WO score years ago John Stuart Mill expressed his conception of education as the culture which one generation gives to the next in order that the culture already existing may continue. A similar philosophy underlies our educational systems: there has been a universal dependence on the interpretation of the past; a general belief that an acquaintance with history, literature, art and Orientalism not only broadens the horizon, but fits one to meet the changing conditions of modern life and gives an understanding of present-day problems. Our public schools, necessarily conservative, have clung to the tradition of general education; an education which, drawing inspiration from the past rather than from the present that it might prepare definitely for the future, has been expected to mark indelibly the various callings of life. With it, a man was to become a truer citizen, a better employer, a more conscientious workman; with it, the more a man would enjoy his work, and whatever his trade or profession be, the more inclined to fit in with the existing industrial order, and the more intelligently appreciative of his civic duties and responsibilities. A feeling has been growing, however, that the present generation has obligations to the next quite apart from making it the beneficiary of past experience; that we must make conscious effort to prepare boys and girls for the future not only by perpetuating what we believe is best in our civilization, but by anticipating social and industrial conditions bound to exist in that to come.

For in its industrial phases our present generation differs vastly from the last. We see that boys and girls have been led away from the crafts and the home, that they no longer desire to learn a trade of the shop or household, and that individual skill and experience have been lost sight of in the mad race for gain in department store and factory. One of the noblest of callings, that of tilling the soil, has so far deteriorated in common estimation that a particularly awkward boy is derided by the term “farmer.” We see the abandoned farms, we note the disappearance of the small industries and commercial enterprises. We find our workers in the factory, in the counting room, in the store, thinking of duty in terms of hours and wages instead of showing the interest and respecting the skill for which
hours and wages are but the material symbols of the exchange of personal effort between the employer and employee.

We have now confronting us a problem perhaps more serious than any of the past. We are summoned by the constructive spirit of a busy world to work out a system of education which shall hold a definite and intimate relationship to the industrial activities of life,—vast public and private enterprises which are enlisting every grade of human energy and skill from the foreigner, distinguished only by his badge number, to the captain of industry. The difficulty of the problem is largely due to rapid changes made possible by our industrial development. In no previous era of ancient, mediæval, or modern times have there been the swift transformations of the last few decades. To educate our youth, to fit them for life's work, was a comparatively easy task when their environment and employment differed but little from those of their parents; it is a much harder task to prepare a boy or girl of today to meet the changing conditions of the present and of the future ten years from now when they must find their place as a unit in an industrial democracy.

It is possible in a measure to anticipate some of the needs of the future. It will need, as does the present, a general intelligence, a refinement of manner and thought; in common with the present it will need the exercise of hand skill; and it will need a new understanding of obligation to work, to individuals, to the state. A thoughtful leader of workingmen has said that boys and girls need a training which will enable them to earn readily and honestly good wages which they must spend wisely. Now, earning readily implies a technical skill; earning honestly, the industrial exercise of the Golden Rule; spending wisely, a training in manner, morals and taste. The technical skill alone of a craft is fairly easy to master. It is not difficult for a girl to learn to cook, but the art is poor if not accompanied by habits of cleanliness, order and economy; to teach a boy to saw, to plan furniture, to adjust machinery, is a simple task compared with that of training in him a social conscience which will make him feel his obligations to his employer and the public.

IN DISCUSSING the place of hand-work in our public schools we must remember that the boys and girls in school today are to meet not the present but the future; in considering its effect on the industries we must set clearly before our vision our industrial environment, its needs and its tendencies. Furthermore, to determine its place in industrial education and efficiency, we must bear in mind
that the value of manual training depends very largely on the kind of
manual training that is given in our elementary and high schools.

Undoubtedly the conception of manual training in the beginning
was that of a handmaid to the academic work of the school. If the
pupil did not comprehend that two and one-half and three and three-
fourths made six and one-fourth by the use of arithmetical processes
it was considered a profitable task to prove to him the result by mak-
ing a box. If he did not learn honesty, neatness and painstaking in
writing a composition or taking care of his school desk many a teacher
of manual training asserted that he would acquire these qualities
if he made a tabouret. If he did not like to soil his hands by carrying
coal for his mother or developed a distaste for chopping kindlings,
then sawing boards and driving nails in a school room would create
a love for manual labor and a belief in its dignity. Such manual
training has not and never will have any effect on industries and
industrial education, for it was founded on a false basis,—to accom-
plish things in a school room by doing something else. To facilitate
the progress of pupils in arithmetic and other academic work is not
the proper function of hand-work. Rather let us advocate it for
its own sake. Apart from cultivating a deftness in hand processes,—
a facility of movement which like the speech of various languages
ought to be learned in childhood,—surely the arts of weaving, of
working in wood, leather, and metal, have in themselves sufficient
educational content to make them worthy of a primary place in our
schools. Nor should we cavil at the vocational aspect of cabinet-
making, machine-shop work, and pattern making when we remember
that all of us are closely tied to industrial life.

THE right kind of manual training must not only develop an
absorbing interest in one’s work and a consciousness of its
value, but must make the pupil have a sense of his individual
relation to the whole system. Too much of our factory life involves
feeding into an automatic machine a raw product about which the
worker knows little either of its source or of those whose lives have
entered into it; too much of the counting, sorting and packing of the
manufactured article is done without knowing where it goes or whose
life it touches. A great textile industry in a New England town
recently began an experiment with the purpose of correcting the lack
of general intelligence and interest in industrial life evident among
its employees. The manager of the mill has offered in a private
school free tuition to the children of his operatives. A visitor to that
school will find not an elaborate equipment of textile machinery, not extensive laboratories for dyeing, nor drawing rooms for design, such as would be proper in a special school of the industry, but rather ordinary manual training shops and class rooms. It is the teaching which is out of the ordinary, not the equipment. It is a place where boys and girls are taught to know the different textile materials, are shown the different steps in making cloth in the simplest way; where pupils make hand looms and study the development of the machine into the power loom of today. They learn the sources of the raw material, the great world centers of textiles, and the commercial value of the finished product. This venture has already demonstrated that the children—for many of our wage earners are children in years—carry into the mill an appreciation of their single task due to a feeling of connection and unity with the industrial life about them. This manufacturer in striving to correct the effect of too many unthinking processes in machine work is doing no more than is possible in any manual training course in a mill town, whatever its industry. He is showing that manual training has a relation to industrial efficiency.

If we desire work which expresses personal effort we must give in our schools problems which develop skill, cultivate taste, and stimulate initiative. Manual training need not have as its goal technical skill, and yet the training of skill must be recognized as of primary importance in establishing a proper relation of manual training to industrial life. Now skill is not only an element necessary to the quality of the result; it also involves the way in which the result is reached. For true efficiency there must be a saving of time and energy, a straight-to-the-goal method of working. Experience teaches us that, especially in the upper grades, pupils' interest is better maintained by a reasonable demand of the sort of skill which requires thoughtful procedure. Certainly the thought side of the work needs careful attention by the teacher. It has been variously interpreted: some give talks on wood, machinery, transportation; others have models illustrative of bridges, airships and the like. Would it not be well to select problems which stimulate constructive thought from the very beginning of the project, starting with a variety of projects so that there would be initial thought even in the choice? Possibly the teacher has done the real planning in his sketches, leaving the pupil to work out the manual part of the problem. It might be well in the elementary work to leave off some or all dimensions; perhaps even to allow a box of any dimension after the pupil has submitted a sketch, a bill of materials, and has specified a use for the article.
IT IS important for us to remember that we are educating boys and girls to become good consumers as well as good producers. For this reason, if we expect manual training to have a far-reaching influence on the industrial art of our country, we must not separate industrial hand-work and industrial design. A great deal has been written of the demoralization of taste consequent to machine-made products. It is evident, however, that machinery is here to stay; we cannot remove its ill effects by an ineffectual tirade. Let us rather regard the case hopefully. Every improvement in machinery means nearing a goal where disagreeable, irksome and unfeeling work can be accomplished by material things, leaving human energy liberated to create forms of beauty and individuality. Beauty of form, color, harmony, belong to no class distinction; if anything in the world is to be democratic it should be beauty, whether it is in the public square or in the home. It is the teacher of manual training who has the unrivalled opportunity to make the pupil realize the fitness of beautiful things. He must extend his work farther than having the pupil make a beautiful table or chair; he must make the pupil feel the importance of the harmony of the article with rugs, hangings, pictures, and furniture in the home. It is borne upon those who visit the houses of pupils who make commendable single pieces of furniture that too often the sense of relation of these to home furnishings has been omitted in our instruction. Only by training a sense of harmony can the boy and girl be made more critical of cheap wares in shop windows, and less ready to buy what is tawdry or exaggerated. A market must be created for stimulating a personal effort on the part of our workers which will express individual initiative, intelligence and skill.

While emphasizing the social influence of manual training, we must still dwell on its distinctive function—that of cultivating skill in hand processes. What do our great industries demand of their workers? The advocates of industrial education would adopt one of two procedures; modify the work in manual arts in our public schools, making it more definitely vocational; or establish special schools to meet industrial demands. Let us consider the technical needs of industry. A prominent manufacturer, speaking with the authority of a national textile organization, recently stated that while the special textile schools which could cover more advanced work than our elementary schools were of great advantage, it still remained true that the preliminary operations of the factory do not require a high order of technical skill; that processes easily acquired when
young are almost beyond attainment after a certain age and that a
grown woman can never learn to spin deftly; that the mental
requirements are essentially those of discipline. It would thus
appear that while there is a need for special textile schools there is a
larger demand for suppleness fingers and general intelligence,—
for the training practicable in the elementary schools. In the
machine trades the call is for a number of broadly trained men, a rela-
tively larger proportion of highly skilled men to unskilled men than is
required in any other industry. A machinist and a pattern maker
need to have considerable ability to read drawings, to adjust special
tools and fixtures, and to interpret mathematical tables and formulas.
Managers in these trades point to the growing demand for special
machines which the industry is called upon to build and to the ever
increasing use of automatic and special machines. They claim,
however, that this development will not eliminate the mechanic of
general and broad training. The perfection of machinery calls for
more intelligence to make and repair the highly perfected machine.
It is true that the mechanic of today needs a special training; but
he also needs as foundation for this, the general mechanical principles
taught in the elementary schools. The shoe industry points to a
need of workers with a dexterity of hand, arm, and back which will
allow the body to adapt its movements to those of the machine; the
efficient workman being one who keeps step with his machine in its
speed and its varying motions of mechanical parts. This industry,
in common with textiles, demands a few specially trained men, but
the great cry is for workers with dexterity and character. In the
jewelry and art metal industry there is a call for more workers with
an art sense, with power to originate and execute products with dis-
distinctive features in order that we may have a handicraft individual
and typical. The workers in the forest, in the mine, the multitude
of laborers in our public enterprises of subways, streets and railroads
speak for themselves, for so far no one has included these vast num-
ers of workers in any scheme of technical training. They cry out
for shorter hours, more pay, a living wage, a higher standard of
living. For the most part their education will not go beyond that
drawn from the elementary schools. For these, manual training
can do much; it can develop a standard of laborship which must be
the foundation of any true improvement in the condition of our so-
called unskilled laborers, but, to do this, it must bear some relation
to actual work, instead of being, as is so often the case, the solution
of some purely theoretical problem.
CAREFUL analysis of the movement for industrial education will show that it comes from two sources; first, from the skilled industries, those trades where specialized machinery with its differentiation of processes has made so many machine tenders while eliminating the all-round mechanic fitted for duties of supervision, that the problem of supplying efficient foremen has become acute; second, from all industries, both skilled and unskilled, where there is a need for intelligence, adaptability, general appreciation of work. What is demanded is not only technical skill but a proper attitude of mind. The president of a large railroad remarked in a recent statement that every raise in wages had resulted in a decreased efficiency. The heads of industries which require but few skilled workers when asked what industrial education can do for the mass of their employees usually enter into a discussion of inefficiency, incompetency, and irresponsibility; implying that the public schools are at fault. When pressed for a solution of the difficulty and for a definite suggestion they offer some such one as this: Give the pupils an understanding of the industrialism of the city, tell them about the raw product, where it comes from, how it gets to the city, the way it is manufactured, the value of the finished product, the part that labor, the investment and the capitalist play in this process. In short, make for a character which will get our workers interested in our business.

Special schools of printing, lithography, textiles, shoes, machine and other trades must have an important place in the industrial centers of the future; but the main problem of intelligent, efficient personal service of our workers, whether in store or factory as clerk, floor walker, machine tender, foreman, producer or consumer, rests on our public schools. The lower the grade the more general must be the instruction; the higher, the more technical and differentiated it can be made. The largest part of the burden rests upon the teacher of manual training in the elementary school. He must know that too much reliance should not be placed on those activities and interests of childhood which are transitory and superficial because of a school room environment, unless that environment is typical of what is to be the child’s future. The child must have activities which fit him for his proper place in a larger society; the teacher must know what are the conditions imposed by this larger society and make them a basis for selection of the material of instruction. If he believes that a return to hand processes of smaller industries and business enterprises is coming inevitably, he must adapt his instruction to that end. If, on the other hand, he is convinced that the development of indus-
trialism is tending toward greater differentiation of processes of manufacture, to an even greater exploitation of the many by the few in our commercial life, he must arrange his work accordingly. In the former case he will believe that the study and practice of the obsolete industrial processes which awaken a hereditary activity and interest in the child are of more value than a conscious effort to prepare this generation for the next by the study and practice in the methods of the present industries which are an outgrowth of the past. The difference between these two convictions is the cause of the various ideals of hand-work, and the wise teacher needs an insight into the future which shall be based on an intimate study of industrialism, past and present. Fortunately this difference of opinion needs not influence the contribution which manual training may make to industrial education and efficiency, for each of them implies a developing of the process of observation and initiative, of a desire for personal excellence of workmanship, of an attitude of mind both social and industrial. These qualities of head, hand and heart are at the base of every call for service, whether it be for vocational training, for industrial efficiency or for citizenship in an industrial democracy.

[EDITOR’S NOTE:—] The preceding essay, written by Arthur D. Dean, 167 Tremont street, Boston, Mass., has been awarded the first prize in THE CRAFTSMAN competition for essays upon “The Relation of Manual Training in the Public Schools to Industrial Education and Efficiency.” The judges, who all occupy prominent positions as instructors in the departments of manual training in different schools and colleges, were unanimous in their praise of Mr. Dean’s essay, which they describe as “a fine piece of work, clear, forceful, sound and suggestive.” The second prize was awarded to A. B. Williams, Jr., Gates Mills, Ohio, who submitted an essay dwelling in a very direct way with the defects of our present system of training and the need for a more practical method of manual training calculated to fit pupils for undertaking actual work. The third prize was awarded to Isaac Fisher, of Pine Bluff, Ark., and the fourth to S. J. Vaughn, 206 Cedar Slip, Joliet, Ill. A large number of essays were submitted, covering the subject very thoroughly from the point of view of the instructor. Unfortunately, we have space in THE CRAFTSMAN for the publication of only the winner of the first prize, much as we realize the interest that would attach to the publication of some of the others. THE CRAFTSMAN desires to thank all the competitors for giving such serious attention to this vitally important subject, and also to acknowledge most gratefully the courtesy of the judges, who have given generously of their scanty leisure to the consideration of the merits of these essays.