SCIENCE.—SUPPLEMENT.

FRIDAY, APRIL 15, 1887.

WHAT INDUSTRY, IF ANY, CAN PROFITABLY BE INTRODUCED INTO COUNTRY SCHOOLS?

IF the question proposed for this symposium is to be taken literally, I should answer, none.

Industry, as such, has, in my judgment, no place in the public schools, though industriousness is always in order there. The prime object of our school system is education; and it cannot be to any considerable extent diverted from that end without injury to the schools themselves and to the community at large. Indeed, it would scarcely be possible to do a greater wrong to the major part of our public-school children than by taking any appreciable share of the little time they have for the development and training of their intellectual powers, for the purpose of applying it to the mere means of bread-winning or money-making.

But while I thus hold strongly to the strictly educational character of school-work, I believe that the courses of study in the schools of New England have been, and, though in a diminishing degree, still are, incomplete, and inadequate to the demands of a full and symmetrical education. I believe that these deficiencies have induced a one-sided development of mind and character; have led to the setting-up of false standards of what is admirable and desirable in life; have caused to be magnified glibness of speech, force of declamation, readiness in recitation, and retentiveness of memory, at the expense of far more useful faculties, qualities, or habits, namely, soundness of judgment, clearness of perception, the habit of observation, the creative instinct, the executive faculty.

Briefly speaking, my project of reform, in schools for boys, would be as follows: carry the best approved methods of the kindergarten upward through the primary grades, as far as the means and resources of each school, for itself, will allow; introduce more and more the study of form, color, texture, structure, and organization, by means of natural objects in the hands of pupils and teachers, stimulating and encouraging the pupils, more and more as their faculties are developed, to make observations for themselves at their play or at their work, and to bring the results back to the school-room, for comparison, for criticism, for discussion; at the age of twelve, or thereabouts, introduce semi-weekly exercises with tools, preferably wood-working tools, and in clay-modelling, for the cultivation of the sense of form, for the training of the eye and hand, and for gaining the power to give material shape to conceptions of the mind; at fourteen years of age, or thereabouts, introduce exercises in metal-working, and require every boy who passes through one of the high schools of the state to become a good mechanic, not at all for the sake of his practising a mechanical avocation, but to make him a better-equipped, more capable, and more useful *man*.

All this could not be done at once. The system would have to be introduced gradually and tentatively. Probably the more natural order would be that the system should extend from the higher schools downward, and from the city schools outward. Much would be learned in the course of the gradual development of such a system; and the best conceived programme would doubtless require considerable modifications, as the result of experience.

In the case of girls, somewhat different exercises should be prescribed. They should, of course, share in the extension of kindergarten methods and objective science-teaching. Of all other exercises, sewing and cooking should have preference. Clay-modelling and paper and pasteboard cutting might advantageously replace much of the wood-working required of boys; but it is not at all certain that girls may not advantageously be taught simple carpentry and cabinet-work. The last-named exercises have been introduced with great success into the normal schools at Salem and Bridgewater, Mass., where the young women readily acquire the power of making much of the simple apparatus required for teaching elementary physics and mechanics.

FRANCIS A. WALKER.

It is doubtful if any industrial feature can be profitably introduced into country schools at the present time.

1. Industrial education is very costly. Under the apprenticeship system, seven of the best years of the life of the youth were given in exchange for the skill that might be imparted, by the master-workman, in a single trade. Still the training of the apprentice was very unscientific Competent and experienced teachers declare that two weeks of systematic instruction in a thoroughly equipped,

well-conducted manual-training school produces as great a degree of dexterity as two years' apprenticeship under the adverse conditions which prevail in the typical trade-shop. The institution that affords such scientific instruction is necessarily expensive. The Chicago manual-training school received an endowment fund of one hundred thousand dollars; but the tuition-fee therein is two hundred and forty dollars, for the course of three years, and yet the institution is not self-sustaining.

2. The necessity for industrial features is far less imperative in country than in city schools. The country boy learns, very early in life, to do a host of things by doing them. He almost invariably finds his way to a shop containing the typical hand-tools, and learns to use them; and through such use his eyes, his hands, and his mind are trained. Ruskin expresses this idea in a terse sentence: "Let the youth once learn to take a straight shaving off a plank, or draw a fine curve without faltering, or lay a brick level in its mortar, and he has learned a multitude of other matters which no lips of man could ever teach him." Every exercise of farm-work in which the youth engages, develops the observation and renders the judgment more accurate. A rainy day in the shop, with the saw, the hammer, the plane, the chisel, and the square, is better than a week of the city boy's school. The experience of the country boy in field, forest, and shop, is the most important factor in his education. It is to these industrial features of his training that he owes his undoubted superiority to the city youth. Too much prominence cannot be given the fact that it is in the country that the race is regenerated. Rousseau's remark, "Cities are the graves that swallow up the human species," is worthy the careful consideration of educationists. The founding of manual-training schools in cities is an effort to give to city children that knowledge of things which is obtained by country children out of school.

It is, hence, impracticable, for the time being, because of its great cost, to add industrial training to the curriculum of the country schools; and it is unnecessary to do so, since a thousand *things* are learned for nothing by the country boy, through the daily exercises of labor and play, which can be mastered by the city youth only in special schools established and conducted at large cost.

Charles H. Ham.

The meaning and application of the term 'school education' is broadening year by year; not in the sense of increasing the number of the subjects of knowledge for the young people to study, but in discriminating with a view to lessening them, thereby providing the means for a better, more natural growth of the mental and physical powers. The limit of this abuse of the privileges of school, by compelling an excessive use of the brain, we believe is reached; and the best teachers all over the state and country are seeking earnestly for a remedy. Just now attention is being largely turned toward industrial or manual training; and notwithstanding one of the leading papers in the country says editorially, "Industrial education should be kept out of the ordinary common school, these cannot have any further branches," there is wisdom in the movement.

Let us see. One great object in introducing manual training into the schools is to reduce the number of the subjects of daily study, of a purely intellectual character. Some of these are known to be of doubtful utility. Drop them out and give them occupation, just what they need, and this is abundantly supplied by a systematic course in manual training.

Before the child has entered school at all, it has learned to use to the best advantage the eyes in seeing, the ears in hearing, and the hands in manipulating. Vast stores of knowledge have been acquired. But once in the school-room, and these sources of education are cut off. What is to be gained thereafter in knowledge and wisdom must be obtained from a book. Right here manual training steps in; and by means of it, if properly conducted, the little one again sees things, hears things, and handles things. The child is again restored to the outside world, and to happiness.

Labor is apt to be considered disreputable: to work with the hands is looked upon as humiliating. People entertaining these ideas will sometimes resort to follies and crimes, rather than be classed with those who thrive by manual toil. Here, again, a judicious course in manual training steps in and clothes the young person with the honors of usefulness and recognition. Elegant leisure, idleness, and all the resultant follies are not found in his vocabulary.

As a rule, young children do not easily become interested in the study of books. They have small powers to understand, and weak memories to retain what they with difficulty comprehend, and for which they have but little or no use. Hence, if they get on with their studies, it must be done by cramming and learning by rote. Industrial or manual training opens a way to interest them, to develop and employ their perceptive faculties, and to make the otherwise unattractive experiences of school-life cheerful and pleasant.

A great nation engaged in developing its re-

sources, commercial, mining, manufacturing, and agricultural, for the purposes of prosperity and progress, for the comfort and happiness of its people, must have a large increasing force of strong, active, intelligent working men and women. This force of men and women must be educated and trained in the right way from early childhood. Their number has been diminishing of late. Manual training in the schools all over the land will turn the tide, and have a tendency to restore the country more nearly to a normal condition.

Now, is industrial or manual training good for any child or youth? We think so, and for all the children and youth in the land, — for those in the country as well as for those in the city, for the poor as well as the better-conditioned; in short, for all classes and all ages who are engaged in the duties of school. So I think we may be assured that some industry or manual art can be and should be introduced into every country school, whether the cottage by the road-side, or the more pretentious structure for the hamlet, or even the finely constructed institution for the village.

What industry can be profitably introduced? Why, any and every industry within the means of the school, and suited to the capacity, attainments, and age of the pupils in attendance. There are many things that can be done with profit in any and all schools; and, as soon as the pupil enters upon school-life, one of them should be taken up, and each carried forward one after the other, just as the subjects of study are taken up and completed.

SAMUEL G. LOVE.

THE RESPECTIVE FUNCTIONS IN EDUCATION OF PRIMARY, SECONDARY, AND UNIVERSITY SCHOOLS.[1] — *I.*

IT is generally understood that at conferences such as this the papers read should be of a directly practical kind. I have not always fulfilled this expectation, nor do I mean to do so now. And this partly because it seems to me that a conference of teachers should be held to be also a conference of educationalists, and that questions may therefore be quite fittingly treated in those larger relations which, though not exactly philosophical, are at least suggested by philosophy. Another reason for not being directly practical is that I am tired of the practical, and have nothing more to say. In books, lectures, and printed addresses I have exhausted myself, so to speak, and I am not sure that debate on practical questions is now much needed. We have reached that point at which we wait for action to be taken; and the departmental committee recently appointed, and the universities bill now believed to be in proof, give promise of immediate and salutary activity in many directions.

In primary education the department is now moving on right lines: after many wanderings in the wilderness caused by its own innate perversity, it has now reached the confines, at least, of the promised land. Respectful advice, for the further wise development of the Code, will now be listened to at Dover House, if tendered by competent persons. It has not yet been resolved that 'designated' inspectors who have not been teachers shall go through a course of educational study and scholastic training before entering on duty; but this reform *must* come. As to the training of teachers, the key of the position, as I have again and again pointed out, is the preparatory qualification of the training-college entrant, and this resolves itself into the reform of the pupil-teacher's schedule. This reform the authorities are now considering.

As to secondary education, the first question is the *professional* training of the secondary schoolmaster at our universities; and the second is the better organization of our high schools. I entirely dissent from those who would speak of the secondary system we have as contemptible. On the contrary, I say, without fear of contradiction from any one even slightly acquainted with the history of education, that secondary instruction and secondary schools were never in so vigorous a condition in Scotland as they are at this moment. I also continue to dissent from those who would draw a hard and fast line for the education to be given in primary schools, in the supposed interests of secondary schools. An exception, however, is to be made in those small towns where the secondary school is made easily accessible to the poor man's child, and where the cheap and necessarily inefficient competition of the primary schools tends to starve out the secondary. For secondary education, what we want in Scotland is a permanent commission, elected by the universities and larger school boards, acting as a consultative body under the Scotch department, and empowered to administer a treasury grant of, say, twenty thousand pounds a year in subsidy of local efforts, and on certain conditions as to school staff and organization. With this and a university entrance examination, the secondary schools of Scotland would be in a highly efficient state in less than ten years. The same commission, as regulating the examinations, would institute leaving-examinations qualifying for the university, and content itself, I am convinced, with a trien-

[1] Paper read at the Educational congress, Edinburgh, on the 31st of December, 1886.