercles on its roots. Then I explained to them how the soil was a perfect menagerie of microscopic organisms or bacteria, and that in studying their nature it had been found that they have the habit of locating themselves on certain kinds of plants, and especially on the clovers, where they cause the little tubercles, such as those they had just been shown, and that they live in these, drawing nourishment from the plant, and in return give it compounds of nitrogen, which they are able to produce from the air. Thus, in a short space of time, they learned a lesson that is all-important for the horticulturist—a lesson that we older heads were years in finding out.

In thus giving my experience, I give my answer as to how horticulture should be taught in our schools. Let it be practical, and let us in securing our teachers, strive to engage those whose whole heart and soul are in the work—teachers who will teach horticulture because they love it, and not simply because it is required by the school law.—*Jennie M. Willson, in the Farmer's Union.*

CARE OF THE FARM TEAM.

At this time of year the farm team should be in the very best condition to stand the hard work the horses will be called upon to perform. A great many farm teams, through improper treatment and feeding, are not able to meet the expectations of their owners.

They should be provided with clean, well-venti-

lated stables, fed a good, wholesome, well-balanced ration, watered often and regularly, made acquainted with a good currycomb and brush, allowed to exercise every day in an open lot, and worked moderately at first, gradually increasing the food as the work increases.

See that the harness is in good repair and well oiled. Take the first rainy day to go over it, repairing all broken or weak parts; wash thoroughly, dry and apply a good coat of oil, rubbing it in thoroughly. Always keep the harness clean and soft, especially on the inside of the collar. The perspiration, if allowed to accumulate, will cause irritation and produce galls. The collar should fit closely, allowing just room enough at the bottom to insert the hand. If it is too short, it will obstruct breathing, and choke the horse down. If it is too long or too wide, it will cramp and draw the skin, producing sores or knots.

Tools should be kept sharp and well oiled, as this, besides other advantages, will lessen the draft on the horses.

And last, but not least, treat your horse with the kindness due such an obedient and faithful servant. A team that is treated well and talked to kindly will do more and better work than if treated harshly.—*Agricultural Epitomist.*

Now is the time to declare war on caterpillars, worms, bugs, beetles, and every other sort of tree, shrub, and plant destroyer. A pound of prevention is worth many hundred ounces of cure. Our cut below illustrates the approved plan of campaign. It is taken from a circular issued by the Horticultural Division of Cornell Agricultural Experiment Station, Ithaca, N. Y. The EDUCATOR will send this "Spray Calendar" free to any one requesting it. It gives the full formulæ for making all the spray mixtures needed for the apple, apricot, bean, beet, blackberry, cabbage, cauliflower, carnation, celery, cherry, chrysanthemums, cranberry, cucumber, currant, dewberry, eggplant, gooseberry, grape, hollyhock, nectarine, nursery stock, peach, pear, plum, potato, quince, raspberry, rose, strawberry, squash, tomato, and violet. Send at once to the EDUCATOR.



QUESTIONS ON CUBA.

POSITION.

1. What is the latitude and longitude of Cuba?
2. What lands are nearest to it on the north, south, east, and west?
3. Where does the Tropic of Cancer pass nearest to the island?
4. Then in what zone is it situated?
5. What part of Cuba does the gulf stream wash?

PHYSICAL FEATURES.

6. What is the general shape of Cuba?
7. Why is it difficult to approach it?
8. Describe the coral polyp, and tell how it builds reefs.
9. What is a key?
10. What are the principal harbors?
11. What are the principal mountain ranges?
12. Are the rivers short or long, and why? In what directions do most of them flow?
13. What is the character of the country in the eastern part of the island? The middle? The western part?
14. What is the area of Cuba?
15. Tell some other interesting facts about it.

CLIMATE, ETC.

16. Why do they never have winter in Cuba as we have?
17. Why does the climate vary greatly in different parts of the island?
18. Tell about the temperature at Havana. (The thermometer seldom goes below 72° or above 88°.)
19. Why do hurricanes often occur in the West Indies?

HISTORY.

20. When was Cuba first known to Europeans?
21. Give the history of one of its most noted governors. (Desoto.)
22. How did the Indians come to be enslaved? Tell about the introduction of African slavery, and of Cuba as a base of supply of slaves for the United States.
23. What effect did the abolition of slavery in the United States have on Cuba?
24. By what nation is Cuba governed?
25. Tell about the attempt of the United States to buy Cuba.
26. What changes would the annexation of Cuba to the United States bring about on the island?

27. What is a creole?
28. What is the population of the island?
29. From whom are the inhabitants of Cuba descendants?
30. What are the most important cities?

ANIMALS, PLANTS, MINERALS.

31. What wild animals has Cuba? (The wild beasts are few and small, the wild dog being the most prominent.)
32. Tell about the birds. (There are 200 species, some of them having beautiful plumage. Birds of prey are scarcely known.)
33. What about the woods? (Many of the woods are of the hardest kind, as lignum-vitæ, ebony, rosewood, and mahogany.)
34. Tell about the raising of sugar and tobacco.
35. Mention some productions that are brought to the United States from Cuba. — *The School Record.*

THE RAISING OF HANDS.

I do not know to what extent the custom prevails in other places, but in a city I wot of, there is a strong current in favor of "raising the hand" in recitation. That is, the teacher asks a question, all who can answer it raise their hands, one is called upon, and the hands are then supposed to be lowered. Often, in fact, they are not; the zeal of the owner, his wisdom struggling for an opportunity for utterance, leads him to wave his arm violently, even after the pupil called is reciting; any sign of failure or hesitation on the part of the luckless wight calls forth more pronounced and frenzied hand-waving. It is difficult to see what educational value there is in this performance, and yet teachers have been known to pride themselves upon the affair, and to say, "My schools are always noted for raising their hands."

The custom has several evident disadvantages:—

1. It causes a loss of time. The teacher waits for the hands to be raised, takes a survey of the school to see whose hands are up, and whose are down, finally selects some one to recite. Why not let the name follow immediately upon the question without loss of time?
2. In many cases it leads to disorder and confusion.

3. It embarrasses timid pupils who are struggling to recite.

4. It leads to deception and dishonesty, since pupils will often raise their hands when they do not know the answer, either from a hope that their lack of knowledge will not be found out, or else from a desire to help the school to "show off" before visitors.

5. It is useless expenditure of nerve power and bodily strength that would better be spent in some profitable way.

I do not wish to say that pupils should never be called upon to raise their hands in recitation. The practise is occasionally useful in calling for a "division of the house" on some knotty point. It is the steady, pernicious, routine use of the plan that is condemned.— *The Practise of Education.*

HOW TO SECURE ATTENTION.

1. Show an interest in the subject you teach.
2. Be clear in thought and ready in expression.
3. Speak in your natural tone, with variety and flexibility of voice.
4. Let your position before the class be usually a standing one.
5. Teach without a book, as far as possible.
6. Assign topics promiscuously.
7. Use concrete methods of instruction when possible.
8. Vary your methods.
9. Determine to secure attention at all hazards.

—*Edward Brooks.*

MECHANICAL GRAMMAR.

SOME years ago a bright, enterprising teacher developed the idea of a written arrangement of a sentence, to show the relation of words to each other. It was a simple device, which, when not abused, helped the teacher to discover the understanding of the pupil. Other teachers and instructors, not so wise, carried the scheme farther; indeed, so far that diagraming has become a science of itself, and grammar has almost passed into disuse.

I am stating a plain, unvarnished truth when I say that in a high school with a three-years' course, and empowered to grant diplomas, grammar is taught the first two years in addition to six years in grades below. The teachers in all these grades, as one, mistook the means for the result, and taught a simple device as though it were a vital principle. The effect is, that the graduates can diagram the most difficult sentences according to the most improved system; but, alas, they can not give the

forms of any common verb, nor are they quite sure whether "it was them" is an orthodox expression in good standing.—*Jean K. Baird, in Teachers' Institute.*

THE CARE OF THE EYES.—NO. 3.

ENOUGH has been said in former articles of the most common ocular defects and some of the symptoms pointing thereto, to enable the observant teacher to locate the trouble before it is allowed to go on and result in organic disease.

Dr. Schweinitz, professor of ophthalmology in Jefferson Medical College, Philadelphia, says that fully sixty per cent. of all functional headaches come from defects of vision, and this is considered a very conservative estimate.

By having on hand one of Suellen's Test Types, the teacher could arrive at more reliable data concerning the visual acuity. The large top letters should be read at two hundred feet; the next line below at one hundred feet; the line marked XX at twenty feet; the latter being the arbitrary universal line, adopted by oculists, it is so regarded in the school tests, although other lines would answer as well. Students should sit twenty feet from the card, which should be placed in a good light, and they should be able to read the majority of the letters upon this line, if they possess normal vision. Each eye should be tested separately, the other being meanwhile covered with a card. The result in the right and left eye should be separately recorded in its proper column as 20", 30", etc., to correspond with the line read at the corresponding distances; the 0" is used whenever the two hundred-foot line is not read.

It is important that each eye should be tested separately, as a large percentage of the children of this country who have defective eyes at fifteen or sixteen years of age have them solely through our neglect in this line. A boy goes into school with a good right eye and a good left eye; but they are not mates. That is not remarkable. We do not think it strange that one should have a pair of feet that are not mates, a pair of hands that are not mates, or a pair of arms that are not mates. In a strict sense, there is not a person who reads these lines who has a pair of hands that are mates. The right hand is worth half a dozen of the left one, as the average man is put up; and we should not think it strange that eyes are frequently not mates. Here is a right eye that is focused here, and the other one there, and what is the result? By and by you have a pair of eyes that are mates, but neither one is good for anything. You had two

good eyes not mates at first, and later you have two perfectly mated, and both are bad. The physical faculty that we use more than any other is the visual faculty.

If a child can not see a majority of the twenty-foot line letters with both eyes, or complains of frequent eye-tire, headache, etc., after study, his parents should be so notified, in the hope that proper advice will be sought.

J. R. LEADSWORTH, M. D.

Healdsburg, Cal.

GENERAL GARFIELD ON MARGINS.

[THE EDUCATOR is indebted to Prof. B. A. Hinsdale, of the University of Michigan, for the following chapel talk of General Garfield, while he was president of Hiram College. It is a speech "that should be sent the rounds of the newspapers every two or three years for the special benefit of the students."—ED.]

I was thinking, young ladies and gentlemen, as I sat here this morning, that life is almost wholly made up of margins. The bulk itself of almost anything is not what tells; that exists any way. That is expected. That is not what gives the profit or makes the distinguishing difference. The grocer cares little for the great bulk of the price of his tea. It is the few cents between the cost and the selling price, which he calls the "margin," that particularly interests him. "Is this to be great or small?" is the thing of importance. Millions of dollars change hands in our great marts of trade just on the question of margins. This same thing is all-important in the subject of thought. One mind is not greater than another, perhaps, in the great bulk of its contents; but its margin is greater; that's all. I may know just as much as you do about the general details of a subject, but you can go just a little farther than I can. You have a greater margin than I. You can tell me of some single thought just beyond where I have gone. Your margin has got me. I must succumb to your superiority.

A good way to carry out the same idea, and better illustrate it, is by globes. Did you ever see globes whose only difference was that one had half an inch larger diameter than the other? This larger one, although there is so little difference, will entirely enclose the other, and have a quarter of an inch in every direction to spare, besides. Let these globes be minds, with a living principle of some kind at their centers, which throws out its little tentacle-like arms in every direction as radii to explore for knowledge. The one goes a certain distance, and stops. It can reach no farther. It has come to a standstill. It has reached its maxi-

mum of knowledge in that direction. The other sends its arms out, and can reach just a quarter of an inch farther. So far as the first mind is able to tell, the other has gone infinitely farther than it can reach. It goes out to its farthest limit, and must stop; the other tells him things he did not know before. Many minds you may consider wonderful in their capacity. They may be able to go only a quarter of an inch beyond you. What an incentive this should be for any young man to work, to make this margin as great as, if not greater than, the margin of his fellows.

I recall a good illustration of this when I was in college. A certain young man was leading the class in Latin. I thought I was studying hard. I could n't see how he got the start of us all so. To us he seemed to have an infinite knowledge. He knew more than we did. Finally, one day, I asked him when he learned his Latin lesson. "At night," he replied. I learned mine at the same time. His window was not far from mine, and I could see him from my own. I had finished my lesson the next night as well as usual, and, feeling sleepy, was about to go to bed. I happened to saunter to my window, and there I saw my classmate still bending diligently over his book. "There's where he gets the margin on me," I thought. "But he shall not have it for once," I resolved. "I will study just a little longer than he does to-night." So I took my books again, and, opening to the lesson, went to work with renewed vigor. I watched for the light to go out in my classmate's room. In fifteen minutes it was all dark. "There is his margin," I thought. It was fifteen minutes more time. It was hunting out fifteen minutes more of rules and root derivatives. How often, when a lesson is well prepared, just five minutes spent in perfecting it, will make one the best in the class. The margin in such a case as that is very small, but it is all-important. The world is made up of little things.

I ONCE saw a child's garden where the birds came for seeds, a rabbit for fresh lettuce leaves, and bees for honey. A caterpillar spun her house on one of the tiny trees, and the ants threw up their breastworks, unmolested. What a university for the beginning of science work!—*Mabel Ackerley.*

WHAT is done for me?—Everything. What must I do?—Everything. And if you can reconcile these two, you can work with God.—*Col. Parker.*

THE HOME SCHOOL

THE HOME SCHOOL LESSON.—NO. 9.

BLACKBOARD WORK.

The heavens
and
The earth
and
All the host of them } were finished. Gen. 2:1.

In six days the Lord made { the earth,
the sea,
and
all that in them is,
And rested on the seventh day. Ex. 20:11.

And God blessed the seventh day,
and
Sanctified it:
because
That in it he had rested from all his work. Gen. 2:3.

REMEMBER

The Sabbath day, to keep it holy. Six days
Shalt thou labor, and do all thy work;
But the seventh day is the Sabbath
Of the Lord thy God: in it
Thou shalt not do any work,
Thou,

Nor thy son,
Nor thy daughter,
Thy man servant,
Nor thy maid servant,
Nor thy cattle,
Nor thy stranger

That is within thy gates:
For in six days the Lord made
heaven and earth,
The sea, and all that in them is;
And rested the seventh day:
Wherefore the Lord blessed the Sabbath day,
And hallowed it. Ex. 20:8-11.

The Sabbath was made for man,
And not man for the Sabbath:
Therefore the Son of Man
Is Lord also of the Sabbath. Mark 2:27, 28.
And whatsoever we ask, we receive of him,
Because we keep his commandments. 1 John 3:22.

There remaineth therefore
A keeping of the Sabbath (margin)
To the people of God. Heb. 4:9.

From one Sabbath to another,
Shall all flesh come
To worship before me, saith the Lord. Isa. 66:23.

Our reading lesson has brought us to the close
of the work of creation, and to the Sabbath rest.

Here the truth should be laid on the foundation,
which is Christ (1 Cor. 3:11), with the utmost
care. The presence of Christ in the law, and the

power of the Holy Spirit to make it effective, is the
only safety for the children who are now growing
up to meet the controversy that must become more
and more earnest as time goes onward toward its
end. Controversy always begins at the point where
we attempt to *explain* things. Agreement is certain
upon any statement which is simple enough not to
require rearranging or restatement to make it clear,
unless, as sometimes happens, false teaching and
prejudice have covered the simple statements with
obscurity.

As the child reads and studies this lesson, have
him connect it with the history over which he has
gone. See that every word is made perfectly plain
to his comprehension. Give him to see how *law* is
the highest form in which love can be expressed,
because it means all that there is of God; love,
mercy, justice, truth, *all* brought to bear to protect
us against the evil that can forever separate us, his
children, from him. If there had been no law to
lead us to Christ, no Christ to give us power to
keep the commandments, we would never have
known that we had a Father,—how we came to be,—
nor have been able to comprehend anything of life's
mystery.

MRS. S. M. I. HENRY.

[As this lesson completes Mrs. Henry's series of elementary
reading lessons from the Bible, the mothers who have fol-
lowed them will feel that the following note is directly ad-
dressed to them. Mrs. Henry does not hereby sever her rela-
tion with the EDUCATOR, but will continue during the com-
ing school year to write for this department—The Home
School. Her work will be especially to answer questions con-
cerning the practical problems of home and school manage-
ment, particularly in reference to the moral training of chil-
dren. A lifetime of public service and observation amply
qualifies her to assist parents and teachers in this important
field. Any who have questions of this nature, or who desire to
have the preceding nine lessons in pamphlet form, are invited
to write at once to the editor or to Mrs. Henry.—Ed.]

To the Home School.

DEAR FRIENDS: The lessons which I have been pre-
paring have progressed to a point which takes them out
of the practical compass of such a journal as the EDU-
CATOR—and in fact makes them no longer necessary;
for by using the same method, or any other which you
may prefer, you can continue the instruction from the
open page of the Bible without further help. The
vocabulary already gathered is sufficient to make prog-
ress in reading rapid and easy with but little special
help from any one, and therefore I shall now take
leave of you for the present, hoping most earnestly that
some help has been given that will make the Bible in
your homes what it truly is—the children's Book of
books.

Sincerely yours,

S. M. I. HENRY.

THE PROFESSIONAL ATTITUDE.¹

THE last number of the *Cosmopolitan* magazine has a lengthy article on "Motherhood as a Profession." It is a hopeful sign of the times that motherhood is thus coming to be recognized as a professional dignity rather than merely as an incident — perhaps undesired — of marriage. But there is equal reason that fatherhood should also be accorded the professional dignity. When parents themselves so regard their own high estate, then may come to prevail the best conditions for the educational future of the race.

Time was when the church, the law, and medicine comprised the entire field of the learned professions; but as time went on, other important callings were added to the list, notably the profession of teaching; and teaching has raised itself thus far through its importance and merits as compared with other recognized professions. The mere professional dignity and title is, of course, of little value, — there are "professors" of boot-blackening, — but the fact that teaching has come to be recognized as having equal title with other professions, is popular proof of the usefulness and merit it has attained.

The profession of teaching, however, can never reach its full development without presupposing a co-related profession of parenthood, a profession equally deserving of public appreciation, and immeasurably more important than mere teaching. The teacher and the parent are natural co-ordinates in the progress of social enlightenment. The parent and the pupil do not exist for the teacher, but the teacher does exist for the other two. The parent is naturally and inevitably the first instructor of the child. Afterward the teacher only supplements, generalizes, and extends the work of the intelligent parent. With the capital furnished by the parent, the teacher develops the educational interest of the child, and invests the proceeds as an endowment for the future parent. Whatever advantage of knowledge or skill has accrued to the teacher, through the years of his individual experience and that of his profession, should be faithfully and freely presented to the pupil and parent.

It must be observed, however, that the teacher can supplement, generalize, and extend only the work of the *intelligent* parent; otherwise much of the teacher's time and effort may have to be spent in counteracting, correcting, or uprooting, the work of the parent. And this means more or less of inevitable friction between teacher and parent, and much eternal loss to the child. The only happy condition for all is in the thorough and cordial co-operation of both parent and teacher along the line of the best educational development of the child.

The professions of teaching and of parenthood thus become practically identified in the mutual instruction and education of the child, who is the physical, mental, and moral bond of interest between them. And in order that both parent and teacher may become identified in their professional interests, both must be constant students of their common professional subject. Their professional attitude must be that of fellow students of the best educational objects and methods. Anything that is good for a teacher to study should be good for the parent. Anything that is too "advanced" for the understanding and approval of the intelligent parent, can not achieve the highest success in the hands of the teacher. The best professional book or journal for the teacher is one that can also be read with appreciation by the parent, and bring him into active, intelligent, sympathetic co-operation with the wise teacher. Only the unwise and unprogressive teacher has anything to fear from a cordial freedom of professional intercourse with parents and patrons.

On the other hand, only those who are most unfit to be parents will be content to lay all the burden, the responsibility, and the honor of educating their children upon hired teachers. The best fatherhood and motherhood of the land is awaking to an intelligent concern in the education of the schools, and the teacher of the future will be one who can lead the way to a better state of honorable companionship in the twin professions of teaching and parenthood.

FRANK WILLIAM HOWE.

LET those things that have to be done, be learned by doing them. — *Comenius*.

I TRIED to connect study with manual labor, the school with the workshop, and make one thing of them. — *Pestalozzi*.

¹This article is the beginning of an EDUCATOR series designed to be of equal interest and value to both teachers and parents. — Ed.

DIET AND DIGESTION.

THERE is scarcely a subject upon which there is such lamentable ignorance as that of diet and digestion, and yet it is one that concerns our everyday life. What we eat, and the state of our digestion, determine to a large degree what we are, and what power we wield in the world.

The sanitariums are filled with patients who have either failed to respect the laws which underlie these subjects, or have been ignorant of them altogether. These patients are continually giving as an excuse for ill health that they are "overworked," when the real trouble is often simply an abuse of the digestive organs; and yet the most of these persons probably passed satisfactory examinations in physiology in their school-days. There has never been a time when there was so much physiology taught in our schools as at present, and yet there never were so many blear-eyed, sallow, sunken-cheeked boys and girls leaving our schools, scarcely able to carry the diplomas signifying that they are now prepared to begin the stern duties of life and utilize their preparation, while the real fact of the case is they are only suitable candidates for the graveyard.

If any one thinks that this picture is overdrawn, let him catechise a few thousands of these young men and women, and he will find that scarcely a dozen of them will testify that they are as strong as their fathers and mothers. With their parents' and grandparents' simple habits and diet have also disappeared their physical strength and endurance.

Rich, complicated foods, pastries, custards, candies, and sweets of all descriptions, eaten at untimely hours, are sapping the life-blood of our young men and women. Has the Christian educator any duty to perform with reference to these matters? The Scriptures give the true idea with reference to eating when it says that we are to eat in "due season," that is to eat at regular intervals, and at fixed times, and for "strength," which means to eat such articles as are of a high nutritive value,—and not for "drunkenness;" that is, never to eat things which create a desire for drunkenness, such as spices and highly-seasoned foods, which create a thirst that water can not satisfy. When the schoolboy finds a thirst within him that the village pump can not quench, the time is not

far distant when he will find that these highly seasoned foods not only create the foundation for drunkenness, but have the elements of drunkenness within themselves. Food which readily sours, ferments, and decays while passing through the digestive organs, produces poison which specifically poisons and demoralizes the nervous system, and with it the finer sensibilities of the soul, as effectually as anything that is sold for this very purpose.

We are living in a time when men demand stenographers of ability and responsibility, lawyers who are versed in law, ministers who are skilful in opening up the Bible, and yet they are well satisfied with cooks who know absolutely nothing about foods as regards their power to build up brain and muscle. Yet if the household cooking is wrong, the man who partakes of it will soon find himself in such a condition that he will not be able to utilize the stenographer, or the lawyer, or appreciate the minister's truths.

It is God's strength that is locked up in the food, and it takes proper cooking, eating, and digestion to unlock it from the things that we take into the body. How improper it is to sit down at the table and ask God to bless the food, which primarily means to enable us to get his strength out of it, when we have not taken sufficient interest in it to inform ourselves as to what substances actually contain strength, and have allowed the cook to put them through a process which no effort of our digestive organs can ever counteract.

When it is considered as important for the student to know that water taken at meals will stop the flow of the salivary glands,—which means no starch digestion until the food reaches the intestines,—as it is to know the height of Pike's Peak; when it is thought as necessary for the student to know that ice-cold food will check digestion until the body warms up the stomach contents to its own temperature as it is to know the specific gravity of the waters of the Great Salt Lake, then, and only then, can we hope to see men and women leave our institutions of learning with the glow of health on their countenances, and a thorough understanding of the importance of rational diet. As long as so much more importance is placed upon cheap and trivial things, how can we hope for better days?

DAVID PAULSON, M. D.

THE TEACHER'S MORAL RESPONSIBILITIES.

WELL-BALANCED minds and symmetrical characters are required of teachers in every line. Give not this work into the hands of young women and young men who know not how to deal with human minds. They know so little of the controlling power of grace upon their own hearts and characters that they have to unlearn, and learn entirely new lessons in their own experience. There are all kinds of characters to deal with in the children and youth. Their minds are impressible. Anything like a hasty, passionate exhibition on the part of the teacher may cut off her influence for good over the students whom she is having the name of educating. And will this education be for the present and future eternal good of the children and youth? There is the correct influence to be exerted upon them for their moral and spiritual good. Instruction is to be constantly given to encourage the children in the formation of correct habits of thought, speech, and deportment.

Many of those children have not had proper training at home. They have been sadly neglected. Some have been left to do as they pleased; others have been found fault with and discouraged. But little pleasantness and cheerfulness have been shown toward them, and but few words of approval have been spoken to them. The defective characters of the parents have been inherited, and the discipline given by these defective characters has been objectionable in the formation of characters. Solid timbers have not been brought into the character building. There is no more important work that can be done than the educating and training of these youth and children. The teachers who work in this part of the educational vineyard need to learn first how to be self-possessed, keeping their own temper and feelings under control, in subjection to the Holy Spirit of God. They should give evidence of having not a one-sided experience, but a well-balanced mind, a symmetrical character, so that they can be trusted because they are conscientious workmen, themselves under the Chief Teacher, who has said, "Learn of me, for I am meek and lowly of heart, and ye shall find rest unto your souls."

Self-cultured, self-controlled, under discipline to the Great Teacher, they will have an intelligent knowledge of practical responsibility. The patience, love, long forbearance, and tender sympathies are called into activity. They will discern that they have a most important field to cultivate.

The formation of correct habits is to leave its impress upon the mind and character of the chil-

dren, that they may practise the right way. The instructor must persevere, giving line upon line, precept upon precept, here a little and there a little, in all long-suffering and patience, sympathy and love, binding these children to his heart by the love of the Great Teacher revealed in himself. This truth can in the highest sense be acted, and exemplified before the children.

Let teachers bear this in mind, and never lose sight of it when they are inclined to have their feelings stirred against the children and youth for any misbehavior; let them remember that if the children do err and misbehave, then it is all the more essential that those who are placed over them as teachers should be able to teach them by precept and example. In no case are they to lose self-control, to manifest impatience and harshness, and want of sympathy and love; for these children are not their own property and teachers must be very careful and God-fearing in regard to the spirit they cherish and the words they utter, for the children will catch the spirit manifested, be it good or evil. It is a heavy and a sacred responsibility.

Teachers must always consider that they are dealing with children, not men and women. They are children who have everything to learn, and it is much more difficult for some to learn than others. The dull scholar needs much more encouragement than he receives. If teachers are placed over these varied minds, who naturally love to order and dictate and magnify themselves in their authority, who will deal with partiality, having favorites to whom they will show preferences, while others are treated with exactitude and severity, it will create a state of confusion and insubordination. Teachers who have not been blessed with a pleasant and well-balanced experience may be engaged to take charge of children and youth, but a great wrong is done to those whom they instruct. Parents must come to view this matter in a different light. They must feel it their duty to co-operate with the teacher, to encourage wise discipline, and labor much to assist the one who is teaching their children. Children are in need of having a steady, firm, living principle of righteousness exercised over them and practised before them. Be sure you let the true light shine before your children and pupils.—*Mrs. E. G. White, in "Christian Education."*

No one is educated unless he is a perpetual student. If you ever stop studying, you will have no education.—*Col. Parker.*

THE MONITORIAL SYSTEM.

As an illustration of the fact that educational fads have not been confined to recent years, and that the student of education may learn some wisdom even from the follies of the past, it will be instructive to read Prof. B. A. Hinsdale's account of Bell and Lancaster's "system," which flourished in the early years of the present century. The plan proposed to have one teacher do the work of a dozen or fifty, by giving her instruction to the requisite number of monitors or apprentices, they to pass it on to the pupils. We quote from Professor Hinsdale's book¹:—

"The system was not long in crossing the ocean.

A representative of the Public School Society of New York City visited Lancaster's school in the Borough Road, London, in 1805, and his favorable report led to the opening of a school on the new plan in New York in 1809, the first of its kind in America. The idea spread, and for many years teaching by monitors was the vogue in large schools in the older parts of the country. Still it does not appear to have taken such deep root in New England as in the Middle States; no doubt because other methods of instruction were there more firmly rooted.

"In 1818 the New York Society, preparatory to widening its work, brought over a teacher from London. Lancaster himself soon followed, and at once began to lecture on his system in the Eastern cities. A prominent feature of the system was model schools and normal colleges for the preparation of teachers, and Lancaster served for some years as principal of the Model School at Philadelphia. He was received with the greatest enthusiasm. Statesmen vied with teachers in extolling him and his supposed invention.

"But Lancaster's career in America was as brief as it had previously been in England. The downfall of mutual instruction was as complete as its rise had been rapid and brilliant. At this distance it is not easy to explain its brief popularity. In principle it involved nothing that was really new. For centuries educators had resorted to monitors as a makeshift, and discerning men should have seen that more than a makeshift they could never be. The vogue of the system was due to the invincible faith of men in machinery, combined with the promise of cheapness in education. But in this instance men soon discovered, what mental science and educational experience both teach, that good education can neither be mechanized nor be made

cheap. Still, in America and in England alike, this short-lived system left behind it lasting results. In both countries it awakened great interest in the cause of popular education. In both it turned the attention of men to the necessity of properly preparing teachers for their work. But in America, most fortunately, it did not leave behind it the system of pupil-teaching, which has been such a drag on educational progress in the mother country."

The Reading Circle

[THIS series of questions on Page's masterpiece are designed as a guide to independent or reading-circle study. They are suggestive rather than exhaustive, and may at least serve to remind teachers how much the profession is still indebted to the old masters. This course will be concluded in the June number, and will be followed by another then to be announced,—probably on Hinsdale's "Jesus as a Teacher."]

"THEORY AND PRACTISE."

QUESTIONS ON CHAPTER XIII.

Is the statement that "no employment is more wearing to the constitution than the business of teaching," merely a professional prejudice?

What are the necessary conditions of maintaining health?

What are the professional advantages of gardening as an exercise?

What about bicycles?

How much sleep do *you* need?

What is your opinion of flesh-foods for teachers? Fruits? Drinks? Grains? Vegetables?

What are the essentials of proper dress?

What is the cause and cure of headache?

How should the voice be used?

CHAPTER XIV.

What is the position of teaching as a profession?

What is the remedy for small salaries.

What is the teacher's duty toward his calling as such?

What four considerations are suggested as conditions of improving the profession?

How about time for professional study?

What books are recommended for professional reading? What others would you add to the list?

What is the importance of general study?

Do you keep a "commonplace book"?

What is the value of mutual aid among teachers? Should not parents be included?

Value of professional writing? of teachers' institutes? What four results should the institute accomplish?

What three cautions must the teacher observe in his profession?

SECTION I, CHAPTER XV.

Develop these topics: Prejudice, Child's choice of studies, Too many things. Extraneous business, Comparisons, Sensibilities, Patience, The Bible, Hobbies, Spenser's law of reactions.

¹"Horace Mann and the Common School Revival."

NATURE STUDY.—NO. 1.

THE month of May is a segment of heaven which the Creator annually bestows upon those whose eyes and ears have been opened to the beauties of nature. To an eye informed by a heart in love with Creator and created, the longest days of the year are all too short to notice what is going on all about us in the great laboratory of nature.

What recreation for the mind and body more pure, refining, than the study of the various forms of life, both plant and animal, that present themselves to us on every hand at this season of the year. Very fully we are led to realize this as we examine even the most common flower that blossoms at our feet. The magnifying power of the microscope, when applied to man's most perfect work, reveals only coarseness and imperfection; not so in the handiwork of God,—there the microscope reveals only new beauties and greater perfections that can not be perceived by the unaided eye.

The study of flowers and insects with the microscope is one of never failing delight, and one does not need costly instruments in order to enjoy the study. The small, open lens the size of a half dollar, and costing the same, serves every needful purpose, and affords the student of nature not only enjoyment, but also a fund of practical and useful knowledge.

The study of insect life is also one of the most fascinating and instructive lines, especially when directed to those troublesome pests the *aphides*, that are to be found upon our rose-bushes and some other plants. These can be closely watched in their development from the tiny egg to the portly insect, so filled with the juice of the leaf that, like it, he is green all over. At first the tiny egg is nearly transparent, with a little red spot in it, then it will be observed to have a slight motion, next it runs about. Sometimes the baby *aphis* is all red, while other varieties are nearly white.

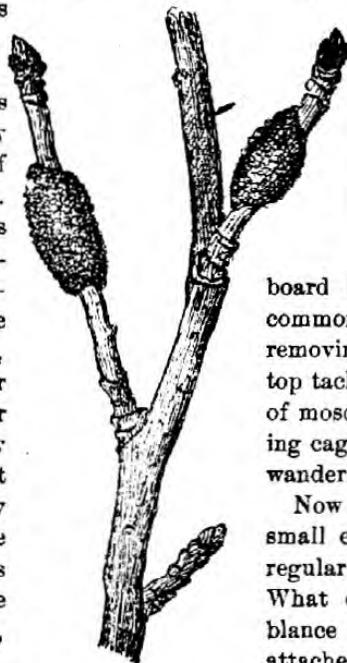


FIG. 1.

Another very interesting subject of study is the Apple-tree Tent Caterpillar, which can be found



in almost any orchard during the early spring months. Their egg masses are found attached to the small twigs of the apple- and wild cherry-tree, where they appear as small, brownish knots or enlargements of the branches. (Fig. 1.) It will be interesting to notice how closely their egg masses

resemble the color of the twig to which they may happen to be attached.

To make a satisfactory study of this insect, it will be necessary to observe it through all its stages of development; to do this, a twig bearing the eggs should be taken in the winter or spring. This may be placed in a bottle of water to keep it fresh; a common ink-bottle with a broad bottom is preferable, so that it will not tip over easily.

Over this bottle place a wooden or paste-board box, twelve or fifteen inches square (any common box will do), which may be prepared by removing both the top and bottom, then over the top tack or paste a cover of cheese-cloth or a piece of mosquito-netting. This box is called a "breeding cage." Its use is to prevent the insects from wandering off.

Now for the systematic study: first notice the small eggs as they appear before hatching, their regular arrangement in the egg masses. (Fig. 1.) What can be the object of their close resemblance to the bark of the twig to which they are attached? Can it be that it was designed as a means of protection from birds or other animals that would be likely to destroy the eggs?

Also notice the peculiar coat of glistening varnish with which the eggs are covered, and which

cements them so firmly to the bark; undoubtedly this varnish serves as a protection to the eggs, keeping them dry all through the winter season.

As the time for hatching approaches, this varnish begins to crack, and comes off in scales, leaving the white, thimble-shaped eggs exposed to the heat of the sun. (Fig. 3.)

After a few days it will be noticed that all, or nearly all, the eggs are hatched; and instead of having a group of beautiful moths with silky wings like their mother, there are only a number of little caterpillars with slender,

worm-like bodies, and great, overgrown heads, which seem out of all proportion to their bodies. What can be the object of this large head and mouth, unless it be that the young caterpillar may gnaw off the tough shell of the egg, and thus get out?

After the caterpillars are hatched, it will be necessary to bring them a good supply of fresh apple leaves each day, and in this way keep them well supplied with food. In a few days they will shed their outer skin, a process called molting, which is repeated several times before they are full-grown.

While yet very small, they begin to construct their silken tent, which is indeed a wonderful structure. Near the head of the little caterpillar is found the silk glands, from which the fluid silk is drawn. In this respect they differ from spiders,

whose spinnerets are located on the back part of their bodies.

It will be noticed that caterpillars usually select a forked branch for their silken home. (See Fig. 5.) While young, they seldom leave or stray far from the tent in search of food; but if only a few leaves are enclosed in their tent, they are obliged to seek the nearest leaves; in so doing they usually extend their tent from time to time, until it may

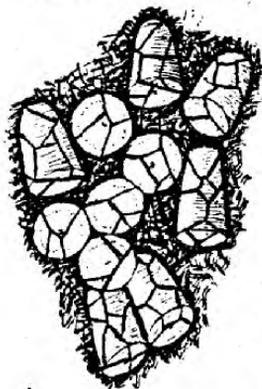


Fig. 3.



Fig. 4.

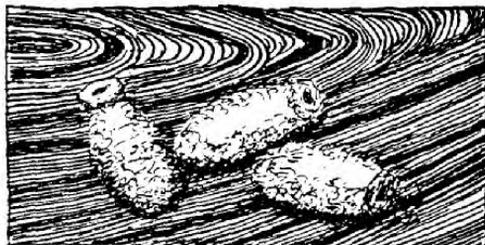


Fig. 5.

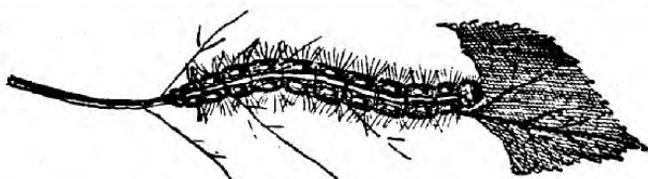
come to cover a very large part of a tree, and thus destroy many leaves, and do great injury to the crop of apples. As the caterpillars grow older, they leave the tent during the middle of the day in search of food, returning late in the afternoon.

In a few weeks, the caterpillars reach the full size. (Fig. 5.) If those in one cage have died, or are not doing well, we may obtain others, full grown, from the orchard, and place them in the cage, giving them fresh leaves every day as long as they will eat. It is well to place a few dry sticks and pieces of bark around the bottom of the breeding cage, upon which they may spin their silken cocoons. These cocoons should be carefully preserved by placing them in pasteboard boxes.

In about six weeks the full grown moths will appear with their soft and fluffy wings, so neatly ornamented with bands of triangular silver scales. At a later time we may consider this interesting subject further.

A. W. KELLEY.

[The illustrations in this lesson are adapted from Teacher's Leaflet No. 5, issued by Cornell University. This is the first of a continuous series of articles that will appear in the EDUCATOR on the subject of Nature Study.]





OBSERVATIONS

As the school year is drawing to its close, how much have we learned as teachers and parents? How much have we given our children that shall build them up into a noble manhood and womanhood—how much that they can really *use* now and hereafter? How much have we drawn out their aspiration unto higher things?

It is easier to criticize than to recognize the merits of the teacher; and yet criticism—in its best sense—is necessarily included in intelligent recognition of merit. Probably it is better that the teacher should receive criticism in the unpleasant sense than not at all; for such criticism at least implies some interest. Pity be the teacher in a community that does not care enough to find fault.

PATRIOTISM, like religion, is a matter of the heart and life, and not of form and ceremony. It is possible to pray to God and yet be a knave, and to salute the flag and yet be a traitor at heart. And as forcing a child to pray would naturally make prayer distasteful and the object of adoration despised, so compelling a child to salute the flag, instead of inculcating patriotism, would but serve to create an enmity against the national emblem. Thus an *enforcement* of the flag salute begets a patriotism in form and name only, and not in fact.—*F. M. Wilcox, in American Sentinel.*

EDUCATION is an attitude rather than an act, a condition of development rather than a measurable process; but a process rather than a product. Yet every resultant of the process is a condition and necessary attitude for further progress, and so development is in a continuous spirally ascending round of attitude, process, product—never turning back, always going over the same course, but every day ascending to a higher plane. Education is every-day faith in the possibilities within and without.

EVERY month we find some excellent things in a certain first-class Michigan school journal, but rarely anything like this, which occurs in its last number: "The time for the spring and summer

institutes are at hand." It is pleasantly suggestive of a sometime university student who frankly admitted that he was "studying dentistry solely for the money there are in it."

WE hear much in these days about child-training, much less about parent-training. While in many respects the schools have greatly improved, the homes have correspondingly retrograded. The hard discipline that once prevailed has been succeeded by the other extreme of a "go-as-you-please" home life. Young America does not compare favorably with youth of older lands in the matter of good breeding and delicate consideration for the rights and feelings of others. A better sentiment must be created. Teachers must lead it, and the fullest and most cordial co-operation must be secured between school and home. The destiny of millions is in it.

"PEACE hath her victories, no less renowned than war." While the press is sounding the deserved praises of Dewey and all our other naval heroes, and public sentiment is in danger of mistaking self-glorification for solid patriotism, it is well to remember our national indebtedness to the work of men who have not shone in destructive, but rather in constructive, lines of interest. The man who, like President Snyder, presides over the practical, useful education of hundreds of young men and women, and who annually musters into the field of noble, productive citizenship, a great army of disciplined recruits, is as worthy of distinguished promotion to the highest rank in the service of humanity as any man who wears a uniform can be.

Beware the man who "shuts up" when you are out for contributions for suffering humanity, even though his patriotic trumpet has been blowing loud and long.

Patriotism, of the genuine sort, is not limited to any country, time, nor people. It means brotherly love for all humanity, unity of effort for progress, and help for the oppressed and down-trodden everywhere, whether at home or abroad.—"*Preston Papers.*"

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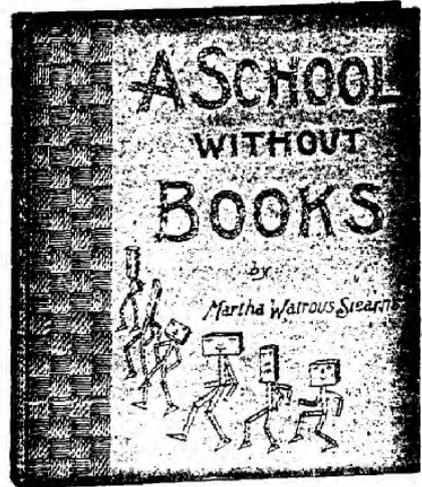
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