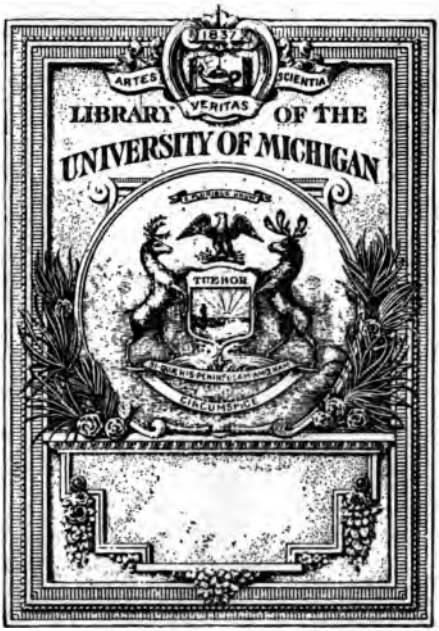
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PROJECT WORK IN EDUCATION

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CONTENTS

EDITOR'S INTRODUCTION

THE life of man is a practical thing, not in any narrow material or utilitarian sense, but in the broadest spiritual meaning of practicality. His life is finally measured in terms of action or influence on action. His sensibilities and attitudes, his aversions and enthusiasms, gain their ultimate worth through the deeds to which they commit him. His intellectual life is merely academic or powerfully dynamic just to the extent that his thoughts and their arrangements accurately represent the realities with which his technique of life deals. The process of education, therefore, is and ought to be highly concerned with bringing his emotional and intellectual training into correct relation with his technique of working and living.

The wise educationist has perceived that this view of education and life is bound to reconstruct his conception of the means of giving educative experiences. He realizes that the subjects which constitute the traditional courses of study are more or less isolated treatments of the real world whereby knowledge is resolved into separate parts by artificial though logical boundaries. However useful these classifications of knowledge may be for scientific discovery or for keeping knowledge available for the uses of mature

minds, it has become increasingly apparent to the psychologist of childhood that these groupings of information are not adapted to the most effective development of the immature and growing mind whose interests are qualitatively different and whose experiences are more meager than those of the average adult.

The dissatisfaction of American educators with traditional teaching by isolated subjects has thus far expressed itself in two constructive movements which have in turn dominated the thinking of those concerned with elementary education.

The first of these two widespread reconstructive movements began with the advent of Herbartian doctrines which were reinterpreted, modified, and amplified in increasing but never completely satisfactory ways. The approximately isolated school subjects were to be tied together by "correlation." They were to be rescued from the humdrum of equal valuation through "coördination" and "concentration." First one subject and then another was to be made the center of the curriculum and the child's intellectual activities. In its practical operations in the classroom of the unexceptional teacher the movement proved an unsuccessful makeshift. It did not attack the existing difficulties in a sufficiently fundamental way. The original subdivisions of subject-matter were left untouched, and intervaluations and connections which the doctrines

of "correlation," "coördination," and "concentration" could evoke were too artificial and too slight to be effective.

The second of these far-reaching reconstructive efforts to avoid the artificial intellectual experiences consequent upon teaching young children by hard-and-fast subjects was not disconnected from the first movement or uninfluenced by it. Its dominant methods, however, are so considerably different as to mark it off as a distinctive impulse and process in American education. Its developing presence is manifest by the terms currently used to describe its varied intentions and methods. Thus at an early stage the lack of intellectual initiative and resource in children is to be overcome by "teaching children to study." A little later the emotional dullness of the school is to be conquered by new methods of "motivation." Still later, instruction through the "problem" becomes important. And now we hear of "project teaching."

Each of these phrases indicates an effort to overcome some prevalent defect in the teaching situation. "Project teaching" is the more inclusive swing of a current movement which is trying to organize education on a practical psychological basis. The claim is made that it does this in many ways. A few of the major contentions may be mentioned. (1) The study of vitally related facts in isolation from each other is overcome by studying truths as required and related

by the need to solve problems connected with the execution of desirable projects. (2) Personal initiative in the finding of needed facts and discriminating judgment in determining the relative worth of facts found are two powers which are stimulated and developed by the perfectly natural need of the child to solve a problem or execute a project in which he is interested. These powers or abilities have been difficult to evoke under traditional methods of teaching. (3) Working and living attitudes are provoked and corrected in connection with actual realities and working aspirations through project teaching. Thus there is no false development of the emotional life such as is the case when sentiment is created out of connection with unescapable truths and effective skills. Motivation becomes real rather than artificial, self-stimulated rather than externally imposed. (4) The need of high standard skills in doing is readily appreciated and practice work heartily accepted by students when they see that faint skill, or no skill, leads to obvious failure and that ample and refined technique in execution leads to marked success.

The above are some of the claims for "project teaching." They are too important to be ignored. They promise a rectification of many defects. The fulfillment of that promise depends partly upon the soundness of the psychology assumed by the claimants, and partly upon the skill of the experimentalists

in providing an ample organization of appealing projects which will stimulate the child to make those acquisitions of knowledges, attitudes, and skills useful to superior adults living in a responsible society.

The hope is not held out that everything necessary can be, or ought to be, taught through the project. Unquestionably the method will be more useful with young rather than with advanced students. With the former it will doubtless make haste slowly, but with the more mature, who can see connections with the swiftness of logical imagination, the over-employment of such a method may mean intellectual retardation. Every approach to teaching has its strengths and weaknesses, and the wise schoolmaster will heed both. In this novel revival of a very fundamental and ancient way of learning, which schools had forgotten, it is rather startling to note how much learning and teaching through the "project" promises. Yet little will come out of this extension of practical ways of teaching into the schools unless the historic backgrounds of its advent into school theory are understood, its psychological implications comprehended, its particular opportunities appreciated, and its concrete procedures mastered. The book presented has been written with these essential requirements in mind.

HENRY SUZZALLO

Seattle, Washington
April 26, 1920

PREFACE

AMERICAN education has been quite generally characterized by a tendency to seize upon and to overemphasize, temporarily, certain aspects of the total problem. This tendency to over-emphasis opens the way for a given aspect to become detached and to be regarded as more or less independent. It thus gets out of perspective, and is likely to be looked upon as a separate, specific, new invention which is "in the fashion," and which one must therefore know and use; but which is, perhaps, to be discarded for the next innovation that comes along. Or, if it is not to be totally discarded, it is at least to become seriously submerged in the next new thing.

It is common for the progressive teacher who has been out of touch with the march of events for even a short time, to ask, upon returning, "Well, what's the cry now?" Then she hears that it is object teaching, or Grube method in arithmetic, or school excursions, or interest (motivation), or elimination of subject-matter, or standardization, or some other "ism" or "ation" which has caught the current for the time being. The result often is that the teacher in question plunges with her accumulated enthusiasm into the new thing, without relationship and balance, and tends to emphasize it as a more or less mechanical

surface device, rather than as a flexible outgrowth of the deep principles in which it is really rooted.

It is not that the relation to principles is not seen by those who originated the idea. The whole process usually starts from the presence of the principle (whether intuitively or logically arrived at) in the mind of some thinker or group of thinkers. But the principle must get into action in a more or less concrete and detached manner, and in the minds of those who think less, the connection is very likely to be lost.

The condition just discussed is evident in regard to the "project," "project method," "project teaching," or whatever other name may be given to the idea involved in such terms. This idea has grown out of the profound insight (sometimes intuitive, and sometimes logically conceived) on the part of a few leaders. Kept in right relationship to the problem of education as a whole, it has even greater possibilities than have yet been claimed for it. Yet it is surely tending to become detached as a fashion, as a device, used more or less blindly, and without full realization of its significance and power.

Some teachers tend to look upon the "project" as a *method* — as a means of getting work done in almost any subject, as a device for interesting children in the subject, or for the correlation of subjects, etc. Other teachers look upon it as the central element in a new *subject*, or even as a new subject in itself, which sub-

ject is, in some more or less indefinite way, to take the place of manual training and domestic science and art, under the name of "Industrial Arts" or other similar title.

What is the relation of the "project" work to the problem of education as a whole? Is "project" work a *method* or a *subject*, or both? These questions must be discussed and answered for the rank and file of teachers if "project" work is not to be allowed to become detached in the nature of device, and gradually shelved for the next thing in fashion.

It seems possible to show that the so-called "project" work is both a method and a subject, and that the idea consistently appealed to could be made to interpret and to relate much that is hazy and apparently unrelated in American education. "Project teaching" has become a method because in all good schools *"project" work in all subjects is a direct and inevitable result of the working-out of the most fundamental of modern educational principles.* It is a subject because *"project" material can be so organized as to fulfill a specific need not met by any other school subject.* It is a need which has never been fully realized, expressed, or incorporated into the school program, but which must be definitely incorporated if democratic education is fully to succeed. To incorporate this subject will not necessarily involve an increase in the number of school subjects. Rightly handled it will tend to reduce rather than to increase

overcrowding of the already full curriculum. The new subject will have relation to manual training and to domestic science and art, and it will have a relation to the newer "Industrial Arts" courses. But it will have a significance not specifically found in any one of these courses.

What the fundamental principles in modern education are, and how they make "project" work inevitable as a method in all subjects, it is one of the problems of this book to make clear. The other problem is that of showing the body of material for the new school subject, and of justifying its substitution for its more indefinite existing representatives.

PROJECT WORK IN EDUCATION

PART I

PROJECT WORK AS A METHOD

I

THE EVOLUTION OF THE PRINCIPLES UNDERLYING THE PROJECT METHOD

ONE of the best ways to get principles in mind, to assimilate their real significance, and so to be able to use them to interpret a given situation, is that of tracing their development through their simple and gradually more and more complex stages. This plan provides the key to the significance of the principles, and furnishes the repetition necessary to a familiarity with them. Seeking, therefore, a grasp of the principles of modern education sufficiently comprehensive to clarify the idea of the place of the project in that education, it is worth while to turn to a brief consideration of the evolution of educational principles.[1]

But since the aim of the historical survey is just that of interpreting the modern project movement, it is necessary to go back only to some point of departure subsequent to which all of the essential prin-

[1] The historical material is largely from the work of Graves.

ciples are involved. Such a point is found in the eighteenth-century reforms advocated by Rousseau, Pestalozzi, Froebel, Herbart, and some of their less well-known disciples. Of course the members of this group of thinkers, who have practically "set the pace" for modern education, were in their turn influenced by other thinkers in the generations before them; but it is not necessary to the present purpose to outline those influences. It is only necessary to turn at once to the masters named — the masters whose wonderful, but largely intuitive, insight is being continually verified by the slower, but more finally reliable, methods of later scholarly research.

In the times referred to, the prevailing education, in spite of the efforts of certain far-seeing scholars of previous centuries, was Church-controlled, aristocratic, expensive, almost exclusively linguistic in content, and formal and individual in method. Stated more concretely it may be said that the Church still had a tendency to dominate even the State. Only the higher classes of the people were educated, education was not free, and the memoriter study of Latin and Greek classical literature provided the bulk of the curriculum. This literature was taught largely from the point of view of the individual, and in a mechanical (grammatical) manner, with much more regard for the mere form than for the content.

To-day education is largely State-controlled, nonsectarian, democratic, free, much enlarged and en-

riched in content, and less formal, mechanical, memoriter, and more social, thought-provoking, and scientific in method. It is the evolution from one of these conditions to the other with which this section is concerned as a brief preliminary to a later pointing-out of the relationship of this evolution to the increasing prominence of the project idea.

The reforms of this evolution have been at least threefold in character. They have been sociological, psychological, and scientific. Defined very loosely the sociological movement is the trend toward regarding education as a social function, and the aim of education as social improvement or the so-called "social efficiency." The psychological movement is the trend toward basing education upon a clear knowledge about, and a correct utilization of, the mind of the learner. The scientific movement is the trend toward the introduction of natural science and its immediate usefulness as a substitute for the older linguistic education with its exaggerated formal discipline theory — its theory that through the study of language, power was definitely stored up and could be used in other chosen connections. The scientific movement also has another aspect in the development of *scientific method*, which method is slowly but surely making itself felt in all phases of human life. It leans toward the application of that form of *induction* which makes intelligent use of the *hypothesis*, confirmed on the basis of actual data. As a method it is

held to be convertible. That is to say it is considered usable in various connections for the solution of various types of problems. Hence it represents that enlightened aspect of the formal discipline theory which claims transfer of method rather than transfer of specific power.

For the purposes of this discussion it is unnecessary to try to keep the types of reform (sociological, psychological, and scientific) entirely separated. Indeed, it is quite clear that it is impossible fully to separate them, since at times each becomes an aspect of the other. But in spite of this fact the three main lines may form a sort of supporting background upon which to weave the discussion.

A. ROUSSEAU

Focusing temporarily upon Rousseau and his theories, it is plain that the key to his influence and real importance lies in his intention to awaken the people from their apathy in regard to *education as a remedy for social ills — as a universal means of propagation and realization of social programs.* This position at once minimizes mere knowledge as the aim of education, and stands for doing, for efficiency in action; and it plans to use both knowing and doing in the service of a series of consciously held social ideals. In it there is implied the relation of philosophy and education. Unless social development is to be left to haphazard chance only, some one must have a conscious

social philosophy — a conscious social program. Then education may be used as a means for the carrying-out of this program. The philosophy behind the program should, in so far as possible, of course, be backed up by a knowledge of systematized social facts (social science); but, in the long run, what one attempts to do with the facts depends upon his social philosophy or set of more or less consciously formulated social ideals which he conceives to be consistent with themselves and with life. Sometimes, it is true, only certain leaders of a society are conscious of the real aims (ideals), and, by means of a subtle process of suggestion, lead the masses of the people, through the natural human tendency to uncritical concerted action (crowd psychology), to accept and to act upon them. The root of the action is still in *thinking*, in point of view, in ideals, in philosophy, but it is in the thinking of the few who manipulate the many.

It was this autocratic, aristocratic, unfair manipulation of the many by the few, which finally caused the revolt of Rousseau. His social ideals (his new social philosophy) became a revolt against civilization itself, even to the extent at first of repudiation of society, and return to extreme individualism and "state of nature." Later he softens this and finds the ideal state not in the "state of nature," but in a "society where simplicity and natural wants control, and where aristocracy and artificiality do not exist" (Graves). But he had really to give up going even

this far, and in his *Émile* merely tries to show "how education might minimize the drawbacks of civilization, and bring men as near to nature as possible" (Graves). The education advocated in the *Émile* is really aristocratic, contradictory, and in many ways absurd. Yet its influence, in its essence, has been toward the ideals which Rousseau earlier enunciated — toward the overthrow of aristocracy, artificiality, non-understanding, arrogance, and exploitation, and the encouragement of democracy, simplicity, coöperation, and the rights of the common man (individual), and of common men (social).

But it is, perhaps, for his intuitive psychological insight, and for his attempt to found pedagogy upon child psychology, that Rousseau is to be most admired. This intellectual theorist who could not put his own theories into operation; this father who refused to father his own children; this thinker whose thoughts often contradict each other, and often lead him into absurdities; this psychologizer whose times provided only a formal and a now discarded psychology — did, nevertheless, out of his intuitive appreciation of the child mind, out of his ability to see the world through the child's eyes, lay down the essentials of modern psychological procedure. In spite of the impracticability and the absurd contradictions in his total work, the truth lifts its head and is not to be mistaken.

His first and foremost psychological contribu-

was emphasis upon the fact that although education was to be used to further a social program, yet it could not begin on the basis of that program — on the basis of adult preconceptions as to what the child should know and do in the future. It should rather take the child as a center, and begin on the basis of what is given in the child. First and foremost it should be recognized that the child is not merely a miniature adult, but that he has an individuality and a nature of his own. In Rousseau's time children were dressed as adults, given the manners of adults, and in every way considered from that point of view. He proposed that a shift be made to the point of view of the child; that the child be regarded as a child; and that it be recognized that the child reaches adulthood only after starting with an original equipment of instincts, impulses, and tendencies, and proceeding through a natural change or development, more or less definitely divided into periods. To this natural foundation, and to the natural process of development, physical, mental, and moral, education cannot (with the best results) be antagonistic. These things should be reckoned with. They should be seized upon and made allies if education is to be most successful. The foundation must be recognized, and the process uninterfered with, if the best success is to come. The child must be shielded from being forced into adult methods of thinking and acting, since such methods are not suitable to him.

Rousseau also pointed out that the *method* of development from childhood to adulthood is through *interaction of the natural child with his environment.* The child is developed (changed) through his experience; and experience is defined as everything that happens to him through his contact with his environment. But while this plan recognizes the "natural" *process* of development in the child, and stands for non-interference with that process, its very essence is, nevertheless, a policy of interference with the *direction* of the development. That direction is to be toward those ideals which the adult, in his more or less conscious philosophy of life, holds for the child. The child is to be guided into those ideals, and not merely forced into them through an external fashioning, or plastering on from without. There is, rather, to be such manipulation of the environment that the interaction of the manipulated environment, with the recognized equipment and personality of the child, results in development in the channels desired. It is well to keep in mind this difference between (1) a policy of recognition of original equipment, and of non-interference with natural *processes* of development, and (2) a policy of conscious, judicious, guiding interference, intended to direct the development toward certain ideals which the adult hopes may in time become consciously pursued by the child himself.

In thinking about what natura[illegible] of the

child were to be reckoned with, to be seized upon and utilized, Rousseau in his original revolt against society, and his consequent return to extreme individualism, neglected one of the most primitive and important — perhaps the most important — of them all. This was the tendency instinctively and uncritically to act in concert with the group. To it the race in its early history probably owes its survival. In it is found the guarantee of future, more conscious and intelligent, sympathy and coöperation. It is characterized in itself, however, by an uncritical acceptance of suggestion, by an *unthought* acquiescence and crowd psychology. Uncontrolled it gives little hope of being the means of modern progress. Perhaps this is why Rousseau in the *Émile* put off an emphasis upon social conformity until very late in his pupil's life. It was natural for him to recognize and to promote individuality, and he discovered that founded in another deeply rooted, primitive tendency — the tendency to solve problems which seemed real problems to the individual, the tendency to vary instead of to conform, the tendency to invent, to meet new situations, *the tendency to think.* This thinking becomes the balance wheel for an uncritical conformity. In seizing upon it, Rousseau unerringly seized the key to the whole situation. He recognized its connection with motor activity, and with play; and threw his influence in the direction of these desirable allies of

As to the *materials* of education, Rousseau, in his preference for "nature," naturally turned to the environment. It was the soil, the crops, the trees, the animals, birds, and insects, which should furnish the experience necessary to development. This emphasis upon the utilization of the natural environment made Rousseau one of the first advocates of the scientific movement, as he was also one of the first advocates of the sociological and of the psychological movements. He became an advocate of a curriculum containing much natural science (not yet very well organized) in contrast to the prevailing linguistic content. He advocated the immediately useful, in contrast to dependence upon the more bookish, formal discipline idea. In addition to this he advocated the turning of this more practical content in the direction of industry, and thought of industrial training as a preparation for personal support, as well as for the development of social understanding and coöperation. But he neglected the past and tended to rob the child of his social inheritance of history, literature, language, and book knowledge in general.

Basedow, as a disciple of Rousseau, made more specific some of the positions of his master, and tried to get them into practice through his "philanthropinic" movement. He advocated non-sectarian, State-controlled education (sociological); education practical in content (scientific), and playful in method (psychological). The movement spread rapidly in

Europe, but the principles were early forgotten and the movement became a fad, and died out without permanent action; but it aided, in the long run, Rousseau's influence upon his more permanently successful followers, Pestalozzi, Froebel, and Herbart.

B. PESTALOZZI

Pestalozzi became interested in Rousseau's writings, and set out to raise his son on the Rousselian principles. He, however, developed and modified the ideas involved, and was the first to get them at least partially into practice. He carried over the idea of education as a remedy for social ills — as a means for the realization of social programs, based upon a social philosophy. Thus he tended to emphasize both knowing and doing, and not only knowing and doing alone, but knowing and doing *in the service of certain more or less consciously formulated ideals.* Moreover, he made practical inclusion in his plan of all children, a thing which Rousseau had conceived only in his earlier theory. In *Émile* he was committed to aristocratic education — to the training of the gentleman, and of the woman who was to be his wife. Pestalozzi, on the other hand, not only theoretically, but also actually, took to his heart the children of the poor. Yet, while he was willing to spend himself in a philanthropic effort in behalf of the poor, it is not clear that Pestalozzi had in mind a real democratic education which would permit any person

to fall or rise according to his abilities. He did define education as "the harmonious development of all the powers and capacities of the human being." But he seemed to leave a place for caste, and to feel that the natural powers of those who were in low stations were to be so treated as to fit them for those stations only. The poor were thus to be educated for their natural place in the industrial world. Also, education of the poor was conceived as a philanthropic undertaking, and did not rise to the proposition of a common-school education for all, at the expense of the State. Children were to learn a trade, and at the same time, as a sort of side issue, they were to be given intellectual and moral advancement. He did not conceive of free public schools as we know them. His point of view, however, even going only so far as it did, was revolutionary for the times.

Pestalozzi's psychology, and his attempt to found a pedagogy upon it, were, as in the case of Rousseau, intuitive. In their conclusions the two had much in common. Pestalozzi followed his master in making the child the center, and in arguing that education must be with direct reference to the natural development of the whole child, physical, mental, and moral. The child was to be considered as a child and taught as a child, and not according to adult ways and preconceptions. His endowment and his natural processes of development were to be reckoned with; and with regard to the processes, the same policy of non-

interference was to be followed. Hence the beginning was to be in the child's natural equipment of instincts, impulses, and tendencies; and development was to proceed through its natural periods to its adult conclusion. But in its totality the result was to be the product of the interaction of two forces — the natural endowment, and the influence of the environment. Education was not to be a veneer mechanically plastered on from without. It was rather to be a developmental blend of external and internal factors in the total life of the child.

But, although carrying out the policy of non-interference with processes, Pestalozzi was necessarily committed to the policy of specific interference with the direction of the processes (just as Rousseau was). For he planned, by tactful manipulation of the environment, to influence child development in the direction of his social program. As has been said, he, in common with Rousseau, thought of this manipulation in relation to, and conditioned by, the nature of the child; but he made a very significant original contribution by thinking of it also in relation to, and conditioned by, the nature of subject-matter (subject-matter being understood to be organized experience, used for the purposes of directing child development). He thought of this subject-matter as "psychologized" (to use Dewey's word) — as itself manipulated, until it was ready for reception by the mind of the learner. To this end he beg

ess of analysis of each subject of the curriculum into its simplest elements, and of arranging these elements in order so that a "cumulative effect" could be produced by presenting the analyzed material step-by-step in a series of graded exercises. His "ab abs" in reading, and his "tables of units" in arithmetic have been household words in America, and whatever portion of these specific applications may have passed away has not carried with it any of the real significance of the principle, for the principle remains to-day as one of the valued possessions of good teachers.

Pestalozzi also made other contributions (intuitively arrived at) to the psychology of teaching. Among them was his insistence upon the necessity for a pause at each stage of the learning process in order to give time for the assimilation of the new. In addition to this there was his contribution to the psychology of discipline. This came out of his love for children and his intuitive insight into child life; and laid the foundation for a revolution in the disciplinary attitude of the schools. For, both because he loved to make children happy, and because he intuitively realized the good effect upon the learning process, he made the atmosphere of the school one of good-will and love, and displaced the prevailing dogmatic authority and harshness. He was "Father" Pestalozzi, the ideal type of the teacher. His emphasis upon "periods of development" might also

be called almost original in that it was more psychological than that of Rousseau. The latter emphasized as serial, periods which are really concomitant; but Pestalozzi was dimly, at least, in real psychology when he made his statement that "the time for learning is not the time for judgment and criticism." Neither did he forget the two fundamental tendencies of originality and conformity. He encouraged invention, the meeting of new situations, the solving of problems, and insisted that these problems should be problems which the child found for himself, or which were at least recognized by him as real problems. On the other hand, he worked for understanding, for social coöperation, and he seems to have had some originality in his balancing of these two naturally opposing forces.

Since the materials of education were again to be those simple, practical ones of the environment, Pestalozzi inclined to minimize books, and to emphasize sense-training and industrial education. Indeed, it is perhaps Pestalozzi's "object teaching," his "observation for the sake of developing clear ideas," and the industrial content of his curriculum, that are the things for which he is best known (at least in the United States). Thus he also becomes representative of the scientific movement — the movement toward the practical and the useful — as well as representative of the sociological and of the psychological movements.

C. FROEBEL

Two important lines of influence have flowed from Pestalozzi through his successors, Froebel and Herbart.

Froebel was a direct student of the theories of Pestalozzi, and more or less indirectly of those of Rousseau. He took over most of their principles, and hence in his policies there is much of similarity to the other two great teachers. He looked for social regeneration through education, minimized mere knowing, emphasized doing, and planned to use both knowing and doing in the service of philosophical and social ideals. His expressed philosophy is, however, extremely mystical and symbolical; and while it distributes itself very prominently throughout his work, yet it is not necessarily an organic part of it. It deals with a mystic unity of relation between man and nature; and Froebel's writings are usually interpreted to mean that children are to be made conscious of this mystic unity. It is possible to take another view. It is possible to conceive that through their contact with certain natural phenomena, children might unconsciously gather and treasure up a background of impressions, attitudes, and interpretative illustrations, which would in later years be the raw material for the better appreciation of the divine unity. However this may be, it is when we look away from this mystic philosophical and social program to his

"social participation" that we find a great original contribution. In this he proposed a shift from the aim of the school as a place to *prepare* for social life, to the aim of regarding the school itself as a miniature society, and of regarding actual present participation in this miniature society as the most certain means of insuring adequate participation in an enlarged society. In the school society, children were to learn coöperation by practicing coöperation; they were to learn democracy by practicing democracy; and in general were to be brought into organic touch with life as it is lived in its simpler and more desirable forms. Thus they were to *live themselves* into the larger and more extended life, and to find their habits and attitudes *naturally* right.

In his psychological views (when he let himself go, and depended upon his intuitive insight rather than his mystical-philosophical-psychological views) he was largely in accord with the others who have been discussed; but made larger original additions, amplifications, and changes of emphasis. He, perhaps more even than the others, recognized the child as the real center, wished to reach all children (although not necessarily with free schools), and had a respect, amounting almost to veneration, for the possibilities involved in each individual child. He saw education as real *development;* and advocated the development of the whole child, physical, mental, and moral (and he would add, spiritual). This education was to be

founded upon original instincts, impulses, and tendencies; and he increased the stress upon this idea. In his judgment the germ of the total future character was *within* the child. All it needed was the right atmosphere in which to develop. He (in common with Rousseau) held that the right atmosphere is the atmosphere of nature. Hence under a system of love (Pestalozzi's idea of discipline), joy, and freedom, and in "a school without books or set tasks," but in free interaction with nature, the result was sure to be good.

With his supreme confidence in Pestalozzi's principle of natural development, he was a most ardent advocate of non-interference with the natural processes of development. He recognized child nature in development, and reckoned with it. He wanted development to be free, and therefore tried to grasp the natural process and to make it an ally. "Education," he said, "in instruction and training, should be passive, following; not prescriptive, categorical, interfering." But he, as did the others, provided for interference with the *direction* of development; and wished, through manipulation of the environment, to guide development toward certain chosen ends. Yet he wanted even this directing, this guidance, to be more in the way of opening the right opportunity, and of *permitting* the child to enter into it through his own inner impulses, than in forcing him into a prearranged mould. In this sense he trusted inner

development, and had a general policy of "hands off."

This policy was largely due to his special insight into what constituted the natural tendencies to be utilized. We have seen how, in his "social participation," he emphasized the tendency to conformity based upon suggestion afforded by the social environment. He also wanted to see children exercise their natural tendency to be individual, to vary, to solve problems. But he emphasized, especially, motor activity as common to both of these tendencies; and greatly illuminated them by insisting that not mere activity, but *self*-activity was the thing to be desired. By self-activity he meant the activity that springs, not from teacher pressure, but from the child's own inner impulses and decisions. Thus there comes about a real inner motive (not an externally attached one) for the solution of problems. There is an individuality, an initiative, a selfhood in learning (even in the learning to conform). These mean, in turn, leadership — creativeness.

Since Froebel considered play, song, and all motor expression as the most fundamental self-activities, these naturally became the core of his system. Games, music, and practical work in the open air predominated. Children sang, played, "built dams and windmills, fortresses and castles, and searched the woods for animals, birds, insects, and flowers." But they also heard literary and historical

stories (in this he paralleled Herbart), and so had the benefit of a more rounded, and less exclusively linguistic, education.

As an assistance to the necessary amount of adult direction of child activity, the materials of education — playthings, games, songs, and bodily movements — were to a degree selected, systematized, and tactfully introduced with reference to the development to be achieved. This organization included the well-known "gifts" and "occupations." The theory was that children would naturally play, sing, be in numberless ways self-active in response to nature. Therefore if repression and formalism in instruction were disregarded, and judicious manipulation of environment tactfully achieved, they could be led — not forced — to engage in those plays, and other activities most useful to their development. This method, as used by Froebel, was indirect, incidental, and would probably have been made more direct as children grew older. But Froebel does not express himself as to whether, with older children, he would have more books, more set tasks, and more *conscious* learning of specific things. He, of course, was ignorant of the modern theory of habit formation, which calls, in a degree, for direct rather than for indirect and incidental instruction.

In his theory of content, Froebel was a strong advocate of Rousseau's and Pestalozzi's doctrine of industrial education. But he gave less stress to this

work for the sake of making a living, and more upon the idea of constructive and occupational (industrial) work for their purely developmental results in physical education, and in social (mental, moral, spiritual) development, leading to social sympathy, insight, and equalized coöperation.

He did not continue Pestalozzi's analysis of subjects of instruction into their elements, although that he did not was a natural outcome of his special interest in young children, and of his special emphasis upon the *unity* of experience. He rightly felt that, with young children, experience is a totality unorganized into subjects, but existing as a total relation of child and environment. Just how much he would have been inclined to differentiate subjects later in the child's life, if he had outlined his work for the later period, can only be a matter of conjecture.

Neither did he deal much with "periods" of development, since he confined his activities largely to infant education; but, in turning attention to this need for earlier attention to the education of the young, he advocated a needed crucial reform which has not yet been acted upon with anywhere near the needed universality. To "reform the education of the nursery" (even to the extent of beginning with birth or even before birth, perhaps), to prevent undesirable developments from even starting, and thus prevent the future necessity for breaking down (with the consequent loss) that which has already been

built up, is one of the profoundest and most important of all educational suggestions.

Thus Froebel in his sociological and psychological views did much to change education from the older aristocratic, linguistic, and formal conditions. In his emphasis upon nature-study, and upon Pestalozzi's "objective" and "observational" methods, he was also directly in the current of the scientific movement.

D. HERBART

Herbart was a student of Pestalozzi's ideas, and a reviewer of them. In general he leans toward the principles already discussed, although he makes his own contributions toward them. In his social philosophy he looks toward education for all; and, more definitely than any one previous to him, he gave up mere knowing and doing as ends, and insisted upon knowing and doing in the service of a specific ideal. That ideal to Herbart was *morality — character.* Education was to have as its supreme end the systematic building up of those attitudes and relationships to society which constitute the moral law. The whole child was to be educated, but all other phases, physical or mental, were to focus in the moral.

In his psychology he saw education as development through interaction of the child and his environment; but, apparently, he emphasized in this development, the effect of the external factor — the building

up of the mind from without through environmental influences — even as Froebel put emphasis upon the development from within. Yet this emphasis upon the external was more apparent than real, and came in a great measure from his attempt to prepare subject-matter for the mind whose initial equipment and natural developmental processes he tried to understand and to reckon with. All of his main doctrines, which are to be later noticed, show him as advocating non-interference with natural processes, and as looking for a *self*-realization comparable to Froebel's *self*-activity. But he also wanted careful and *expert* interference with the direction of the natural processes, as a means for the development of sound moral character. This selection of morality as the aim, though tending to be narrowly conceived, had the virtue of being more conscious and definite than any previous program. In the carrying out of this program, he depended upon the native tendency to uncritical acceptance of suggestion, and resultant action with the group. But he also put special emphasis upon thinking, upon variation, upon the solution of problems; and in doing so, made clearer than any one else the relation of *specific aim* to solution. To his way of thinking there was necessity for coöperation; but for a more *intelligent* coöperation, based upon judgment and individual insight. Thus he hoped for a better balance of conformity and invention, of social and individual, than had yet been achieved.

He recognized "periods" of development with much more tendency toward real science than did his predecessors. He saw also the relation of motor activity and play to the problem of development, especially with regard to specific aims for attack upon problems; and in general accepted in varying degree the better aspects of the work of other leaders. In a greater emphasis upon careful study of individual differences in equipment and developmental tendencies, he was unique.

But he went further and made an attempt to apply real scientific method to education. He began a conscious inquiry into the real psychology back of his ideas. He did not depend alone upon a sympathetic insight into child nature, as did Pestalozzi, nor upon this sympathetic insight plus a vague and mystical-philosophical-psychological view as did Froebel. He attempted rather to develop a perfectly clear, practical, and scientific psychology of the learning process, together with a scientific analysis of the nature of subject-matter, and of its relation to the learning process. Out of these he planned to develop a pedagogy which was in scientific accord both with the nature of mind and of subject-matter.

While there is disagreement as to just how much of Herbart's psychology was merely fanciful and mechanical, yet there is no doubt about the enormous influence exerted by the more definite reference of pedagogy to the psychology of the learning process.

To use an analogy, Rousseau and Pestalozzi were farmers by the cut-and-try, trial and error, practical-art, plan. Froebel looked for scientific direction, but he admitted some pseudo-science of the phases of the moon, and the influence of other mystical and symbolic factors upon seed and soil. But Herbart, though perhaps he did not see all of the correct scientific principles, was at least more consistently scientific than the others, and gave the impetus to much of the present scientific procedure.

He conceived the center of the learning process to be a conflict of ideas already in the mind, with ideas concerning outside subject-matter desiring admittance to the mind. In the process of this conflict, the *new* was assimilated, or "apperceived," and found its place in the total mental content. This apperception or assimilation (in his opinion) took place in relation to, and by means of, certain "interests" or motives; and it could be directed toward the final "morality" which was the real end of all education. Especially significant for the development of this morality were history, language, and literature; and Herbart emphasized these subjects in contrast to the program of geography, natural science, reading, form-study, drawing, writing, and music of Pestalozzi. He also emphasized the interrelations of studies (correlation), and analyzed his apperception idea into certain steps to which he fitted certain "formal steps of instruction." Thus he brought the idea of system

and order into pedagogy — a system and an order founded upon a conscious theory of the mind in relation to the nature of the learning process.

Although his particular system is not popular at present, since it is held to be in conflict with later developments in psychology, yet his idea that there could be, and that there should be, a conscious system — a teaching scientifically in accord with a conscious, scientific theory of the learning process, is one of the mightiest forces active in the education which has followed him.

In his over-emphasis upon history, literature, and language, he minimizes the scientific movement (in the sense of heavy scientific content of the curriculum); but his great contribution to the scientific movement understood in the sense of scientific *method* will always stand as a monument to him, even though his particular contribution to it may fade away.

II

THE TRANSFER OF THE PRINCIPLES TO AMERICA

THE transfer to America of these principles, and the resulting practice, and their incorporation into American education is now to be briefly considered. The seventeenth-century American education was but a duplication of that prevailing in Europe. Generally speaking it may be said that the system was brought over intact by the colonists, and was of the regulation Church-controlled, aristocratic, linguistic, and formal type. It was well into the eighteenth century before the evolution of American social and political ideals had crystallized sufficiently to provide a basis for any distinctively American educational ideals.

It was the spirit of the Revolution — the vision of the new freedom — that turned to education in realizing its plans. There is no doubt that in the plan itself, and in the attitude toward education as an aid to the plan, the influence of Rousseau was very great. His works were read in America, and his ideals influenced profoundly the leaders who were doing the constructive work for the new type of commonwealth. Gradually, as a result of that beginning, there has come about a complete secularization of the school, a democratization of it, and a State control and support. There are, in theory at least, free

schools in which all of the children of all of the people have opportunity for education. In these schools there is a widely expanded curriculum, and a less formal and mechanical method, which method has the intention, at least, of balancing the individual and social aspects of life, and of being scientifically adjusted to the natural development of child mind.

But after all, much of the influence which brought about these remarkable changes did not come directly through Rousseau. Much of it did not even exist in Rousseau. It was, however, from his wonderfully suggestive ideas, caught up and disseminated by Basedow; listened to, elaborated, and supplemented by Pestalozzi, Froebel, and Herbart; and again listened to and further elaborated by great American leaders, that the development has come.

Pestalozzi's influence first appeared in America in the nineteenth century, coming partially directly from Switzerland, and partially at second-hand through other European countries. In 1805 William McClure made translations of articles with reference to the system, and later brought Joseph Neef to this country as Pestalozzi's "apostle." Professor John Griscom, in 1819, gave a report of visits to Yverdon and Burgdorf; Colburn, in 1821, applied the Pestalozzian principles to arithmetic, emphasizing mental arithmetic; Mason, in 1836, applied these principles to music; and the Pestalozzi-Ritter geography methods were presented here by Guyot in 1848, and later

continued by Francis Wayland Parker. (Parker's geography work also represents a later development of the Herbartian principles of correlation and concentration.)

But the most far-reaching and general interest in Pestalozzi came through the seventh annual report of Horace Mann; and through the dissemination of the "Oswego methods" of Dr. Edward A. Sheldon, Superintendent of Schools, at Oswego, New York. Mann's information about Pestalozzi came from personal observation while on a trip to Europe. Dr. Sheldon, on the other hand, received his inspiration in Toronto, Canada, through publications of "The Home and Colonial School Society" fostered by the Mayos of England, who, in their turn, got Pestalozzianism directly from contact with the master himself.

In 1861 Dr. Sheldon procured from England a Pestalozzian teacher for his city training school. This school afterwards became a State normal school, with Pestalozzian methods somewhat formalized, and based upon object teaching and observational work. Other normal schools copied the Oswego methods, which soon became paramount in elementary education in America. But the methods rapidly became more and more formal and mechanical, lost their connection with real Pestalozzian principles, and tended to fall to the level of mechanical device.

About the time that Pestalozzianism was being

propagated in America through the Oswego methods (the early sixties) there was a general turning to Europe for ideas in education; and one of Pestalozzi's pupils, Froebel, was also coming into notice here at that time. His influence in America has largely been founded in the kindergarten, though it is now seen that many of the principles which he advocated for that institution are just as applicable to the higher schools.

The first attempt to bring the kindergarten to America was made in the early sixties by Miss Elizabeth P. Peabody, a sister of the wife of Horace Mann. In 1867 Miss Peabody went to Europe to study with Froebel's widow, and soon came back and started a periodical to aid in the spreading of Froebelism. In 1868 she obtained the establishment of the first kindergarten in the United States at Boston; and in 1872 Marie Bölte, who had also studied with Froebel's wife, opened a kindergarten in New York. The same year saw the beginning of Susan E. Blow's work at St. Louis. In 1876 the California work was started by Emma Marwedel, and by 1890 there were kindergartens in other leading American cities, carried on at first largely as philanthropic enterprises. However, a few cities gradually made them an integral part of the educational system. This was done as early as 1873 in St. Louis through the influence of Miss Blow, who also established a kindergarten training school there. Kindergartens were adopted by the school system of San Francisco in 1880, and by

the end of the century they were found in over two hundred progressive cities; and kindergarten training schools were found in many public and partially public normal schools. In these training schools the Froebelian principles were studied; but they tended to be studied as a thing apart from the general problem of education, and without reference to the school as a whole. Moreover, kindergarten practices were for a long time more and more symbolic, tending to rigidity and mechanism — to the very formalism which Froebel himself fought. On the part of many teachers they came to be applied as devices and rigid formulas, intentionally and carefully shielded from any innovation or variation based upon thought concerning the requirements of any given specific situation. But very recently there has come about a very hopeful reform movement in the kindergarten. The followers of this movement propose to take and to keep all that is good in the old kindergarten, but also to be willing to make changes of all kinds that seem to be demanded by any of the more scientific educational knowledge which is being developed.

The work of the other great pupil and follower of Pestalozzi, Herbart, did not reach America before about 1880. It then began to be brought here largely by students studying with Rein at Jena, and returning to this country with ideas which they thought America could utilize. These students saw in Herbartian principles an opportunity to *systema-*

tize the solution of many American educational problems through the application of *scientific method.* Such systematization was badly needed. The original work done in America, and the ideas brought from Europe, had been mostly in the form of isolated efforts, each along its own more or less narrow line, and unrelated to any general theory or plan. Hence all became formal and mechanical in a short time, almost inevitably, because of isolation and original lack of breadth. Herbart had a real systematized plan. It involved definitely formulated theories of the aim, method, subject-matter, and materials of education, and seemed to offer the first really feasible hope of applying scientific method in that field.

The movement centered in northern Illinois in the State Normal University. De Garmo, F. M. McMurry, Charles McMurry, and others were leaders. The practice school of the Normal University was the first established upon Herbartian principles, and became an experimental school where real research was made in an effort to apply the scientific method to education.

In 1892 there was formed the Herbart Club to study Herbartian principles, to translate them, and to make them available. In 1895 the club became "The Herbartian Society for the Scientific Study of Education," persons who were not Herbartians were admitted to membership, and a year-book began to be published.

THE TRANSFER TO AMERICA

The movement was soon opposed by other thinkers. It was objected to as a foreign importation. Its metaphysical implications were called absurd, and it was criticized as containing nothing new. Its influence grew, however, and not only did the controversy succeed in emphasizing the fact that theories of education must rest back upon philosophical theories (metaphysical theories), even though Herbart's metaphysics might be wrong; but it also drove its advocates and others into real, though often crude, experiments, to prove their doctrines, or to disprove the other person's.

When Herbart's psychology was shown to be faulty, and became discarded by the then increasing power of new and brilliant American psychology students, it was possible to show that the more modern psychology did not invalidate many of his other principles. Hence, one by one, there were introduced into American education, in a more or less isolated way, the five formal steps of instruction, apperception, concentration, and the doctrine of interest. The attempt to feature the whole Herbartian plan was thus abandoned, and a loss was sustained in that there was now a return to more or less isolated efforts, rather than the complete systematization of education. But the scientific *method* was continued more or less in the cases of the isolated principles. These were taught everywhere in clubs and in normal schools, and became for a long time dominant. The

work of Parker and the Reports of the Committee of Ten and of Fifteen were very markedly influenced. The use of history and of historical material was very much augmented. There came a wide appreciation of morality as a growth; and of moral character, rather than knowledge, as the aim of education. Culture and social life, rather than the mere development of patriotism, became the aim of history. History of other countries, and especially biography, as an aid to moral instruction, appeared; and there was an attempt to use European history as a setting for American history. There was similar development in literature. Brief and poor selections were given up for total classics.

While Herbartianism, pure and simple, has been abandoned for less dogmatic methods, yet the spirit of most of the great principles remains. Perhaps any over-emphasis and tendency to dogmatism and formalism were needed to give the principles roots by which to survive and to be modified. Certainly the influence upon the application of scientific method to education has been immeasurable; and it is in that direction, at least, that the honors for original contribution can never be taken away from Herbart and his followers. In line with this, "The Herbartian Society for the Scientific Study of Education" has been made "The Society for the Scientific Study of Education," and by this movement for systematization education is being immeasurably benefited. This

movement should not be confused with the other phase of the scientific movement which has aimed to increase scientific content in the curriculum (mainly on the basis of its usefulness and practicality). This phase of the problem, starting from Rousseau, Pestalozzi, Froebel, and Herbart, reinforced by the English scientific movement represented by Spencer, Darwin, and Huxley, and early fostered in this country by President Eliot of Harvard, represents a still dominant influence in American education.

III

MODERN AMERICAN PRINCIPLES OF EDUCATION

THE period of transplantation of education, succeeded by the period of rather unorganized development largely influenced from Europe, has been followed by a period of reconstruction and original effort which is still in progress. Reforms have divided themselves into two types: (1) those which have to do with providing the *conditions* and *tools* for education; and (2) those which deal with the immediate schoolroom problems of instruction. Under the first head, organization and administration are dealt with. This movement has been away from provisions for Church control, sectarianism, and individually expensive and aristocratic education; it has been toward State control, non-sectarianism, and free and universal education. The relation of this administrative work to the project is that of providing for conditions under which the project can appear at its best.

The movement having to do with immediate problems of instruction is greatly indebted to William James. At a time when the "faculty" psychology was breaking up, this student of philosophy, and of the best in psychology here and abroad, put the "new" psychology into a form which has been the

well from which all succeeding students have drunk. G. Stanley Hall and his followers are also to be credited with the starting and maintaining of a child-study movement. Yet this movement was largely on a questionnaire basis; and it has given way to a real laboratory-experimental movement of great significance and extent. This laboratory-experimental work has been done in many different laboratories and schoolrooms, and under varying conditions. At first it was somewhat haphazard and contradictory; but of late it has assumed at least something of definite form, and is more and more putting a real scientific foundation under the intuitive work of the old leaders. A good summary of what has been done, and by whom it has been done, together with an estimate of the relative importance of the various pieces of work, is to be found in Thorndike's *Educational Psychology*.

The material is too bulky to deal with in full here; but in general it covers the following points: (1) The natural endowment, including (*a*) instincts, impulses, and tendencies manifested at birth, and (*b*) instincts, impulses, and tendencies progressively appearing through life, and so dividing life into "periods" of development. (2) The process of change or development by which the child becomes an adult. In other words, the *learning* process itself, dominated by the two great primitive tendencies, (*a*) the tendency to conform uncritically to the action of the group,

through uncritical yielding to emotional impressions, to intuition, to suggestion, to relatively *unconscious* learning; (*b*) the tendency to vary, to invent, to meet new difficulties through the focusing of emotion and critical judgment upon new and unusual sets of conditions (in other words the tendency to solve problems through the conscious use of the intellect). (3) The problem of individual differences, the problem of variation of the one from the norm or type.

The variations referred to under (3) are due both to endowment and environment. The investigations concerning them have dealt with differences in work and fatigue, in sex, in imagery, in attention and perception, etc. With the problem well worked out, with the general processes known, and the individual variations determined, teaching may be made to fit the individual case more completely and scientifically.

The latest development has been a realization that if individual differences are to be regarded in the most successful manner, if complete diagnosis of individual cases is to be used as a basis for repressive or remedial measures, then there must be developed better systems of measurement, physical, mental, and pedagogical. The *amount* of various traits and accomplishments must cease to be a matter of opinion and become referred to standard measures, similar at least in exactness to the standard measures applied in other sciences.

If the work of any one man were taken to represent

the modern situation with regard to actual problems of instruction as a whole, the best one for our purposes would be John Dewey. The work of this modern educational reformer, through his own efforts, and through similar efforts of those influenced by him, has, Graves says, "been the largest factor in determining the theory and practice of the present day." He has accepted, in spirit, at least, the valid dominant and determining principles of the leaders who have gone before him; and both as a philosopher and as an educationist has organized and obtained followers for a system which is a synthesis of much of the best which has gone before and of the hopes which hover ahead.

A closer view of this modern reformer makes it clear that his work has tended to socialize and to psychologize American education, to point out a practical content (industrial and scientific) calculated to interpret life, and to encourage natural and effective child development through unification of the school with life.

He stands for the use of education as a remedy for social ills — for the carrying-out of a definite social program, based upon a definite social philosophy or theory of moral-social development, directed toward democratic ideals by conceiving of the school itself as a society. The school is to be looked upon as just a part of real life, a continuation of the home social life, carried out in the home spirit. School attendance is

to be a real "social participation," which reveals to the child, and makes intrinsic in him through natural processes of contact, the democratic social ideals. Sympathy and the other social virtues carry over from the home and become natural in the new home-school atmosphere. Thus "the end is in the process"; the school is just a bit of real life, not a place in which to *prepare* for life. The aim of education is focused not upon mere knowledge, but upon *doing;* and more than that, upon efficient *social* doing — social efficiency. This social efficiency is to be produced through real social participation, and guided toward definite democratic social ideals. The child is to live the life of a child, to do the things necessary to a child, and so *live himself* naturally into the life of the adult.

By the same plan, also, the disjointed elements of the school system — kindergarten, elementary school, intermediate school, and high school, which are the products of various social conditions, and various suggestions from many systems — are to be really welded together by each being related to life as it is conceived and lived.

In his psychological attitude Dewey recognizes Rousseau's idea that education should not begin on the basis of adult preconceptions of what the child should be. It should not have the social program as a center; but should rather be begun on the basis of the child's endowment — instincts, impulses, and

tendencies — and continue as a process of *development.* This development is to be a development of the whole child, with the physical development specially cared for as a foundation for the mental and moral.

But the development is not to be *forced.* This is the familiar principle of non-interference with the natural process. To this natural process, education must not be antagonistic, but it must, rather, ally itself with it.

The method is to be the method of *experience* — of interaction of the child and experience, or of the child and the curriculum, if the curriculum is seen as merely human experience organized into the "subjects" of instruction. He argues that the child cannot develop things out of his own mind in isolation, but develops only in contact with the environment. There is no gap between the child and his experience. The sum of the experience *is* the child. Books are advocated, but are to be used to *interpret* experience, not as a *substitute* for experience.

Experience (subject-matter) is to be so organized, and so used by the teacher, as to direct the child toward democratic ideals; but it is not to be a forcing type of direction. Herein lies Dewey's attitude toward self-activity. His feeling is similar to Froebel's. There is to be an atmosphere of joy and freedom, of motor activity and play; the mild discipline of love; an opening of doors in the right direction; a creating

of opportunities of which the child takes advantage through his own inner impulses and decisions. The selfhood, the individuality of the child, is to be respected. Since this self-activity is to mean the identification of the self with the thing, it cannot come purely externally. It must have the coöperation of the whole self, including the use of the senses and the muscles. Motor activity is not only an accompaniment of the learning process; it is a part of the learning process. This fact was stated long ago by James in the phrase "no impression without expression," and has since then been a part of the theory, though not always a part of the practice, of teachers. This motor activity may become quite incipient in time, under certain conditions of abstraction; but it is much more prominent and visible in the learning of children than in the learning of adults.

Education, therefore, involves play, construction of objects, manipulation of material and tools. Thus the child is to be self-active in the best sense, and the policy of interference with the direction of the process of education (though it definitely exists) is to be "following" and non-prescriptive. Activity on the part of the child is, in so far as possible, to precede the giving of information by the teacher; and the school is to be a place for working, rather than merely a place for listening. It should be a place for self-education through practical activities.

But Dewey goes further than Froebel's intuitive

appreciation of how development takes place, and further than Herbart's theoretical psychology and pedagogy, and founds education upon a really scientific experimental psychology of the learning process. This modern psychology is not original with Dewey (as has already been pointed out in the account of the modern psychological movement). It comes also from James, and from the many other careful investigators previously mentioned, who have done real and painstaking experimentation in the field. One of his original contributions (to be later discussed under the head of the utilization of the great natural tendency to vary, to solve problems) is an analysis of the thinking, or learning, process itself, in his book, *How We Think*. Another is in his treatment of subject-matter, his plans for the manipulation of it, with relation to its reception by the child mind. He really does more to "psychologize" subject-matter than did Pestalozzi, for Pestalozzi's "ab abs" and his "tables of units," while they simplify the material, do it more upon a logical, adult basis, than upon a psychological basis. Psychologically the child mind often receives as wholes the things which seem simpler to the adult mind when analyzed into elements. But Dewey points out that while modern life is not to be so much analyzed into its elements, it is, nevertheless, so complex that it ought to be reduced to its lowest terms — reduced, as it were, to its primitive, embryonic form, which form still holds the elements in

relation to each other, but in a manner more suited to the child mind.

As to the two great apparently opposed natural tendencies, the one toward uncritical conformity and the other toward critical variation, it may be said that Dewey makes most intelligent use of both, and that he consciously tends to balance them, and to make the tendency to vary contribute in the long run to intelligent conformity. That is, through social participation he plans to get both conformity and variation, and to make the best good of the greatest number (which is, after all, the kernel of democracy) the final outcome. He shows clearly that under the average, unreformed, present school condition children are taught always to do what they are told to do and nothing else. They are expected to be passive, submissive, to await commands, and to reflect their teachers and their books. But in a school where activity is the basis of the curriculum he shows that the child gets his knowledge through action, and that what he gets is so built into his muscles and his whole physical being that he does not have to try to remember it, for it is a real part of himself, and comes out naturally in any situation demanding it. Moreover, the result of such education is shown to be the development of initiative and originality — the development of the power to think for one's self, and these virtues are the virtues of democracy. They are, and should be, opposed to the virtues of submission so

commonly taught in the older schools. For our State is founded upon freedom, and children raised so exclusively upon the virtues of submission do not readily make good use of freedom when they suddenly acquire it after graduation into life beyond the school.

Hence he very sincerely advocates the encouragement of the tendency to vary, to be inventive, to solve problems, rather than the tendency unconsciously and passively to follow the lead of the crowd. And he is an advocate of this originality because, although it seems to be, and is, individual, he sees in it the best guarantee of a progressive social solidarity. He is looking for conformity where conformity is desirable; but he wishes an intelligent, not a blind, conformity.

Social-occupational and constructive work, and all kinds of observational and first-hand contact with nature, are therefore held by him to be not only "socializing," but *progressively* socializing, since in the independent solution of the multitude of definite, concrete, individual problems which are bound to arise through general activities lies the best guarantee of an original interest in the welfare of the group, and an individual power to solve problems with reference to the progressive welfare of the group.

In his program of occupational and constructive activities, it is plain to see how far he is away from the old memoriter, linguistic school program. But in

his argument that the activities in question develop sense-training, observation, ingenuity, and constructive imagination which can be available in other connections, he seems to carry over something of the "formal discipline" phase of the older education. Yet it is only in appearance that this is so, for he does not think of the storing-up of actual power to be transferred, but thinks, rather, of the development of a thought-method of attack upon a problem, and the transfer of that "method of attack" to other situations. In this sense he is in the very stronghold of formal discipline. The transfer of methods of attack makes the individual independent in new and unusual difficulties, and this is what the "new" education demands. Facts have multiplied until the time has gone by when one can expect to master *all* facts. Even if the "pouring-in" process were the best method, there would not be time in a lifetime to complete it, since the amount of material is too enormous. So education will not advance by devising methods "to increase the consumption of facts about all situations," but must, instead, abandon this "force-pump-reservoir-system" in favor of training a child in such a way that he has power to face and to master a new situation for himself at the time that it presents itself. So education must develop in the child transferable methods of attack upon problems.

What correct methods of attack are, Dewey makes clear in his book *How We Think*. Here he analyzes

the thought (learning) process, and makes one of the most important of modern contributions to this phase of modern psychology.

In this connection also should be mentioned Dr. F. M. McMurry's contribution in the same field, through his development of the problem of *How to Study*, which is essentially the problem of how to think. Dewey's book and McMurry's are natural complements of each other, and should be used together. Among the "factors" of study named by McMurry are aim, initiative, attention to relative values, and organization. These items have been developed by him, and widely used by others, as *standards* for the judgment of the work of teachers. If their pupils show that these elements are being cared for, the work of the teacher is regarded as good; otherwise it is criticized as inadequate.

In dealing with this topic of individual initiative in the presence of problems, Dewey also points out more clearly than others that a general psychology and a general pedagogy have only a general application. Children cannot all be cast in the same mould. Variation, even in the equipment of children, is the rule; and variation in response of children, and therefore in the treatment of individual children, is inevitable if education is to succeed, and selfhood and individuality are to be conserved. Thus his idea of training the whole child is much more comprehensive than was Froebel's. It is to be a training which provides for

individual differences, where the law is set by the condition of the individual child; not a universal system under the general law of which each child is to come. Uniformity of curriculum, method, and organization must give way as soon as the individual child (not a semi-theoretical typical child) is made the center.

Hence in the tendency of children to vary individually, he emphasizes the importance of variable endowment, and stresses children's "interests," or, in other words, their "attitudes toward possible experiences." It is these "attitudes," interests, motives, and specific aims which furnish the "push" — the *motive* power. They are part of the original equipment and their appearance at any given time is "to be observed as showing the state of development which the child has reached." The teacher cannot get subject-matter in from without if the child is passive. The only significant method is that of the mind as it reaches out and assimilates. This is Dewey's real contribution to the use of the emotions in school. Thus he sees "interest" not as a "sugar-coating" opposed to "effort," but as the cause and ally of "effort."

But Dewey takes great care to show that he conceives social and individual as necessarily *balanced* if final success in education is assured. And he sees the social as dominant, as of course it must be in a democracy. To make this clear, he has in one connection

defined education as "the reconstruction of experience, giving it a more *socialized value* through the medium of increased *individual* efficiency."

The content of the curriculum has already been shown to be away from the narrow linguistic one toward an industrial and science content. It thus emphasizes the practical, the useful; and teachers are urged to teach that which can be directly utilized in everyday life. Eliminations are made from the curriculum, also, upon this basis. But this emphasis upon the practical, the useful, and even the vocational, or at least pre-vocational, is not to be understood as making education a "money-getting" venture. The emphasis comes, rather, from Dewey's appreciation of the fact that modern life is industrial and scientific in nature; and that if the school is to interpret life, if the school is to be but a small *life-unit*, the unification must come through content which is peculiar to the life in question. Of course the self-support idea enters in as a secondary matter. Self-support is a social obligation, since one ought not to be a "drag" upon his group. Yet the self-support idea does not lead; and the practical and useful content urged by Dewey is cultural, and not purely economic or vocational in its aim (at least in the elementary school). It is that content which he conceives is demanded for everybody (rich and poor, high and low, alike) by the present life, if every one is to be in sympathy and coöperation with the present

life. It is the ideal of democracy put into practice through the school.

In this connection, also, he calls attention to the fact that social life is always changing, and so education must be a changing, not a static thing, especially in content. He shows that the fundamental industrial and social processes by which life maintains itself, have hidden themselves away in factories and large industrial enterprises, and do not any longer touch the real experience of the child as they once did. Thus children lose a training that they once used to get outside of the school — a training in personal responsibility and a knowledge of the physical realities of things. Hence, combining this idea with his idea of simplifying life — of reducing it to lower terms in order to fit it to the child's mind — he recommends that the simpler, primitive processes of industry (spinning, weaving, candle-making, pottery-making, and the like) be incorporated into the school program. They should be made a part of that little section of life, through the living of which the children become unified with the larger social life of the land, and with which they grow into sympathy and coöperation.

This leads him to call for a larger expansion, and change of point of view, in manual training and domestic science work, and in the science content of the curriculum; and to lean toward these factors upon the basis of their real life-interpretation values. Thus he looks upon them not as "special studies which

are to be introduced over and above a lot of others in the way of relaxation or relief, or as additional accomplishments. . . . Rather they represent, as types, fundamental forms of social activity; and it is possible and desirable that the child's introduction into the more formal subjects of the curriculum be through the medium of these activities."

His policy of unification also leads him to favor Herbart's doctrine of concentration, especially in the lower grades. He takes the position that, to the young child, experience is a unit, "concentrated," undifferentiated into "subjects"; and that differentiation of subjects comes only slowly as the child develops, and never is (and never should be) complete. Early education should deal with experience as a whole; and later education, though it develops "subjects," should always keep in view their interrelationships, both with each other, and with the total experience of life. He makes it very clear that the real basis for this concentration and correlation cannot be any one subject or subjects, but must always be the social life to which all are referred.

With the evolution of modern educational principles well in mind, it is now time for consideration of the relationship of those principles to project method in the modern public school of America. This material appears in chapters IV and V. Then follows a chapter on another line of project-method development, which has been largely outside of the

public schools, but which has a vital relation to them; afterwards the use of project material as a separate subject in itself (independent of its value as a method of getting work done in other subjects) is discussed.

IV

THE PROJECT METHOD IN THE MODERN PUBLIC SCHOOL

WHAT is a project method in the commonly accepted public school use of the term? Thus far it has been assumed that the reader understood the meaning of the term, and could identify it in use, and perhaps (if a teacher) use it. It is probable, however, that the idea needs further development for many persons. Most people have heard the term. At least most teachers have heard it. They could not have escaped the numerous references to it in books, in teachers' meetings, institutes, and teachers' associations. But in the minds of many the knowledge is very vague and indefinite, and many of the attempts of teachers to utilize it are groping and unsatisfactory. It is just this vagueness of idea, and this groping in use, which have seemed to make this book worth while as a factor in clearing up the situation.

The claim has been made in the Preface, that a project method is no more or less than the natural, concrete expression of modern principles of education in action. What modern principles of education are has been shown by tracing their historical development through a number of leaders, and of showing their gradual concentration in the concrete personal-

ity of a living educational reformer. This process has involved enough of repetition to assure familiarity with the principles. It now remains to make the principles concrete through a series of typical illustrations of them in action. Then on the basis of the illustrations it will be possible to turn to the asserted connection between the principles and a project method. The illustrations are chosen from the files of the *Elementary School Journal* because of (1) availability, (2) the spirit of Dewey's educational philosophy found in the many articles on project work, and (3) the variety in authorship and schools represented.

The making of a playhouse is presented to the children as a plan to be worked out, and with this in view other types of shelter are considered. During the previous year the children have played at Indian life and enjoyed the making of wigwams. These experiences are recalled and other kinds of Indian homes are suggested. Primitive tree- and cave-dwellings, brush huts, stone cairns, Eskimo igloos, Japanese houses, and log huts are typical forms of shelter discussed. On the sand table the children make some of these dwellings with appropriate settings. The geography of the region in so far as it influences types of structure is pictured, and in this way typical physiographic areas are worked out, as, for instance, the wooded hills of temperate zones for the tree- and cave-dwellers and the Arctic regions for the Eskimo.

From these primitive forms of shelter the children's attention is called to modern structures. Here, often for the first time, children's eyes are opened to the architectural details about them. Windows begin to vary

from the stereotyped rectangle of a child's first drawings; doors, roofs, and chimneys gain an interest entirely new. The materials used in modern buildings are noted, and through pictures, stereoscopes, models, and reading, something of their sources and production is worked out. The children use the Meccano set to make in the sand pan a quarry with derricks. Toy trains and tracks are brought from home to heighten the realism.

In all this plans for the playhouse are becoming better defined and the ideas of its form, its material, its arrangement gradually develop. When the shape and proportions are determined, wood cut to shape is supplied, and each child builds his own playhouse. These are painted; windows of transparent celluloid are fitted into frames measured and made by the pupils from construction paper; and window boxes, awnings, porches, and lattice for the entrance ways are made as individual problems from materials of the children's own choosing. The making of furniture creates problems in number construction. The rugs and hangings alone are lacking, and this becomes the textile problem which begins the work of the second semester.[1]

In the past we have taught the history of printing. To-day we are giving the children an opportunity by actually doing some printing to assimilate this knowledge and to make it a power in their own lives. For along with the work of printing, history must be studied to give meaning and value to the shopwork. The pupil should learn of the various ways in which this has been carried on from the days of the clay tablet to the making of a mod-

[1] "Course in Community Life, History, and Civics," *Elementary School Journal*, XVII, 6 (February, 1917), 411–12.

ern newspaper. Much of this historical material is not available in suitable form for elementary pupils, and our printshop is proving its commercial as well as its social value in helping to provide for this need. The pupils themselves are printing stories, translations, articles, and selections containing the necessary information. Another source of information is found in visits to modern printshops, engraving establishments, paper-mills, type-foundries, and other allied industries. The relation of the school printshop to outside life is so vital that the child is instinctively conscious of it. But visits to modern plants do much to enlarge his vision and give him a broad idea of printing and its position in the world to-day.

The most obvious result of the printshop is its effect upon the English work. The conscious attention to form in typesetting leads to close observation of all form. Through printing the child comes to a knowledge of paragraphing, to the meaning of punctuation marks, to correct spelling, and the right use of capital letters. He notices the forms of verse and the style of expression. He becomes careful and accurate because his work demands care and accuracy, and children naturally respond to the inherent demands of their own work. They resent only the imposition of standards from outside.

The study of mathematics is directly strengthened by its practical application in the printshop. Besides the constant measuring, it furnishes practical problems such as computing the number of ems to a given page, finding the amount of type necessary to set a required piece of copy, calculating the number of pages the manuscript copy will cover, finding the percentage of spoilage in the presswork, determining the cost of a zinc plate, and the

amount and cost of paper for a desired piece of work. All these enter intimately into the regular shopwork.

But no less important is the connection between art and the printshop. The first real art problem which the child there faces is that of spacing between words, and he soon learns that well-spaced lines are more legible and therefore more pleasing than unevenly spaced ones; that neither choice type or initial letter, colored ink or attractive paper can hide the holes made on a page by irregular spacing. Since print is used as a means of communication between one person and many persons, legibility is the chief consideration of the printer, although it should not be the only consideration unless the word be made to include all that adds to it. The child should be led to see that the page of type is most legible when it is most beautiful; that legibility depends upon choice of type, length of line, spacing, arrangement, page proportions, margins, quality and color of paper, good ink, and good craftsmanship; that good craftsmanship means clear and even impression of the type on the paper; and that the form of the expression should harmonize with the thought. Any page which fills these requirements is readable and beautiful. Decoration may make it more beautiful only if it emphasizes these points, if it is subordinate to the design, and does not attract attention from the print to itself.[1]

Accordingly, the teacher chose for the first lesson the finding of Scott, the hero of the South Pole. The children were to place themselves on the spot at the time of the rescue and were to express the emotions aroused in the rescue party when they read the part of Scott's diary which

[1] Katherine M. Stillwell, "Our School Printshop," *Elementary School Journal*, XV, 3 (November, 1914), 144–47.

told of hardships, disappointments, and love of humanity. To read the words of the diary even once, without a vivid personal appreciation of the wonderful meaning behind them, would be to lose forever their deepest significance. For that reason the first expression was to be in writing. On the morning of the experiment the words at the end of Scott's diary were put on the board, and there arose a discussion as to the discovery of the South Pole, Amundsen's success, and Scott's vain efforts and death. When interest in the subject was at a high pitch the children were told to choose the moment at which the rescue party came, then to decide and write what the different men would do and say at such a tragic and intense moment, ending their compositions by using Scott's own words. While they had talked much "about it and about," no hint of what the men might say had been made by any one before writing. The following, written by a girl and selected for brevity, was one result:

FINDING OF SCOTT'S PARTY

Scene: Inside of tent not far from South Pole.
Cast: Scott, Wilson, Bowers, Wright, Nelson, Gran (few others).

(*Men uncover heads when entering*)

Nelson (*steps inside tent, sees men in sleeping postures, turns pale at sight of smile on Bowers's face*): God! He is still smiling, it almost gave me hope.

Wright (*comes in, goes toward Scott, touches his face, shivers slightly*): England's bravest men!

Gran (*comes in, followed by others, sees Bowers, coughs to hide his emotion*): How splendid to die smiling! And no word to tell us of their brave deeds.

Wright (*looks thoughtful*): Captain Scott must have been the last to pass away, for the others are securely wrapped in their sleeping bags, which he, of course, did, not being in his own sleeping bag. (*Moves Scott's hand, sees diary.*) What is this? Read, Nelson, while I search for other word.

Nelson (*takes diary, turns to first page*).

Gran (*impatiently*): The last, man, read the last!

Nelson (*turns pale, reads*): "We took risks; we knew we took them. Things have come out against us, and therefore we have no cause for complaint, but bow to the will of Providence, determining to do our best to the last. But if we have been willing to give up our lives to this enterprise, which is for the glory of our country, I appeal to our countrymen to see that those who depend on us are properly cared for. Had we lived, I should have had a tale to tell of hardihood, endurance, and courage of my companions which would have stirred the hearts of every Englishman. These rough notes and our dead bodies must tell the tale, but surely, surely, a great, rich country like ours will see that those who are dependent on us are properly provided for. — R. Scott."

Wright: How sad! And Amundsen was there before him.

Gran (*emotionally*): To seek, to strive, to find, and not to yield.

(*Curtain*)

The class read aloud their papers, but in most cases the reading was so much weaker than the writing as to prove that the lofty ideas and intense feeling expressed in writing could not yet find adequate oral expression.[1]

[1] Alberta Walker, "Dramatization and Current Events," *Elementary School Journal*, XVI, 3 (November, 1915), 125–26.

The plan consisted of two parts: visits to the factories of the city, and the study and discussion of the problems growing out of the visits. . . . The discussion always centered around the problems arising out of the inspection of the manufacturing processes and were of an industrial, labor, geographical, and civil nature. These problems were dealt with in so far as they were within the scope of the intelligence of the group. The fundamental purpose of work of this kind is to restore to children during their period of training the opportunity of knowing the life of the community as children knew the community a century ago — an opportunity of which they have been deprived through the industrial revolution of the past century. In accordance with this general purpose we sought in so far as possible to have the boys arrive at a general appreciation of industry, and especially to understand the relation of individual industries to the whole social life. . . . With this knowledge we wished to create new ideals and attitudes toward our industry and new patriotism toward our city and country. Two concrete illustrations will indicate our aims and methods. One of the institutions studied was the street-railway system and its relation to the life of the city. We began the study by a visit to the factory where the cars are built and got a glimpse of the whole process of manufacture, the length of life of cars, the number of laborers employed with the amount of wages received, the amount of skill required in each occupation, means of preventing accidents, and similar information. At the time of our visit the heating system was receiving lively consideration at the hands of the Civic League, the city council, and the newspapers, and for that reason we examined in detail the various plans of heating and ventilating street-cars and the diffi-

culties connected with each. Having learned the point of view of those connected with the system, we discussed and criticized their views at the next class meeting. In the meantime the class had had the opportunity to consider the newspaper and other discussions of the subject as a basis for class consideration.

Our next step was to take a trip to various parts of the city on the cars, following this with a discussion of the effects of street-railway transportation upon the value of real estate in the various parts of the city, upon housing conditions, upon the distribution of residences of laborers, and many other similar questions. . . . A second case was that of the bread industry. This industry afforded endless opportunity for study. We began by visiting the flour-mills in the city. This led to the study of the origin of the grain and a study of the grain-producing areas in the United States and of the world. Moreover, we attempted to make the study as human as possible by determining how the work of producing the grain was carried on; how grain was planted, reaped, threshed, stored in elevators, and brought to the mills. Here we had access to a lantern with plenty of slides, and this part of the work was presented by one of the boys in a half-hour talk with slides portraying the various phases of the industry in a highly interesting manner.

We studied, further, the methods of producing flour as compared with those of a century ago. This led us again into the bread-making industry and a comparison of it with that of the old days when "mother made the bread." We had access in this study to the factories of the simplest kind where one oven was used, to the biscuit factory where 1000 laborers were employed and the product sent to all parts of the world, and the bakery where 60,000

loaves of bread were baked in one day. In this study there is hardly a problem of economic significance that the boy from ten to fourteen was not interested in and able in some degree to understand.[1]

The following statement issued in Springfield, Missouri, gives so complete an account of a possible course in agriculture that it is here reproduced in full. E. A. Cockefair, Greene County farm adviser, in coöperation with County Superintendent J. R. Roberts, has written a course of study which includes each month of the year.

Sowing crimson clover, sweet clover, winter oats, alfalfa, and vetch should be done the first two weeks of September. Plots of ground on the school grounds, four feet square, should be dug for these experimental beds. Winter wheat, rye, Durum wheat, speltz, timothy, and orchard grass can be sown the third and fourth weeks in September. These are a few of the facts the children will learn. For advanced pupils uses of fertilizers, including nitrates, acid phosphates, ground rock, potash, ashes, and lime, will be studied. Demonstrations of treatment of wheat for smut are suggested. A bushel of wheat can be taken to school, placed in a loose burlap bag, and immersed for ten or fifteen minutes in a solution in a barrel or tub, then spread to dry.

Study of acreage and yield of hay, grain, and pasture crops for the school district, with location of fields and reports of yields, set out on maps of the district, is part of the September course. These maps afterwards can be displayed at the annual county show in December contests.

[1] E. George Payne, "An Experiment in Motivation," *Elementary School Journal*, XVII, 9 (May, 1917), 728–30.

October is the month of seed-corn selection. Visits of the students to fields, with lessons in marking the stalks carrying the best ears will be made on Friday of the last quarter. Some of the older students may be interested in obtaining fair exhibits.

Corn-judging from samples furnished by pupils will be part of the study in November. Planting of tulip bulbs will be taught. The older pupils and high school students will be instructed in a tree nursery. A strip of ground twenty feet long will be prepared, and seeds from the wild cherry, walnut, butternut, hickory, pecan, chestnut, white oak, black oak, and ash of the forest trees, and apple, plum, apricot, and peach of the fruit trees will be planted. Girls of the school can interest themselves in planting roses, lilacs, barberry, and other shrubs.

Stock-judging is scheduled for December. A horse and a cow will be taken to the grounds for expert judging as to points. The children will go to a neighboring pen to judge swine. . . . Girls will be taught to interest themselves in cows and poultry. Stock-feeding will be a theme for January lessons and visits will be made to pens. Reports on feeding balanced rations will be made to the schools. Statistics as to number of head of stock produced the last year, value and average price per head, must be recorded. Milk records for cow testing will be taken from home by pupils.

The first pruning lesson will be given in February. . . . Seed-testing of oats and treatment of potatoes for scab will be done in March. . . . Planting flowers and improvement of school yards will be done in April. Stimulation of the growing of prize acres of corn for the annual county contest will be featured this month. Growing tomatoes,

with lessons on canning, for the girls, also will be featured. Pop-corn and peanut growing will be taught. Adviser Cockefair believes the parents and pupils should join in Arbor Day exercises, planting trees and shrubbery.

Summer cultivation and care of live stock on summer pasture, will be included in the May studies. Instruction on silos and cost of their construction, and methods of combating drouth, and maintaining feed and water for live stock, will close the year's studies.[1]

As history unfolded itself and the settlement on the Tiber grew to be the Mistress of the World, the children needed to know more of the buildings and public works which were the result of that far-reaching civilization. So when we had reached the middle of the period of the republic in our study, we destroyed the scene of the Seven Hills on the sand table and began to build the neighborhood of the Forum. The whole space in the pan was devoted to the Capitoline and the Palatine Hills and to the construction of some of the monumental buildings and other structures whose ruins still remain as evidence of Rome's greatness and power. These were studied and constructed from the point of view of the relation which they bore to history at the time of their erection. They were a means of developing in the minds of the children an appreciation of the stages of growth and progress of the Roman people. Each building represented to the children that particular bit of history included in its erection.[2]

[1] "A Course in Agriculture," *Elementary School Journal*, XV, 2 (October, 1914), 92–93.

[2] Grace E. Storm, "Roman History in the Fourth Grade," *Elementary School Journal*, XVI, 3 (November, 1915), 137–38.

For instance, a sixth-grade teacher in one of the large school systems of Illinois organized her language work entirely from the standpoint of children's interests and was careful to undertake nothing which was not thoroughly motivated from the child's standpoint. As the year's work was nearing completion, she checked up by the course of study to see how fully the requirements of the language work for that grade had been met, having in mind to give the last month, if necessary, to details not covered by the motivated work. This seemed a reasonable procedure, but she was surprised to find that she had not only covered all of this specified detailed work for the grade but had included of necessity, a great many details called for in upper grades. It was apparent upon review of her year's work that the zeal of the children in successfully accomplishing projects in which they were more or less personally interested had made the mastery of technical difficulties an easy matter. Technical difficulties naturally appeared relatively small, because they were subordinate to the larger undertaking, such as writing letters of request and appreciation, brief articles for the school paper, dramatizations for special programs, the preparation of a special booklet which was later used as a gift as well as an illustration of the pupil's own work, etc.[1]

After a first general reading of the illustrations, the reader is asked to go over them again for the purpose of identifying the principles involved. He is asked to note how completely the school is identified with life,

[1] G. M. Wilson, "The Motivation of School Work," *Elementary School Journal*, XVII, 4 (December, 1916), 362–63.

and school attendance with "social participation"; how "participation" reveals to the child, and tends to make intrinsic in him, the ideals of democratic society; how it aims, not to prepare for life, but to be life; how the conception of education as development through social participation is never lost sight of; and how, as a foundation and skeleton work for this development, the original equipment of instincts, impulses, and tendencies (both those active at birth and those arising at later "periods") are recognized. It is also to be noted how the natural processes of development, resulting from interaction of the child and his environment, are welcomed as allies, and are not interfered with. Books are plainly used to interpret experience, and not as a substitute for experience; and while the direction of development is intentionally interfered with, the guidance is that of love rather than of authority. It is to be noted how doors are opened, and opportunity afforded, of which the children take advantage through their own inner impulses and decisions. Thus individuality, selfhood, is conserved; and real self-activity is fostered in an atmosphere of play, happiness, and freedom. The whole child (physical, mental, moral) is included in the program through the use of constructional and occupational subjects and through the manipulation of materials and tools. The school has really become a place for working rather than for listening, and is not sharply set off from the larger social community;

but through excursions and other contact, it is made integral with the community.

Subject-matter is manipulated and prepared for the mind, not in a logical, but in a psychological, manner; and individual differences have full play. Special "interests" furnish the "push," the motive for attack upon problems; and the solution of problems rather than the pouring-in of facts is seen operative everywhere. Yet in the final analysis, individuality is kept in subordination to the social ideal — to the best good of the greatest number.

"Subjects" are taught, not so much as separate factors, but as inter-related (correlated) elements of the social life involved. The whole content of the curriculum is unified and made practical (useful), not on an economic basis, but on this broad, cultural basis which interprets modern practical life, and makes the school part and parcel of it.

If one looked for a single phrase to sum up the whole set of principles, he could not find a better one than Dewey's "self-education through activities," or the common "learning to do by doing" so often quoted in the illustrations. *And the important thing in relation to the original thesis of this book is that this phrase which sums up the principles — this "learning to do by doing" — is also the absolutely fundamental element in project work.* Project teaching has been trying to vitalize the school; it has been trying to connect the school with real life, and to recognize and to

promote child development through the natural processes; it has seen the need for the greater use of the materials of the natural environment, and for natural interaction of the child with that environment; in its best form it has looked for its results in the child, and not in the finished material product; and has been trying to achieve all of this through activities — through having children "learn to do by doing." In other words, project work is the result of all degrees of consciousness of the principles. It has arisen because progressive teachers everywhere have been, through reading and personal experience, getting hold of the principles, finding in them the essence of activity, this essence of "self-education through activity," this "learning to do by doing"; and through all degrees of conscious and unconscious insight, have been putting the principle in motion. The illustrations accepted as illustrations of the combined modern principles would have been accepted just as quickly and unquestioningly as illustrations of the best in project work. It is worth while to consider them individually from that point of view.

The first one, the making of the playhouse, is an illustration of a single project used as a basis for work in several different subjects. The children lived in their real social problem and yet subject-matter was not neglected. Reading, writing, spelling, language, arithmetic, history, geography, manual training, etc., were all represented. The difference between this

and an ordinary school program lies in the fact that the conception of "subjects" and their continuity was *in the mind of the teacher;* but this logical organization did not need to be so much in the minds of the children. With them the organization was allowed to be psychological. They were allowed to live in the situation as a whole, and the teacher, in a manner similar to that of a good chairman of a public meeting, stood to one side, and without imposing his special will upon the situation was yet able to give the occasional suggestion, the judicious guidance, which kept things going in a certain general direction, and with enough breadth to insure the inclusion of such parts of specific subjects as he had in mind to cover.

This plan could be used in any grade, and to cover all subjects, if only the teacher is ingenious enough and tactful enough to start things going and to keep hands off except in the few right places, and even in the few right places to make the guidance come as assistance to plans originated by the pupils themselves.

The next illustration shows how a printing-project may be made the core from which is developed the work of many school subjects. In the main it is a project which motivates and vitalizes general English composition, but it touches history, geography, mathematics, art, and in fact most subjects, and furnishes motive and subject-matter for all of them. Here again children are not memorizing from books the iso-

lated facts of individual studies, but are living an active, unified, social life within which the relatively invisible threads of the studies are carried.

In the third illustration project method is used to tap the emotional reaction required in a single subject. It is hard to make reading and English composition vital on the emotional side and the device of original play-writing and acting is a common one. It furnishes the concreteness, the clear realization, and the physical activity which are needed to enlist the whole personality of the child, and to insure the free response of his true self. To know Scott and his problem as these children came to know him is to be infinitely removed from that type of reading teaching which says: "You may read the next paragraph." The exercise in question is also important for the interpretation of current history (for which purpose it was in fact devised), and any good teacher uses similar plans in a variety of other situations.

The next illustration is particularly suggestive of the value of the school excursion. The importance of this outdoor work, often done at a distance from the school and with a definite object in mind, needs to be more and more emphasized with both parents and teachers. If children are to get the necessary basal experience for their thinking, if they are to know life through the unification of the school with life, then parents and school trustees must not be surprised if the schoolroom is often deserted, and the children and

teachers are found out along the water-courses, or on the hills, or inspecting factories or other industries, or on trips to other places of historical or geographic or scientific interest in the neighborhood. Such work is the very essence of the best in modern education.

The illustrative course in agriculture next quoted involves a multitude of expressed and suggested opportunities for the use of project method. It is in this field that as much has been done, and perhaps more than in any other. The whole modern plan for the reconstruction and redirection of the rural school is based upon the working-out of school and community social coöperation in agricultural and other enterprises of mutual interest. The plan helps old and young alike, through breaking up monotony, inducing healthy and progressive social intercourse, and bringing up children who come to love rural life. It helps them to find in their own surroundings those genuine life interests and opportunities which they otherwise seek in the more artificial conditions of the cities. The drift of population toward the cities is thus arrested and more normal conditions prevail. But it is not wholly in rural conditions that such project activities are worth while. The city teacher, through the occasional excursion and with the help of a vacant lot, or even of some window-boxes, can do much to put life and unity into her work, and balance into the lives of her children.

The last two illustrations serve to show how the project idea may be further applied to individual subjects; and the last one serves to answer the natural question as to the relative rate of progress compared to that made by book or mere drill methods. There is also evidence that technical details taught by these activity methods are more easily remembered than if taught formally. In fact, retention, as Dewey contends, comes to be effortless, since the facts are built into the self through the concrete experience.

The illustrations might have been continued with specific reference to children's plays and games, and many other phases of life; but they are sufficient as they stand, except for the desirability of outlining the working of a plan whereby a community project unifies not only many subjects at one time, but also the total work of a whole school for a whole year. This phase of the work is so important that such an attempt at unification (published October, 1911, in a "Bulletin" of the State Normal School at Winona, Minnesota, over the signature of the writer) is quoted entire:

The modern outlook of education is social. The true indictment found against the school which is not modern is that it is isolated from life. The demand is that the school fit for life by exemplifying life. Although there is much vagueness about what this "fitting for life" means, nevertheless the idea has undoubtedly turned educational theory in the right direction, and, as a result, schools are

everywhere being vastly improved. But even many schools which have more or less adequately grasped the idea of social responsibility, are still far from being social units in themselves. They are a more or less loosely strung together aggregation of rooms or departments, with practically no common interests or activities. Hence the social life of any one of these small groups is necessarily incomplete, because it does not go outside of itself, and does not contain within itself the necessary diversity of social elements.

In order to achieve this desirable social unity, all of the rooms or departments of a school, from the kindergarten through the eighth grade, at least, should be linked together by a common cause which requires a common meeting-place and community work. There should be for the whole school a social clearing house where interests may be pooled; and where interdependence may be recognized in its actual working-out. Experience seems to prove that the school assembly can be made to fill this need. Many schools have found this out, and they have not been slow to utilize the idea. But a thing which has not been very generally realized is that the regular school work is the best basis for such assemblies. This is evident from the observation that too often the assembly program consists of a miscellaneous collection of unrelated parts (unrelated either among themselves or to the daily work). They have been gathered together merely for the sake of entertainment, or if with some idea of a further value, at least not selected on the basis of any general principle. Therefore they are usually not progressively effective, and often very wasteful of time both in preparation and in delivery.

Show-work required of already overburdened teachers,

and lacking in point for the children themselves, is not what is needed. Such work is external. We must get our unity from within. If only it were realized that the need for unity, for social meeting and mingling, is a need for unity and socialization in that which is the real core of the school life — the daily work — we should have better assemblies and better daily work. For this need can be met. There is not a school subject which cannot be used to furnish to the assembly material which is of vital importance to the daily tasks, and also of absorbing interest to those children who present it and to those who listen. It is remarkable how interesting even the mapped outline of a campaign, or of the westward march of the California gold seekers, may be made for such an exercise, if explained to children by a child in his own way. Each grade is doing every day many a similar thing in which other grades would be interested if only it could be brought to them.

Where reading is taught in a modern way, there is much dramatization, and dramatization is one of the best kinds of material for the assembly. Often it does not have to be especially prepared, but can be taken directly from the schoolroom just as it has been developed there, and put before the others with no elaborate staging, costuming, or other preparation. But even if some extra time and effort are expended to get it ready, it is time and effort which functions thereafter in the regular work of the class and is therefore not lost, as is that given to show-work. There is no stronger motive for good work of any kind, than the motive of presenting that work to others, and so the assembly becomes a lever whose power is constantly applied in the direction of better class-room results. No child likes to repeat before his own class those

things which he knows are as familiar to all the others as they are to himself; but he is willing to work hard and if necessary go over and over that which he is to present to some one to whom it will be new. On the other hand, those grades who listen to what another grade presents, seem to find a perennial interest. There is something about children's work, done for children, which does not leave time for any dullness.

We have mentioned dramatization because of its obvious adaptability to the situation, but there seems to be no end to what may be utilized, and often the most unexpected source will furnish the program. An adding contest; making some object in manual training; freehand drawing before the assembly; memory gems, perhaps pantomimed as recited; demonstrations in cooking with explanations of theory and distributed samples of the product; an original play based upon an event in history; a geographical study (illustrated by either purchased or original maps) of some industry or route of commerce, or of exploration; the interesting story of the life and habits of some insect or animal from the nature study or elementary science work; demonstrations in penmanship; compositions selected as the best from regular work handed in by the pupils; regular reading lessons, using the books of one grade which are unfamiliar to the others; spelling contests; original poems; arithmetic applied to such topics as amount of water necessary to fill the swimming tank, or space necessary for ball and tennis grounds; games, rhythmic exercises, and contests from the physical education department; vocal music by full chorus, glee clubs, classes, or individuals; instrumental music through the utilization of the work of individuals, or through the organization of orchestras or drum corps.

Admitting all these possibilities for the assembly, we still might question whether the idea is not mainly applicable to older pupils — whether it offers to the younger ones the desired opportunity for expression and enjoyment. Yet experience proves that a program of songs and games presented by the kindergarten, brings out unmistakable expressions of the highest enjoyment from the others; and, on the other hand, the programs of the older pupils do not seem to be dull even for the children of the kindergarten. They enjoy the dramatizations, the marchings and drills and all of the other activities, take part in the choruses, and do not lack delight even in those parts of the program which are far beyond their comprehension. The novelty is, in itself, sufficient to attract them, and they continually ask whether "it is not time for assembly day to come again."

It would of course be possible to divide the children into assembly groups according to grades, but as has already been intimated, the very essence of the plan consists in not doing this. No social unit is homogenous, and it is the actual concrete social situation developed in the general assembly which gives us the values we seek. Not the least of these values is that which is so often seen in rural schools, in the reflex influence which comes from the natural mingling of older and younger pupils. The older pupils gain a gentleness and appreciation of childhood, and the younger ones a maturity of outlook upon life — an inspiration for meeting life, which is most valuable, and which is not developed in the exclusive graded isolation of most city schools.

So the argument for the school assembly might be continued indefinitely, but enough has already been said to show how, through such a gathering, regular school work

may be made more effective; to emphasize how the meeting together in a common cause cements the diverse groups of the school into an enthusiastic social body, with common interests, responsibilities and privileges; gives the strongest kind of a motive for good daily work; teaches children how to appear well and with confidence before others through frequent practice in the social details of the situation; and, most of all, gives one opportunity for that motor reaction, that doing of something, which is rightly so emphasized in these days of a pedagogy whose creed is "no impression without expression."

A good plan is to have the assemblies once a week, and to ask the children of each room in turn, from the highest to the lowest, to provide a program and have charge of the assembly. This definite succession allows each group to look ahead and to plan for its turn, and makes automatic many details which would otherwise have to be especially provided for each time. Every effort is made, however, to introduce suitable variations so that formality and routine shall be in the background. The introduction of certain games, the occasional working out of school yells, songs, mottoes, etc., and the emphasizing of the thought of "right fun in the right place" have been found not entirely incongruous with the school assembly idea, nor is an occasional meeting for entertainment, given entirely by outsiders. The metrostyle or other musical recital, the talk illustrated by slides, the expert reading of good literature — all of these have their values, but in them we are getting away from the regular school work done by the children, and we should constantly return to it.

There are, however, at least two very important limitations affecting the work already discussed. First, it is

confined, so far as anything has yet been said, rather closely within the walls of the school itself. That is to say, it ministers to that phase of the social ideal in which the school is regarded as life (not as a preparation for life); but the life lived is very narrow and restricted. It needs to be broadened, and since it cannot take in all of life it must be content with a cross section, as it were, which cross section shall, in a sense, prepare for life as a whole.

This necessary reaching out into life as a whole — this unification of the school with the extended life of the world, is partially accomplished by inviting parents, and citizens in general to become auditors of the assembly programs. This also carries with it the opportunity for the necessary acquaintanceship and coöperation of parent and teacher. It is an aid in inducing parents to visit at the same session other school work, and to remain after the school is dismissed for special conferences or general parents' meetings. But this, though extremely important for various reasons, is only a beginning in the broadening process which must go farther into life and abstract from it those dominant characteristics which are absolutely essential to its true understanding, and make it possible for these characteristics to be brought to the children, or the children to them, in such a way that they become part and parcel of their existence. Modern life is, above all, industrial; and one of the greatest responsibilities upon schools is that they shall prepare the child to understand life and intelligently to partake in life, through helping him to understand, and to have some part in, the great industries whereby life maintains itself. We do not mean that he must study these industries for the sake of taking part in them (necessarily), but it is desirable that he understand them. The proper introduc-

tion to such industries is an introduction to their local representatives, whatever those may be. The lack, then, of representation of local industries on the assembly programs so far discussed, is a serious one. The second lack comes from the fact that in the plan already outlined, where a grade at a time has charge of the program, the social consciousness of unity within that grade itself is assisted in somewhat larger proportion than is the idea of unity in the school as a whole. The search for remedies called attention to the possibility (already emphasized by many writers on education) of a continuous utilization of all local industries in the regular work of the school (and therefore in the assembly) and also to the possibility of at least one general assembly in the year, which from an industrial standpoint unites all grades and all subjects.

In the search for such a unity the past year, the location of Winona in the midst of the flax belt of the United States proved to be a great advantage, for the subject of flax furnished at once an ideal possibility for a center. Flax in Winona is represented by a local industry which receives the straw from surrounding farms of Minnesota, Wisconsin, and the Dakotas, and converts it into an insulating product called linofelt which is largely used in buildings and constructions where it is necessary to keep heat or noise in or out of a given space. Flax also has everywhere a very close connection in time and space (history and geography) with the human race itself. As a subject of study it furnishes limitless opportunities for computation, for construction, for composition, for reading, for nature study, and elementary science. It has its own literature, its own folk songs, games, and rhythmic exercises, most intimately related to life in its simplest

and most understandable phases. It offers unexcelled opportunities for drawing and art work. In fact without any of the wrenching and unwise stretching of situations which have brought the word correlation into more or less disrepute — without any of this, it is easy to find almost numberless real connections between flax and all parts of the regular school curriculum, from the work of the highest grade to that of the lowest.

The problem, therefore, in regard to this unity, became that of adjusting the flax idea to the curriculum in such a way that the regular work of the school should not be interfered with by the flax material but rather should be assisted by it, making it possible at the close of the term for the pupils of all grades to pool their interests in a program which was a flax unity, at the same time that it was a program drawn from the ordinary school subjects of arithmetic, geography, history, manual training, physical training, music, English, nature study, etc., etc., as required in any grade.

In laying out the work, it was not by any means intended that everything done in a grade for a certain time should have the flax stamp. This, of course, would have led to tediousness and lack of interest. But it was planned to make the contribution of each department such as best fitted one major phase of its normal progress as provided for in the curriculum. Therefore, since part of the regular work to be done in the kindergarten consisted of certain games and songs about the farmer, and certain activities in the school garden, it was very easy to decide that this work, turned in a simple and easy way toward the idea of flax farming, should constitute the contribution of the kindergarten. The work was carried on by the teachers in the usual natural way, nothing being

said at first about its use in a program. Sowing and reaping songs were practiced. Dramatizations of the planting and growth of seeds were attempted, school gardening was fostered, all with the idea (which was finally realized) of selecting out of the mass of this material that which would finally fit into the common program. From time to time, photographs of the different activities were taken, and these provided a very substantial aid to the final undertaking when they were thrown on a screen by a stereopticon during the progress of the entertainment, and explained by the same little people who were the subjects of the photographs.

In the primary grade the main connection was made with the elementary nature study or environment work. In one sense, of course, this means that it was connected with elementary geography. For the modern view of geography being that of "relation of earth to life" this early environment or nature study work becomes that of collecting many of the earth facts and of the life facts which are afterward to be related in the science of geography. The regular school gardening was done both outside the schoolroom and also in sand boxes (for rapid growth) inside the building. Wheat, flax, oats, corn, etc., were planted and carefully watched and compared in their growth. An excursion to a farm was made where, since it was in the spring time, the pupils saw a field prepared for flax planting, and arrived at some idea of comparative sizes of their own little indoor fields, with the great fields that produce the world's products. Incidentally many other values were appropriated. The barnyard, the granary, the milkroom, the windmill, the cattle, chickens and other farm animals came in for their share of attention. Sketches and notes of these interesting things were

made by the children and became the basis for later composition and art work. Photographs were taken on this trip also, showing the children in their many activities and researches.

Near the close of the visit to the farm the children were invited into the house by the farmer's wife, and at their own suggestion sang for her some songs "to pay her," as they naïvely said, for the fine entertainment which they had enjoyed. On the way home they did not fail to note, and stop to try to sketch, the beautiful hills covered with blue haze, and to pick certain flowers which "were too pretty to leave where no one would see them."

These children also, as a part of their regular work, dealt with the myth of Frigga's gift of the flax to mankind, and as one portion of their part of the final program, one of their number told this story of the beautiful blue flower and what it meant in the simple lives of common people. Others told of their planting and growing experiments, while the visit to the farm was made vivid to the audience when the actual scenes caught by the camera were thrown upon the screen and described by the children in semi-spontaneous speeches, which had never been written down and committed to memory, but which had been rehearsed to some extent, and judiciously criticized and culled by the teacher.

In the intermediate grades the application peculiar to that department was made through home geography, and arithmetic, in a study of the local flax industry of linofelt making and through a study of folk songs. An excursion was made to the linofelt factory, the machines, processes and products examined one by one, and the material so collected was later made the basis for extended computations of costs and returns, for detailed study of sources of

materials, transportation routes, and the general idea of social dependence as it relates to the local industry. Some of this factory material was also very valuable when used in written composition, for drawing and color work, and for construction in raffia, Venetian iron, and wood. Some of these things were only suggested and not fully worked out, because the available ideas proved to be so great in number that time forbade carrying out many of them.

One division of the program presented by this department had to do with the manufacture and uses of linofelt. The flax straw as it comes to the factory was described, as were also the processes of manufacture and the uses of the product. The talks were of the same nature and preparation as those in the preceding section, and like those also, were made vivid by slides showing the children on their rounds through the factory. An original poem was read entitled "First Impressions Inside the Factory." Following this, other children of the section rendered the songs, "The Flax Flower" and "Ye Spinning Carol."

The grammar grades chose to connect their work mainly with colonial history, art, and the rhythmic exercises of the physical education department. The old-fashioned methods of spinning and weaving in use by the early settlers in this country were studied and compared with modern methods. In the English classes original imaginative stories of colonial times were written by the children, taking such topics as "A Spinning Contest," etc. In the art classes there were drawing and coloring of the flax flower, the working out of conventional designs from this same flower, and the stenciling of these designs upon linen towelings and other materials. Samples of hand apparatus used in colonial times for linen manufacture, were made in the manual training depart-

ment and when the program was given their use was illustrated and explained before the assembly by means of flax materials secured from the local factory. Maps and other data concerned with the world's great flax areas were then presented, and finally the program was closed by rhythmic exercises illustrating two Swedish folk-dances, given in costume by children selected from different grades. These exercises represented spinning and weaving; and, as the figures developed, these processes were apparent in pantomime. This work is part of that regularly done in the physical training department. It has large values for poise and grace, and yet much more in that it represents that almost forgotten and yet ideal spirit of natural social association in play, which dignifies work, and again emphasizes unity and kinship.

In connection with this program there was held an exhibit of children's work, and since the program was a flax unity, the exhibit was made a flax exhibit. This gave a point to whatever work was hung for observation, and made the exhibit possess more meaning for those who examined it, inasmuch as the bearing of each portion upon the main subject was at once apparent. Having a real basis of this sort for the exhibit also tended to decrease that tendency to work merely for show, which is often apparent where work is put up as isolated individual efforts, without general value.

In the exhibit, however, it was again true that all of the school subjects were represented as they were in the program. There were maps and drawings of transportation routes and agricultural areas; historical charts and stories; arithmetical problems involving flax information; the products of the manual training work; and the sketches, stenciling and color work from the art department; a

progressive exhibit of materials, processes, and products from the factory visited; written work dealing with excursions to farm or factory, or with other matter pertinent to the general topic; a sand-box farm (modeled after the one visited) where different grains, including flax (which had been planted and cared for by the children), were green and tall in their little fields; linen work from the sewing department, and so on, until all were represented.

At the close of the program, this exhibit was called to the attention of the audience, and as parents and others moved about inspecting the work, there was opportunity for social acquaintance and exchange of ideas, in an entirely informal way.

Of course numberless other unifying ideas as basis for assembly work, will suggest themselves at once to any person who gives this matter any attention. The flax unity has been cited merely as an illustration. It would be impossible to have each program worked out in such detail, but as already suggested, a single program of this sort in the year is very possible, and very profitable. For the remainder of the year the assembly program will probably need to be given in turn by the individual rooms, for the benefit of the other members of the school. The main point is that the social and other values involved should be appreciated, and that it be remembered that a large part of these values is lost if the numbers presented be not drawn from regular school work.

Some schools, because of lack of a suitable assembly room, will no doubt find it hard to utilize the idea at all; but school boards are happily seeing the necessity for such a provision in all modern buildings; and in those buildings where no such room exists, makeshifts can often be arranged by a corps of teachers who see the real value

and necessity for this gathering together. Use the largest room, and for extra seats bring in planks placed on nail kegs or other supports. Or divide the school into sections, and even if no more than two rooms at a time can be brought together, doing even this has its value. In good weather outdoor assemblies may be held, and in many ways the handicap of no assembly room may be overcome. But let us hope, considering the vital necessity for this phase of modern school work, that in the near future it will be a part of the accepted procedure of all schools.

This however is not all of the project story, for growing out of the pedagogical phases just discussed, are administrative and organization phases which are revolutionary. If there is to be exact measurement of individual differences, by means of standard tests, if complete and expert diagnosis is to be made of the individual child, and his possibilities discovered, then administration and organization must be with reference to the possibilities that appear. For example, a knowledge of the individual differences of children and an attempt to regard them, is the natural enemy of the "lock-step" graded system. For the regard for individual differences tends toward an entirely different flexible-group organization. *To set up such an organization is but one way of trying to fit the project to the child, or to a group of children similar to each other.* The need for such fitting in the matter of gradation has long been felt, and the evidence of this lies in the long line of efforts for in-

dividual instruction, for group work, for differentiated and parallel courses, represented by such names as the Batavia plan, the Pueblo plan, the New Cambridge plan, the Baltimore plan, the San Francisco Normal School plan, etc. The decision upon a generally accepted plan is yet in the future; but there is no doubt that if the present trend continues the graded system is, to a degree at least, marked for reorganization.

But the attempt to fit the specific project to various specific groups has gone much farther than mere effort at various schemes of gradation. Groups have been segregated in special classes or special schools, and there are non-English-speaking classes, over-age classes, ungraded classes, disciplinary classes, open-air classes, classes for children with special physical defects, classes for subnormals, and classes for supernormals. Even a cursory examination of each of these types will make it clear that the essence of each one (its reason for existence) is the realization of individual differences, and the desire to fit the projects — the kind of "doing" — to the group.

The same is true of such efforts as the Junior High or Intermediate School, and of many schools of the Gary or other unusual type. In each case the school has appeared because some one has felt that the project, the "doing," needs to be different in the particular group in question. This feeling is easily seen to be the center of such systems as that of Montessori,

or of such changes as are represented by the reformed kindergarten movement, or the extended rural-life movement.

Thus all modern reorganization and redirection of education goes back in the end to some application of the project method, because project method is only the reflection of modern principles in action; and the core of all modern principles is "self-education through activity." The attempt to fit the activity to the peculiar nature of the peculiar self, or group of similar selves — the attempt to find the type of project fitted to all the various kinds and classes of pupils — is the universal key to modern reform.

It is not meant to be implied that this widespread application of the project idea has always been under that name. Former use of the method, and often also the later use of it, has been designated by other names or by no specific name at all. Yet although the method itself has been widespread, as indicated, under whatever name or lack of name, nevertheless there has been the failure to see the whole problem in its full perspective with regard to principles of education — a failure which it is hoped the present discussion may overcome.

V

PROJECT WORK IN TRADE EDUCATION

PROJECT work has been shown to be the application to education of the principle of "self-education through activities," which principle is the core of the modern system of educational principles. The phase of the subject already discussed is that in which the method is used in public schools with the intention of giving a broad, general, cultural education, adapted to individual differences, but aiming to result in something of a common foundation upon which future specialization may be built. This education has been thought of as given to every one without relation to social class or possible future vocation, except as the contact with industry afforded "vocational insight." The development of this use of the method follows the historical line already reviewed.

But there is another line of influence having to do with a project method *as applied to special or trade education*, which must now receive attention. It is an offshoot of the historical sequence already traced; but it does not go back quite so far, and because of its different focus or aim, it needs separate discussion if confusion is to be avoided.

This movement is connected with the theory of Pestalozzi regarding the relation of industrial educa-

tion to education in general. It has already been shown that this teacher never rose to the conception of real democracy with equal rights and opportunities (including free education) for all. His view of education for the poor was always a philanthropic one. Their education was by him regarded as a gift from the more fortunate, not as a right which the State should supply.

Early in his life he tried to apply this idea to the uplifting of the peasants in his locality, through giving instruction in improved methods of agriculture. Later he made industrial education the foundation of his work with the large group of orphan children which he took into his home and treated as his own. It was his plan to teach these children to earn their own living through the industrial work, and at the same time he planned to develop their intelligence and their moral nature. That is, he did not plan organically to relate other work to industrial work by making activity the center of school life. Nor did he rise to the idea of industrial work for general culture, without regard to the economic gain. But he planned to teach specific industrial activities *for the sake of enabling the child to make a living*, and at the same time to give the additional instruction.

In his work at Stanz he improved upon this idea, and began to get something of a real organic correlation between industry and the subjects of instruction; but he was soon compelled to move to Burgdorf,

and to give up his industrial work because of the social class of his new pupils. His efforts in the line in question were, however, efficiently continued by his friend and pupil Emanuel von Fellenberg, a young Swiss noble.

Fellenberg had become interested both in Pestalozzi's industrial work, and in his observational methods, and decided to try to combine both in an "agricultural institute for poor boys," at Hofwyl, a short distance from Burgdorf. Here on a large six-hundred-acre farm he so planned the work that as fast as one pupil was trained he took a new pupil under his care. The school was thus, in a sense, a family group. The chief occupation was, of course, that of agriculture; but the trades contributing to the farm were naturally featured also. In the trade workshops the pupils received a practical education, though books were not neglected. Student self-support was possible under the plan, and this enabled many to remain in the school who could not otherwise have done so. The institute trained and sent out directors for like institutes; and it also sent out many rural-school teachers, concerning whom Fellenberg took the modern view that those who are to teach in the country should be sympathetic with, and informed about, rural conditions.

The principles involved here are plain. It was an attempt to better the condition of the masses through industrial (trade) instruction fitted to them, and at the

same time to give them such book learning as it was conceived would be good for them in their station. But it was not an attempt to give every one an opportunity to make his own station according to his own ability, using industry from the standpoint of activity applied to development.

Fellenberg's efforts were very successful during his lifetime, and although the particular institution founded by him did not persist for long after his death, yet similar institutions sprang up and industrial courses were introduced everywhere in the main European countries as a result of his influence. The modern attempt, made very commonly almost everywhere, to take care of the poor, the defective, and the delinquent by giving them industrial education, is the direct outcome of Pestalozzi's industrial education as developed by Fellenberg.

The movement arrived in the United States about 1820. While directly due to the Fellenberg influence, it developed at first in a rather original and very interesting relation to the early "academies" or institutions for secondary training, and somewhat to the higher collegiate institutions also. In these institutions three difficulties had arisen: (1) The students were engaged in intellectual pursuits, and did not have enough physical exercise to keep their bodies in condition. (2) They did not have enough exercise to "work off" their natural youthful spirits and surplus energy, and so there was temptation to engage in

hazing, in rough practical jokes, and in many other very undesirable forms of student activity. (3) Many of the students were poor and needed to earn their own way at school.

To meet these conditions industrial or manual-labor features were introduced. The movement started in the New England and Middle States in the decade 1820 to 1830, but spread rapidly and soon covered the whole country. Secondary schools, theological schools, and colleges adopted the system, and the men were often put at work irrespective of their financial need. As the Andover Theological Seminary plan expressed it, it was "for invigorating and preserving health without reference to pecuniary profit." The other reasons already mentioned were, however, also active. There was even organized a "Society for Promoting Manual Labor in Literary Institutions," and its influence was quite generally extended previous to 1840–50. General increase in material prosperity in the country, and changed social conditions brought about a decay of the movement, and by 1850 it was largely replaced by a development of college athletics.

This "manual labor in literary institutions" movement does not, however, represent the main current of the Fellenberg movement. It never paid much attention to the psychological relation of activity to the learning process. It did not make activity, either in a cultural or a trade capacity, the center of the cur-

riculum; but it used activity, as a side issue, for certain supplementary purposes.

The original Pestalozzi-Fellenberg idea of "redemption through manual labor" has, however, through other channels, a firm foothold in certain phases of American practice outside of the public schools. It is the core of our movement for prison reform, and for all educational treatment of defectives and delinquents. There is a tendency to replace contract and factory work with the Fellenberg farm and domestic industries, and the good effect is becoming gradually more and more apparent. In this work, however, at least until very recently, there has not been the broad grasp of fundamental educational principles which has been apparent in the public-school movement; and the work has had the "trade" and pecuniary significance more than the general "social intelligence" and developmental significance.

There is no intention to deny the importance of the trade, the self-support, aspect of the problem. One of the first social requirements is that every person be able to carry his own load, that he should not be a drag upon the rest of the social group. This phase of project method ought to be favored, and is favored in evening classes, parental schools, correspondence schools and all sorts of industrial and trade schools where the necessities of the situation force an extra emphasis upon the problem of support; but it would be well if the broader idea was even in these

schools favored as much as possible, in order that the student might come to see his own problems — his total life — in relation to the social whole and its democratic ideals.

This turning to the broader idea has come about in America in one form of extension and use of the Fellenberg idea. This development has taken place outside of the public-school system, and has done much to combine the trade and self-support industrial education with the broader more cultural, social, interpretative idea. It (with the addition of certain prison-reform work of similar type) represents at present the most important phase of the Fellenberg inspiration as worked out in this country.

The reference is to such schools as those at Carlisle, Hampton, and Tuskegee, established for the regeneration and redemption of certain racial elements of our population. The success of these ventures, both on the practical, "earn-a-living" side, and on the side of real culture and breadth of social view, has been a wonderful revelation; and they perhaps stand as examples of a trend which the public schools could take to their advantage. Indeed, their use of project method stands very close to its use in the best modern schools with the added accomplishment of more dignifying of labor, more organic teaching of the relation of labor to life, and more real socializing through labor, than comes in the ordinary modern public school.

This teaching of the relation of labor to life was part of the Fellenberg plan; but his conception of life was the aristocratic, and not the democratic, one. He did not plan an equality of social classes; but he hoped, through industrial education, to create a better understanding between classes.

The following quotation from Graves's *A Student's History of Education* (pages 296–97) states Fellenberg's ideal with reference to this matter:

But the work of Fellenberg did not stop there. From the beginning he had felt that the wealthy should understand and be more in sympathy with the laboring classes, and learn how to direct their work more intelligently. Hence he began very early an agricultural course for land-owners, and many young men of the wealthy classes came to show a striking interest in his deep-soil ploughing, draining, irrigation, and other means of educating the poor. But these wealthier youths remained at the institute so short a time that he could not extend his ideals very widely. To retain them longer at Hofwyl, in 1809 he opened a "literary institute," which, besides the usual academic studies, used Pestalozzi's object-lessons, and strove to develop physical activities. Moreover, the pupils in the literary institute had to cultivate gardens, work on the farm, engage in carpentering, turning, and other mechanical occupations, and in many ways come into touch and mutual understanding with the poorer boys in the agricultural institute. The wealthy learned to dignify labor, and the poor, instead of envying those in the higher stations of life, became friendly and desirous of coöperating with them. Eventually there arose an inde-

pendent community of youth, managing its own affairs outside of school, arranging its own occupation games and tours, choosing its own officers, and making its own laws. Within this little world was provided a training for society at large, with its various classes, associations, and corporations, which Fellenberg seems to have regarded as divinely ordained. Likewise in 1823, a school for poor girls was opened by his wife, and four years later he started a "real," or practical, school for the middle classes, which was intermediate between the two "institutes."

This statement makes it plain that Fellenberg's hope was to create sympathy and understanding between rich and poor by putting the rich at a certain amount of work so that they came in touch with the poor, came to know what real labor signifies, and what its real difficulties and compensations are. But rich and poor were to continue to occupy their respective stations, and the industrial phase of the work was primarily for the sake of teaching the "trade" to the person who would continue to earn his living by it.

In the degree to which project work in America is focused, therefore, upon trade rather than upon general values, it is back in the more "practical," Pestalozzi-Fellenberg movement, as opposed to the broader, more strictly educational, use of activity, represented by the work of Froebel in Europe, and focused in this country in the general educational theory and practice represented by Dewey.

Two fundamental modern tendencies in American

education are related to the use of project method of the Fellenberg type. The first one is the tendency to the formation of an American system of *caste*, based somewhat upon distinctions between capital and labor; and the second one is the related tendency to put trade education lower and lower in the elementary school grades, partially for the purpose of holding pupils longer in school; but partially, if rather unconsciously, because of the pressure for the production of skilled operatives in various lines of industry. These points are covered by the discussion in chapter VII, in which chapter the consideration of project *method* is replaced by the discussion of the project used as *a subject of instruction*. In the meantime chapter VI will also concern itself with the project used as a subject of instruction, but the phase therein discussed is an earlier and less developed one than that considered in chapter VII.

PART II
PROJECT WORK AS A SUBJECT

VI

THE EVOLUTION OF THE PROJECT SUBJECT

THE use of project work as a method in all subjects has been discussed, both with regard to its common public-school use and its narrower trade use. The problem of project work as a subject is now to be handled.

The difference between method and subject as here used can be briefly and clearly stated in terms of English work, for example. There is a body of subject-matter *about* English, and studying English as a *subject* has for its primary aim that, at the end of any given lesson, the student shall command more of the subject-matter. *He shall know more about English.* But English is essential as a *method* in all subjects; and when used as a method in one of these other subjects (geography, history, etc.) the primary aim is not that the pupil shall learn more English subject-matter, *but rather that he shall learn more geography or history subject-matter, through the aid of English.*

Exactly the same distinction is meant in the ques-

tion of project work. Project work, or "activity," or "doing," as a method in other subjects (geography, history, etc.), has for its aim the assisting of the pupil to learn more of the subject-matter of the given other subject — more of the subject-matter of geography, history, etc. But project work, or activity, or doing, used as a subject, has for its aim the learning of more subject-matter *about* activity or doing itself. That there is such a subject-matter has long been admitted, and its representative in the curriculum has been manual training or some other so-called activity subject. But is there need and place for such a subject? Under the improved use of project work as a method, could the extra subject not be dispensed with; and in this way could not certain overcrowding of the curriculum be remedied?

There is no doubt but that too many different subjects are carried in most curricula, and that this is a source of some of the serious overcrowding of which complaint is made; and possibly the school could partly relieve the situation by getting along with project work as a method, alone. Perhaps there is no real, specific need for a special subject to represent these activity aspects of life. Perhaps it is even not necessary to have "subjects" at all, if project method is properly used. This tends to be the view of Dewey who stands for a relatively informal instruction as regards subjects — an in-

struction which will psychologize the experience of the child, and keep that experience unified about activities. Thus it will minimize the "subject" which at its best is only the adult logical organization of the real experience involved.

But many persons feel that the "no subject" view goes too far. They feel that it tends to make instruction "indirect" in a field where a more "direct" instruction is required (see chapter VIII). But leaving this consideration temporarily aside, a second presents itself. There is no doubt about the desirability of keeping separate the child's real experience, and the adult's logical organization of it as a subject of instruction. Yet, if education is to be definite, and is to be certain of adequately covering life in all its subjects or phases, and in their individual continuity, then the subjects ought to be logically clear and distinct *in the mind of the teacher at least*, no matter how undifferentiated the experience may be in the mind of the child. For the teacher to see the phases of life (the subjects) in their individual continuity, even in the midst of an undifferentiated unity presented to the child, is the only guarantee that she will not get lost in a mass of details. It is the only guarantee that work will be balanced and correctly progressive *in all lines;* and that the work of one teacher will be properly founded upon the work of those who preceded her. Subjects should, therefore, be differentiated.

But there is no doubt that too many different subjects are carried in most curricula, and that this is the source of some of the overcrowding of which complaint is made. Yet it is very doubtful if manual training (or at least its later representative, industrial arts) is one of the "extras." Instead of dropping it out, therefore, the real reason for the overcrowding should first be sought in another connection.

Two ways to determine the correct number of subjects in the curriculum are possible. One might make a philosophical analysis of life (of experience), determine its main and vital phases, and organize and assign subjects based upon the phases found. But one can do an easier thing and arrive at approximately the same result. He can go on the assumption that there has been unnecessary differentiation of courses; that courses often scheduled separately are really only fragments of more complete courses, or, perhaps, duplicates of work elsewhere provided. On this theory he may make a complete list of courses found in an extended series of elementary curricula, and by combination and reorganization, try to reduce the number.

When such a list is made it has something the appearance of the following: (1) geography, (2) elementary science, (3) nature-study, (4) school-gardening (agriculture), (5) history, (6) civics, (7) current events, (8) primitive life, (9) elementary handwork, (10) manual training, (11) cooking, (12) sewing,

(13) algebra, (14) geometry, (15) arithmetic, (16) physical education, (17) physiology, (18) hygiene, (19) folk-dancing, (20) sense-training, (21) plays and games, (22) athletics, (23) music, (24) fine art, (25) drawing, (26) picture study, (27) reading, (28) literature, (29) language, (30) composition, (31) grammar, (32) spelling, (33) phonics, (34) penmanship, (35) modern language, (36) ethics.

The causes of such an overwhelming list of titles (and the list might be easily increased, perhaps) have already been hinted at. They start from at least two sources: (1) A growing consciousness of the complexity of life, and a desire on the part of makers of courses of study to cover all life phases. There is frequent discovery of something that has been omitted and which must be added to the list. (2) A failure to recognize the possibility (*a*) that the omission is only fancied, and that the matter is really taken care of in another connection, or (*b*) that the material omitted may be used as new material in a course already scheduled, or taken care of by a mere change of *emphasis* within the old course.

With these causes recognized, one can go at work to exercise his "practical judgment" on the over-differentiated list. Fragments may be brought together, duplications pointed out, and a revised list made. Under this plan the first eight subjects in the list (geography, elementary science, nature-study, school-gardening, history, civics, current events, and

primitive life) may be reduced without loss to history and geography, with some residual lower-grade work thrown into a composite nature-study (or "nature-and-man") course. The next four courses (elementary handwork, manual training, cooking, and sewing) become one under the name of "industrial arts," or better the name "human work" (see chapters VII and VIII). The next three courses (algebra, geometry, and arithmetic) properly sifted, are only one — arithmetic; or perhaps better, mathematics, with elements of arithmetic, algebra, and geometry easily combined into one subject. The next seven (physical education, physiology, hygiene, folk-dancing, sense-training, plays and games, and athletics) are just plainly one great subject of physical education. Music and fine art remain as separate subjects; drawing drops out as a separate subject, and is combined partly with industrial arts, and partly with fine art. Picture-study is part of fine art. Reading and literature become one subject. Language and composition are just different names for a single subject. Grammar would probably have a separate place in the seventh and eighth grades. Spelling and phonics become word-study. Penmanship remains by itself; modern language should probably survive as a separate subject; and under present conditions the controversy about methods of moral instruction make a decision concerning ethics uncertain and varying.

Just exactly this solution might not be agreed to by every one, but some such solution could be arrived at which would be to a degree satisfactory as a compromise. Under it there would survive from the thirty-six courses listed not more than thirteen to fifteen; and there would be abundant room in the list for an activity subject, a project subject, such as manual training, or industrial arts if justification were found for it as a separate subject. Since the complex present is best understood in the light of the more simple past, the discussion turns at once to the evolution of this manual-training movement as the first key to the status and meaning of project (or activity) work used as a separate subject of instruction.

The movement in question took its rise in Europe directly from educational leaders who have already been discussed in previous chapters. As it has existed in American schools in the form of busy-work, whittling, clay-modeling, sloyd, etc., it is a direct outgrowth of the work of Froebel; but is not always so recognized. The path by which Froebelian influence has come to manifest itself in this form is an interesting and devious one, leading through Finland and Sweden before arriving in America. The inspiration for it as an offshoot of Froebel's work comes from the desire of Uno Cygnæus (1810–88) to develop the kindergarten occupations and to make them applicable to the higher grades. In pursuance of this

desire he developed a system of occupational and constructive work (project work as a subject) for upper grades, and, in 1866, Finland made it a part of the curriculum of its elementary and teacher-training schools. This system was not meant for trade education and resulting industrial efficiency; but was for general educational purposes. Cygnæus had caught something of the more or less vague idea of Froebel of respecting the individuality of children, and of bringing out desirable individual and social characteristics through processes of manipulation of material and tools. Through his influence the idea was developed in Finland, and in 1866 that country adopted for its elementary and normal schools the first manual-training course in any school system. This course was definitely not for trade instruction — not to train for a special place in a specific industry — but was to make a broad and general contribution to the educative process. It was, therefore, meant for all students alike, and had a standing comparable to the other general subjects such as mathematics or language.

In 1874 Sweden became interested in this plan through a visit made to Finland by Otto Salomon, and the interest was sufficient to cause the reconstruction of trade courses, previously given in that country, into a more general project course, called "sloyd" or "manual training," given to all for its general value after the Finnish idea. The plan was

taken up in other parts of Europe, and reached America through the Centennial Exposition held at Philadelphia in 1876.

American sloyd, manual-training, or project courses consisted at first of a copy of the Swedish system, and called for the making of a rather formal series of definite models. This system featured the idea of "from the simple to the complex" (conceived logically); and dealt with the learning step-by-step about tools and constructive projects, intentionally graded so as to require more and more complex equipment and operations.

There was a good deal of the old formal discipline idea involved in this plan. It implied, even where it did not assert, that such work, formally carried through, would function later in a broader life which was being "*prepared for*." The aim was rather commonly expressed as "coördination of hand and eye"; or as general muscular coördination, plus a generalized knowledge of tools and processes. It therefore featured memory and skill more than anything else, and was relatively barren of thought and direct relation to life and life motives. As this barrenness became more and more evident, there was the inevitable tendency to compensate for it by increasing emphasis upon the trade values of the instruction; and there was, a decade or two ago (as there is to-day for another reason), more or less danger of falling back to some type of trade instruction such as was

featured by Sweden before the visit of Salomon to Cygnæus. There was, also, even among those teachers who repudiated the trade idea, a tendency to overemphasize the element of skill, and the possibility of its transfer to lines other than that in which it was acquired.

Antidotes for these tendencies gradually developed. The general solution arrived at by Dewey has already been outlined. He includes this material in his general scheme of activities — in his general use of project *method*, and does not plan to use a separate project *subject* at all. Quoting from his "Pedagogic Creed":

> I believe, therefore, in the so-called expressive or constructive activities as the center of correlation. I believe that this gives the standard for the place of cooking, sewing, manual training, etc., in the school. I believe that they are not special studies which are to be introduced over and above a lot of others in the way of relaxation or relief, or as additional accomplishments. I believe rather that they represent, as types, fundamental forms of social activity; and that it is possible and desirable that the child's introduction into the more formal subjects of the curriculum be through the medium of these activities.

Dewey's solution, however, has not been employed very generally in its entirety. Very many schools have turned to his idea and have used project method to enrich and to vitalize the whole curriculum; but the great majority of schools have tended to retain

also the special project course in the form of manual training, which course he would discard.

Those who have retained the subject, however, have "seen the writing on the wall" and have been driven to justify the subject on some other basis than that of mere trade or skill values, or even the old "coördination of eye and hand." One of the leaders in putting a better foundation under the subject has been F. M. McMurry, of Teachers College, Columbia University. He has advocated the enrichment and dignifying of the subject by putting emphasis upon the real thought and life content involved, and upon the resulting opportunity for using the subject as a means for training children in "thought methods of attack" upon life problems which are real to them.

He has shown how, by using construction projects which do not necessarily follow a fixed sequence based upon the simplicity or complexity of the tool used, but by using those which touch the life of the child and serve a useful present purpose (not necessarily economic) for him, real living educative value is possible. He accepts the prevailing emphasis upon the importance of the motor as a part of the learning process, and also that idea of formal discipline which claims the carrying-over of "thought methods of attack" upon problems; and emphasizes the enormous advantage of specific aims coming from giving children an opportunity to make the

things they want to put into direct use in their lives. He points out that any subject of elementary instruction is dignified and worthy of a place in the curriculum only when it possesses within itself a rich body of thought (not mere skill) which is not duplicated by any other subject, and which is necessary to, and intimately related with, life.

He shows how to lead children to attack their problems of construction on the basis of previous thinking about something they want to make because they conceive it to be useful *to them*. He tactfully makes clear to the child that *it does not pay* to plunge into ill-considered work of construction, and that disappointment is almost inevitably the result of such a proceeding. He brings to the child's consciousness the items which should receive preliminary consideration: (1) Just what is it that is to be made, and why. (2) What materials will be necessary. (3) Where are they to be obtained. (4) How much of each kind will be needed, judged from the dimensions and type of the object to be made. (5) What tools will be necessary — do we know enough about their use, etc., etc.

All of this thinking about the ends or aim of the project, about the special fitness of certain material for certain work, the amount and source of material necessary, and similar topics, furnishes the body of thought which dignifies and enriches the subject, and which takes it out of the formal memor-

iter, and old formal disciplinary category, into a newer, less formal, more thoughtful relation to real life. The work is made really social since it deals with life problems of things actually to be used by the child himself, or by those with whom he thus learns to be in better sympathy and coöperation.

The idea has gradually grown and spread until no educationally intelligent person any more justifies manual training on the basis of skill in manual manipulation or knowledge *about* tools and processes, which knowledge is to function later according to the older formal discipline idea. But very generally manual training is enriched, justified, and used on the basis of its thought content in relation to life, and its value in developing "thought methods of attack" upon the real activity problems of children. Of course the trade (skill) idea again becomes dominant as soon as specialization begins, and the child settles down to a choice upon his life-work. But the tendency in American education is, and ought to be, to defer such choice and specialization until after the elementary-school period, and to make the elementary period a time of broad, cultural, unspecialized participation in life.

Bonser, building further upon Dewey's idea of "self-education through social activities," and combining it with the condition of the manual-training movement as developed by McMurry in his "thought

work," has been the leader of those who would still further expand manual training and domestic science and art courses into general industrial arts courses. The plan has been to expand the courses beyond the mere wood, iron, clay and raffia work of the older manual-training courses into a consideration of the place and importance of industry as a whole in the past and the present life of the race.

Perhaps the idea is best expressed in the general statement of the aims of this work, taken from page 5 of the Speyer School curriculum prepared by Dr. Bonser in collaboration with the Speyer School teachers:

All work involving processes in the transformation of materials is included in this field. A rich subject-matter relating to the problems of man vital in his control of the material world is the backbone of the course. Until the end of the sixth grade there is no differentiation of work for boys and girls, and there is not the breaking up of the work into the subjects heretofore known as domestic science, domestic art, manual training, and drawing. One unified subject with appropriate units from each aspect of the work for each year makes up the course. In its organization, the material groups itself about man's needs in six particulars, namely: foods; shelter; clothing; records; utensils; and tools, machines, and weapons. The work under each is divided into subject-matter and projects. Projects are illustrative of processes of manufacture. Their design involves a careful study of the principles of design, an examination of designs used today, and a study of the designs used by historic peoples.

Processes of construction involve, not only hand production, but a study of power machinery, factory production, and transportation. The social aspects of the subject include studies of sources of material, markets, the conditions of laborers, and the relations of employers and laborers, and of these to consumers. Excursions form an essential part of the work. The Metropolitan Museum of Art and The American Museum of Natural History are often visited. Much emphasis is placed upon the study of these topics from the standpoint of the consumer — the development of intelligence and appreciation in selection. All will use from each field of industry and art, but few will produce in each. Those having inherent aptitudes for production, however, may, and should, discover themselves by this work. It thus becomes of specific use in vocational guidance.

History as studied in the lower and middle grades furnishes an invaluable aid in the work here offered. Industrial geography and nature-study are also closely correlated with many aspects of the industrial arts work.

In the seventh and eighth grades the work is differentiated to meet the needs of children whose interests and aptitudes are diverging, and whose work must be shaped so as to point toward some group of life callings.

In this sense, then, industrial arts as a subject has entered the curriculum in the place of the older manual training, domestic science and art, and drawing. It does not, however, supplant fine art which at least in certain of its aspects still remains in the curriculum as a separate subject.

The aims of the enriched subject are expressed

in still another form by certain theses and given below:

(1) Large units of industrial subject-matter and specific projects should be selected which most typically illustrate industrial methods and industrial life.

(2) The Project in handwork should serve as points of departure for opening up the study of the industries in all of their larger relationships, social as well as material and technical.

(3) Industrial arts should function in the child's life even more specifically in the direction of intelligence as a consumer, homemaker and citizen than as a producer.

(4) The study of industrial arts should develop primarily industrial intelligence, insight, and appreciation, subordinating skill in manipulation to thought content.

(5) Industrial arts as a subject should incorporate all of the values of manual training, domestic science, domestic art, and drawing as appropriate to the elementary school, and should add a rich body of thought giving them social meaning and real life value.

It is plain that this use of industrial arts as a subject with industrial-social subject-matter, and with projects to provide activities, is completely in accord with McMurry's plea for thought work; and that it is also entirely in the spirit of Dewey's use of occupational and constructive activities as the center of the school program. There is no arrangement of artificial exercises for muscular and sense-training, but children get these things as the result of direct participation in affairs of everyday life

which require them. Industrial education is not centered upon any one industry, and not on the material welfare of a given community. It is centered rather upon the general (cultural) welfare of the young people of the community. But it differs from Dewey in that the industrial arts subject provides a means of getting the values of the Dewey idea into schools which are not willing to be radical enough to go the whole way in acceptance of Dewey's program of informal instruction, with the subject entirely subordinated to the real life processes.

With its value thus considered by many thinkers to be clearly evident, industrial arts stands firmly entrenched as a separate project subject in the great majority of progressive modern schools; but this use of it in no way interferes with its use as a method, unless the two uses are confused to the detriment of both. As a subject, it is "a rich body of subject-matter relating to the problems of man in his control of the material world" and organized "about man's needs in six particulars, namely: foods, shelter, clothing, records, utensils, and tools, machines, and weapons." This body of thought (this subject) is a body of thought *about* the activities of man, about that phase of his life which is summed up in the word "doing"; and is just the expansion of the manual-training idea, which started out as a subject to feature this same doing, but in a less rich and more mechanical manner.

PROJECT WORK IN EDUCATION

It is the task of succeeding chapters to deal further with the project used as a subject (now best represented in the curriculum by the prevailing industrial arts courses), and to put forward a theory that this course is not yet on the ideal basis, either in subject-matter or method.

VII

THE BROADER CONCEPTION OF THE CONTENT OF THE PROJECT SUBJECT

In chapters III and IV it was shown that the essence of modern education is "self-education through activity" and that, as a result of this realization project *method* or the active solution of real problems, has naturally become connected with modern, American, democratic, public-school education. Thus it is directed toward broad, general, cultural results with all children in all subjects of instruction.

In chapter V was shown another use of project method arising out of the Pestalozzi-Fellenberg idea of elementary industrial education, with its recognition of caste or social classes, and its trade education, fitting for a specific place in life. In this form project method has had a wide and often beneficent influence in American prison reform, and in the institutional treatment of delinquents and defectives in general. It would, however, have been a calamity if this trade use of project method had fastened itself upon the public school, since it could not have fulfilled the cultural aims, there so important.

In chapter VI which begins the discussion of project material used as a subject, it is explained how

the public schools, in organizing the new subject, again happily escaped this more aristocratic conception of industrial education, by the acceptance of the stream of Froebelian influence coming through Finland and Sweden. In the same chapter it was shown how the project subject evolved from its first rather formal and barren conception into the richer and less formal industrial arts courses. The justification for any course in the curriculum was discussed, and industrial arts justified on the basis of a rich body of "thought subject-matter" which gives the subject social meaning and real life value. This body of thought subject-matter *about* doing (the general theory of doing) is not covered by any other subject, and is important enough to claim a place as a subject by itself. This is true, even though doing is itself made the center of all of the other subjects. For besides being a tool in all other subjects (just as English is a tool in all other subjects) it has its own body of subject-matter, the weight of which makes it a separate subject (just as English, through the weight of its body of subject-matter becomes a separate subject). And subjects should be kept separate and logically organized, *in the mind of the teacher*, no matter how much an undifferentiated and total experience of the child is emphasized.

In the present chapter the question is raised as to whether the body of subject-matter utilized in industrial arts courses is as broad and rich as it should

be if industrial arts is to stand in the curriculum as the project subject.

What is this doing, *about* which there is the rich body of thought subject-matter? Industrial arts courses confine it to the industrial phases of doing — to the *transformation of material* for the use of human life. But is there not a broader view, or at least a different view, which will throw new light upon the situation?

Man must struggle with his environment for at least three reasons: (1) for sustenance; (2) for defense; (3) for that development which comes only through struggle. The struggle would be necessary even if the sustenance and defense reasons were eliminated, for without it development would cease and stagnation or death ensue. The human race is here, therefore, confronted with an inevitable law — a law of contact and interchange with the environment through activity. The friction of this contact is the force which insures human development.

This active contact with environment — this rubbing up against natural circumstances — is called by two names, play and work. Both require certain combinations of physical and mental factors; neither can be all physical or all mental, for man is a mental-physical creature. His mental and physical aspects are everywhere complementary to each other. Both act together to keep him alive and to keep him growing toward the goal of his possibilities. Passivity is

death everywhere. Active physical-mental man comes into contact, and often into conflict, with his natural environment; and wrests from this contact not only life, but a continued development of a richer and more abundant life. In this conflict, thinking and doing are both essential, and must be balanced to suit the occasion and also the full life requirement. Too much thinking or too much doing are each equally bad extremes. Thinking prepares the stage for doing, and doing executes the plans of thought. The balance of the two elements changes with the progress of experience. Much thought and little doing in the presence of a new difficulty, and more doing and less thought in the presence of an old one, are the rule. Much early motor activity on the part of youth, for the sake of mere bodily development, and less bodily activity and more thinking on the part of age, seems to be the natural status of the two factors. But let it be repeated that the two are complementary. The one dies without the other, and in the absence of both the creature is the sport of circumstances, and in a sense already dead.

Man's life, then, may be said to consist in a struggle with environment, through play and work. Man, to live, must *do something*, and the doing utilizes both physical and mental factors in varying proportions at different times and under different circumstances. But this struggle with the environment is not concerned alone with the transformation of ma-

terial in the physical sense. It is not by any means concerned with merely the motor or physical *skill* aspect of the work. That it is not exclusively so concerned has been the very foundation of the argument for a subject enriched by emphasis upon the "rich body of thought" involved. Even the industrial processes selected for the course have both physical and mental aspects. Why, then, should there be omitted from the course those other aspects of the struggle which have a greater proportion of the mental, but which bear just as vital a relationship (and perhaps a more vital one) to the whole struggle?

It is one of the theses of this chapter that logically these more mental aspects cannot be omitted. The body of subject-matter which dignifies project material as a *subject* is a body of subject-matter about man's *whole* struggle with his environment. It is a body of subject-matter which should include those phases which have more of the mental and less of the physical, just as much as it includes the phases which have more of the physical and less of the mental. The management phases, the business administration phases, the professional and any other phases, are just as much a part of the whole struggle as are the more manual phases.

It is another thesis of this chapter that ever since the introduction of project material as a subject, its main defense has been the semi-conscious attempt

at focusing the course upon the interpretation of man's *whole* struggle with his environment. But there has always seemed to be some hidden force preventing an inclusion of the whole problem, and holding the subject-matter content down to the more physical aspects of the struggle.

Perhaps the hidden force lies in the unconscious tendency to tie the subject, in a degree, to the older, more aristocratic idea of the education of the poor. In this conception the poorer (and so-called lower) classes were destined to do the more physical work of the world, and the rich (the few in the higher classes) were destined to do the more mental work. They were to be the leaders, and were to do the thinking, both for themselves and for the others.

It is not true, of course, that modern industrial arts courses, in focusing upon the more physical aspects of the struggle, *intentionally* are influenced by the older aristocratic conception of relation of physical and mental in the life struggle. They stand for the combination of physical and mental — for the "rich body of thought," as over against the training for mere skill which is to be directed and controlled by some one else. They stand for everybody taking the same industrial arts course. It is not merely for the education of the poor. It is to be the means of enlightening every one, of creating sympathy and coöperation, and of giving vocational insight to all, but not *determining* vocational choice among the

trades. But, nevertheless, in some way the course has still retained the vestige of the aristocratic idea, in that it clings to its old association with the more physical aspects of man's struggle — to its association with the work of the poor as that work used to be conceived.

It perhaps needs to be noted that industrial arts courses do deal with large manufacturing and industrial enterprises which, since the Industrial Revolution, are the enterprises of the rich; but it is clear that they deal only with the more mechanical and physical phases of these enterprises, and not so much with the more mental phases of administration and management, which phases, it is to be remembered, were, under aristocracy, the work of the rich.

Management, administration, business, and law, medicine, theology, teaching, etc., are all only the more mental phases of the total doing by means of which man conquers his environment and insures his own development. Project work used as a *subject* should recognize this fact, and should deal not alone with the transformation of materials, not alone with the more physical aspects of the wonderful human struggle with environment, but it should organize and use a body of thought subject-matter about the whole struggle — about work and play, their relationship, and their *total* significance in the life of man.

What this plan signifies is not an attempt at

"redemption through manual labor" alone; but redemption through an understanding of, and a participation in, the whole struggle. It is to be redemption through a consideration of everything that must be *done* to secure the development and the real welfare of a coöperating group.

Thus this study would lead into the very stronghold of social theories. In finding itself confronted by the whole struggle of man, and by a study of the significance of the struggle, it would at once be obliged to favor one of the two great divergent theories. There must be born either the aristocratic conception of special opportunities for the few, and of the rule of these specially favored few over the many; or there must be born the democratic conception of equal opportunities for all according to their capacity. This wavering between social theories of the claims of the individual and of the group has been characteristic of the past, but there seems now to be an almost universal choice of the equal-opportunity theory. At least America has made that choice, and stands committed to the theory that ultimately the welfare of the individual is wrapped up with, and subordinate to, the welfare of the group. Our democracy is built upon the rule of the majority; individual activity is held to be desirable, both for the individual and for the group, unless it goes so far as to be antagonistic to the group. Then it is held that it should be suppressed

and subordinated to the group. Thus the best and ultimate good of the group as a whole is taken as standard, and ultimately the majority of the group decides what that best good is.

But this majority rule does not mean that the majority considers itself capable of doing everything for itself, and fails to recognize the individual expert. The majority turns many particular things over to the expert, retaining in regard to any of these particular things only its faith in its own ability to judge the results of the expert's work. Then it holds the expert accountable for results, under pain of dismissal for failure. Theoretically every one is made expert in some one particular line — the line for which he proves particularly fitted. And every one is to have opportunity to prove what he is fitted for. That work is then turned over to him, and society holds him responsible as an expert, just as he, in his turn, as part of the society, holds other experts responsible.

Thus is exemplified America's theory of "the equality of man," understood as meaning "the equality of opportunity," and conditioned only upon original endowment. And the project study, if it becomes a study of all doing, must of necessity in America be a study of equality of opportunity for doing. It must of necessity have for its aim, not the creation of caste, not trade education which divides the classes, but a broad, cultural founda-

tion, which, by its very breadth and insight, tends to militate against and to break down all classes, except those inevitably created by endowment. And even with regard to them, its effort must be to minimize the differentiation, and to emphasize the common foundation which holds all together in bonds of mutual need, sympathy, and coöperation.

Theoretically, except for the reason of difference in real capacity, in endowment, there should be no "Man with the Hoe" condition. There should not be those who do so much manual labor that the mental is dulled and brutalized. On the other hand, there should not be those who do so much mental labor that the physical is neglected and becomes impaired; nor should there be such mental and physical idleness that the whole man degenerates and seeks excitement and excess to relieve ennui. But there should be such a balancing of physical and mental that each individual stands forth with all the best that is in him given opportunity to work in the interests of all and therefore of himself.

So the struggle is not a calamity. It is the center of existence. It is life itself; it is salvation in the truest sense. The man beats out his real character through his conflict with the problems of his environment. Both his work and his play contribute. In fact it is difficult to distinguish between work and play when social conditions are right. Play is not idleness — not cessation of *activity*. It may at times

be activity directed toward an end with a less definite and more remote product than comes out of work. But there is often so little distinction between the two that one man may *work* in his garden, and *play* by going fishing; and another man may *work* by going fishing, and *play* in developing his garden. It is change and resulting relaxation in one direction and refocusing in another, which constitutes the real difference. There is no play activity which cannot be made work, or no work activity which cannot be made play under the right manipulation of circumstances. And the important thing in regard to the two apparently different kinds of activity is that while reasonably balanced activity is life, too much activity in one line is death, just as too little activity is death. The real spirit of play, as distinct from work, or work as distinct from play, is the spirit of the necessity for *change of activity*. Hence from now on the word "work" will be used to express the whole situation, including work and play.

This philosophic-social ideal of activity, therefore, this democratic program, is nothing more or less than society's theory concerning man's great project — his struggle with his environment; and the study of this great project as a separate subject of instruction is no more or less than an elementary sociology focused upon social ideals. What the *method* of such a study must be in order to keep it from being mere formal, ineffective preaching, is the subject of the

next chapter. The remainder of this chapter will be occupied with further consideration of the *content* of the subject.

The subject is to focus upon the *significance of man's struggle with his environment.* This struggle has been briefly denominated as *work*, although it includes work and play. What *is* the significance of work?

I. Above all, *work is necessary.* It is necessary from two standpoints, one of which is social and the other individual. From the social standpoint there is a necessity for the satisfaction of human needs, which satisfaction, in a measure at least, must come from group action. It is not fair if some individuals fail to do their share in the group activity. Even though some one (living earlier) has made an accumulation of material resources, and passed them along to a certain individual, yet that individual is still morally bound to be a worker himself. He personally must earn, or be a parasite in using what he does not earn. The world has not yet reached the place where it has an over-supply. Even if it had, the reduction in necessary effort should be distributed, not concentrated in one person. The idler, from whatever cause his idling may arise, is a drag upon the wheels of progress. As an idler he has no place in a social scheme whose very essence is struggle—work.

And work, besides being necessary from this social view, is also necessary as an individual matter, be-

cause it is the one and only way in which the individual develops his possibilities. It is the stone against which he sharpens his sword of life. It dulls and rusts without it. It is one of those inborn necessities, one of those conditions (processes) of development which must always be regarded, because they are natural, original, and cannot be changed or interfered with without loss. The individual can, with safety, no more expect some one else to do his work for him than he can expect some one else to eat his dinners for him.

II. *Work is dignified.* Work is not to be regarded as a disgrace, as a calamity, to be ashamed of, and the fact of it concealed as much as possible. Since the hope of the world is in human life and its possibilities, and since the many kinds of work are necessary to sustain and develop life, then none of these many kinds of work can rightly be considered unworthy. If some one sweeps the street, he is doing his share of street-sweeping, and also the share of many other people, while the other people do something else. Surely, then, these other people shall not look askance at the sweeper merely because of the sweeping, part of which each of them must do if the other did not do it all. They must, rather, take the position that all useful work — all work necessary to the common good of the social whole — is dignified work. Even the head must not be ashamed of the hands.

III. *Work may be joyful.* The reasonable discharge of energy is pleasurable. It is only excess discharge, or over-monotony of discharge, which is painful. If *all* help in the work so that none have to work too hard, if a worker is not made unhappy by being looked down upon because of the character of his work, then there is no reason why he may not be happy in his work. To spend energy in the solution of the world's problems — to make one's work a problem, and to solve it by doing the work *as well as one can* (even though that work be street-sweeping) — is found to be one of the greatest joys that the world offers.

IV. *Work must be divided,* and each must find his place in it. No person can do all. It is (in modern life, at least) a physical impossibility for human beings to try to live in that way. "We are meant to help each other like hands and feet, like upper and lower rows of teeth." At least we must live life on this principle if we succeed. Therefore each should look for, and should be assisted to find, his place in work; and then should expect to be happy and respected in his contribution.

Perhaps these four elements do not constitute the best analysis of the significance of work that could be made; but they will serve as an illustration of the idea which is being advanced, and can be used tentatively, subject to revision at any time. With them

in mind it is easy to see what must be done, from the content side, to get this material before children. All that is necessary is to expand the industrial arts course to include all human work, and organize it all about these items in the significance of work.

But more needs to be said to make this plan definite enough. In the first place, the plan implies, in the mind of the teacher at least, a more definite and conscious realization of the distinction between the project work used as a *method* and project work used as a *subject*. The value of project method is primarily that of getting subject-matter *in all subjects* (including the project subject) through right utilization of the principle of self-activity. The value of the project subject is primarily that of carrying a specific subject-matter concerning the *significance of activity to life*.

Even makers of industrial arts courses have not always given evidence that they have clearly conceived this distinction, and the result has been bad for the industrial arts courses, because unless the project subject is very clearly differentiated from the use of project method, then the project subject seems to "spill over" into every other subject, its continuity as a subject is obscured, and interfered with, and vagueness and indefiniteness result. And even at the expense of seemingly unnecessary repetition it is here repeated that this vagueness must be guarded against in all subjects. If education

is ever to get anywhere the teacher must see experience (life) as consisting of certain phases (subjects) each of which has its own ends, and cumulative development and continuity in its march toward those ends, no matter how unitary the experience is kept for the child. Otherwise work will become mere dabbling in a mass of details — mere wandering through a wilderness of facts and experiences unfocused and unprogressive in any particular direction.

The proposed expanded course, therefore, is to have its own definite continuity in terms of the significance of work. It is not to consist of mere experiences *with* work, nor yet of a mere piling-up of facts *about* work, except as those experiences, and that piling-up of facts, are all focused upon *the significance of work in the life of man.* The method of making this significance clear is to be project method. It is to be the same project method that is used in other courses, but it is here to be applied to the project course itself; and the backbone of the project course — its continuity — is to be in terms of the significance of man's one greatest project, his struggle with his environment. That significance is: (1) that work is necessary, (2) that it is dignified, (3) that it may be joyful, and (4) that it must be divided, and that all must coöperate in this divided work for the good of all.

If the project course does not result in implanting these fundamentals firmly in the mind of the

child, if it does not succeed in so welding them with his experience that they become a part of him, then the project *course* has failed, no matter how much it may have given experience in work or piled up fact about work, and no matter how much project *method* may have assisted in the development of subject-matter in other courses.

Such a course as the one recommended will necessarily include much of the same material as that now used by industrial arts courses. It will deal with man's relations to his environment, and so will cover his early conquest of that environment (primitive life), much of the so-called "nature-study," and many of the nature facts and human-life facts which are the background for real history and geography; and will also incorporate much of the higher-grade manual training and domestic science and art. In all this it will deal with man both as a producer and a consumer. But it will deal with production and consumption *as they affect all phases of work.* It will aim to make a person intelligent in his consumption of those forms of human work in which the mental predominates, as well as to make him intelligent in his consumption of the more physical aspects. A man ought to choose his physician, his lawyer, his business manager with as much insight as he chooses his tie. He asks what firm made the tie, what firm furnished the goods, etc.; but he seldom asks at what university or other school his physician received

his training. He goes by the physician's personal appearance, or by his easy accessibility, or by the opinion of some one who refers him to a given physician. Of course the matter of accepting opinion is in itself all right if rightly done. We must accept the opinion of the one whom we think *knows* — of the expert; but the safeguard is to be sure first that the person *is* an expert, and this certainty is often not forthcoming, especially in our "consumption" of advice concerning these more mental phases of the life struggle.

The tendency to focus upon the less mental phases also serves to emphasize (unconsciously and unintentionally on the part of makers of industrial arts courses) the tendency to look more to material values. This is at best already too strong in human nature. The leader of the George Junior Republic tells that when he first brought children to his farm he gave them some presents; and that the first thing the next group asked was, "Where are de tings?" It was his task to train them to a different point of view — to point them to the more immaterial "tings"; just as it is the task of the enlarged industrial arts (or human work) course to point students to the real and more spiritual significance of work to life.

In common with industrial arts courses, the human work course admires Fellenberg for his keen insight into the use of industrial work for the purpose of creating sympathy and coöperation among

the workers; but it tries to keep clear from his essentially aristocratic tendency to specific trade instruction in popular education, and from his naïve kindness to animals attitude toward the poor. It combats the tendency toward too early specialization and emphasizes the need of the broad, universal foundation upon which foundation one's specialty — one's particular phase of expertness — is to be built. It deplores, and throws its influence against, any tendency to push trade education so low in the elementary grades that the broad preparation is interfered with; and it recognizes the special danger that the very introduction of the project work may, under relaxed vigilance on the part of far-seeing teachers, result in an attempt to exploit the elementary school for the purpose of the production of skilled operatives, and thus make the schools the agent of that very child labor and consequent restriction of broad development which they fear.

In addition to all of this it tries to expand the course into a consideration of all *human work*, to focus it definitely upon the significance of that work, and to present a direct continuity in terms of the items of that significance.

An attempt to make a beginning on such a course was made in 1915–16 by the writer, in a rather tentative and incomplete manner, with the representative of the industrial arts course in the program of the training school of the State Normal School, at

Winona, Minnesota. At that time the idea was only imperfectly developed, the course was called "industry," in order that it might not be too radically removed from the practices of other schools, and much industrial and activity material was directly borrowed (with credit given) from the Speyer School course. But the borrowed material was reorganized and at least partially made to fit the plan here proposed.

Believing that children of the kindergarten and first three grades were not yet ready to study the significance of work (nor to study directly history and geography), the principle of the relative "totality of the young child's experience" was appealed to, and for the first three years a composite course was carried which was, as a whole, a preliminary, preparatory course, called "nature and man." It carried a background of nature facts and life facts, which background was necessary to the industry course, and also to geography, history, and nature-study as well. At the fourth grade this composite course was differentiated into industry (a better name would have been "human work"), history, and geography, while the science aspect of nature-study was carried on by the geography course, and the appreciation aspect was put into the fine art course.

After the industry course was definitely differentiated in the fourth grade, that grade's work, con-

sisting largely of the same material usually taught in industrial arts courses, was organized about *the necessity for work.* Similarly the work of the fifth grade was organized about the added fact of *the dignity of work,* and that of the sixth grade about the added fact of *the joy of work,* the other elements being included in each case in review. In all of these grades boys and girls were taught together. The seventh and eighth grades seemed the natural place to stress *the division of work.* It is the point at which the work of boys and girls usually divides into manual training for the one and domestic science and art for the other. And it is the place where boys and girls are at least beginning to think about what they intend to do in life. Hence to stress the necessity for the division of work, and to give opportunity for direct contact with as many forms of work as possible, seemed to be the very best sort of pre-vocational work, and at the same time the very best initiation into real life conditions with reference to the division of work. Of course the other elements in the division of work were also kept in mind and in relationship to the whole problem.

In considering the division of work, and possible pre-vocational leanings toward certain kinds of work, the professions were included in the course; and it was intended to expand the course and include the problem of work as a whole. This was not so successfully accomplished as it could be in future ex-

periments; but the course was at least broader and more comprehensive than many similar courses, and there was the recommended attempt to focus upon the significance of all work to life.

This course is published as one part of a complete curriculum which was issued at the time, and a few copies are available at the Winona Normal School. The industry course should, however, be regarded as a conservative and only partially worked-out experiment, drawing heavily upon the Speyer material, reorganizing it, but only partially fulfilling the ideal, discussed in these pages, of a broad, cultural course directed toward the real significance of work in a country committed to the theory of equal opportunity conditioned only by original endowment.

There is great need for such a course in America. The tendency to form castes here has its roots in the relations of capital and labor, and something should be done (everything possible should be done) to combat the tendency. The tendency to shirk work as a calamity and as an irksome thing; the growing indications of class strife represented by the labor and capital controversies, and fostered by extreme and ill-considered social doctrines; the increased social snobbishness which causes workers to be looked down upon by a leisure class, and which causes all rich to be envied if not cursed by those who have less; the increasing tendency for housework to be regarded as menial; the too many bizarre and unfit choices of

occupation — all of these call for a subject whose particular social significance is that of making intrinsic in character a knowledge of the significance of work, right attitudes toward work, and a keen insight into the choice of a life-work for which one is peculiarly fitted.

The difficulties of handling such a course so that it will not be "preachy," and so that it will be effective, are very great; but it is with the hope and the conviction that the task can be accomplished that the problem of *method* is attacked in the next chapter.

VIII

THE NECESSITY FOR MORE DIRECT TEACHING OF THE PROJECT SUBJECT

After giving all possible credit to industrial arts courses (and they deserve a very large share of credit) it must be admitted that there is a certain vagueness and indefiniteness about them. Many persons have not felt exactly sure of what such courses are aiming at. They are not clearly differentiated from the use of project work as a method in other subjects, and they seem to feature industrial projects for the sake of piling up certain facts about industry, and for the sake of exposing children to certain rather vaguely conceived attitudes toward industry. But the facts are not organized with reference to the attitudes as a specific goal, the continuity of the course is not definitely in terms of any fundamentals which are to be progressively realized, and all of this has led to much haphazard and ineffective teaching.

Definitely to change this condition by choosing *work, and a knowledge of the significance of work*, as a center about which the whole miscellaneous volume of facts is to be organized, and into which the whole is to converge — to make the continuity of the course directly in terms of the factors of the significance of work in the life of man — banishes

indefiniteness, "brings the course down to earth," and puts upon the teacher of it a perfectly definite problem.

But by what *method* is the teacher to go about the teaching of the significance of work? No good teacher would depend upon "preaching" which was to be accepted in a formal, memoriter way by the children. For teachers have had too much experience with formal instruction in many subjects, and with the resulting failure of the teaching to function in real life, to make any mistake of trying to do formal teaching of the significance of work. The material is of such a nature that the attempt could only result in failure.

But formal teaching is entirely unnecessary. In teaching the significance of work one finds it perfectly possible, and natural, to follow in the footsteps of the industrial arts course and to continue to apply the best type of project method to this separate, expanded project course. In this matter no change at all will be made. The course will appeal to "self-activity in the solution of problems." But the change that will be made will be *to use the method directly instead of indirectly and incidentally* in the service of certain specific aims. It is this direct teaching, coupled with the expansion of content discussed in chapter VII, which is depended upon to take the vagueness out of industrial arts courses. For their vagueness has not been in their general method; but

in their incomplete content, and in the indirectness and incidental character of their attack upon their rather obscure and limited aims.

In the proposed course there is to be direct use of an expanded content, in the service of very definite and complete aims. There is to be *direct* teaching of the significance of man's whole struggle with his environment, direct teaching of the significance of work, as opposed to the more incidental teaching of certain phases of work.

The dangers and difficulties of this program are keenly realized and freely admitted. But it is also believed that there is no necessary reason why they cannot be overcome by diligent, conscientious effort. The main danger, that of formality, is controlled just so long as really vital project method is used; and there is every reason for continuing this method in the project course, since, rightly handled, it is the best ally of the *direct* teaching proposed.

The teacher who has used the indirect and incidental method has been willing to work on the basis of rather imperfectly and indefinitely conceived goals; and she has been willing to approach the goals by repeatedly, but only incidentally, "exposing" children to them, in the hope that gradually they will be "caught" through the more or less contagion of the "exposure." That such a plan has had a wide currency in America is difficult to realize. But its real detriment to the whole educative process is so

certain that it is worth while to drive home the facts about it by rather copious illustration.

The illustration meeting our purpose, which goes farthest back in the history of modern education, is the use of the *old* method of spiral teaching. *Old* spiral system is used advisedly, for there is a new spiral system which is to be commended as good, while the old is to be discarded.

In the old system as used in arithmetic, it was the plan to have certain phases of division of fractions, for example, come round and round in the book, in a regular "merry-go-round," all on the "exposure" theory. There was never illustration enough, or interest enough, or practical application enough to make the necessary impression and to furnish the necessary drill. There was no specific consciousness of specific aims. At least there was no direct realization of specific aims. For there was no direct attack upon something to be conquered. There was just a sort of blind faith in the "exposure"; and this "exposure" was often almost instantaneous, being usually two or three examples removed from any concrete situation, or at least not given in any situation concrete to the child because it "hit him where he lived."

Thus the grind round and round the cycles accomplished little, and the child who had "had" arithmetic "for long and ever so long" was still just about the same candidate for it as he was in the beginning.

The substitute for the *old* spiral method goes upon one of the suppositions that was at the bottom of the old. It goes upon the supposition that a person cannot learn *all* about a certain thing at one time. Therefore it cuts the material up into sections to be learned separately. But it does not fail to be very definite about just exactly what is to be learned; and it does not depend for the learning of the sections upon mere "exposure" of section after section, and then repeat. The mere repetition of vagueness does not very surely lead to the desired definiteness. Hence the new spiral method *conquers* its problems in one section, and then proceeds to the next. Of course it would be unfortunate if it did this conquering in a formal manner, but formality is not at all necessary to definiteness in learning. Good project method of the most informal kind can be directed toward, and arrive at, the most definite of results. It is only necessary for the goals to be held clearly in mind and for experience to be manipulated toward them.

A later American experience with indirect (incidental) method is connected with the problem of the teaching of spelling. There was a long time during which direct (and rather formal) study was put upon spelling words in school. Then in a certain city an experiment was made in two schools. In one of the schools the regular time was put upon spelling. In the other, spelling was taught "incidentally." That is to say, the words were dealt with as they happened

to appear and to be needed by the pupils. At the close of the experiment it seemed apparent that pupils in the school that did not teach spelling as a separate subject, but only taught it incidentally, had made as much progress as had the pupils in the school where the regular time had been given to the teaching of spelling.

The conclusions of this experiment, and of others of approximately the same import, were circulated widely over the country; and as a result there was a rather general discontinuance of regular, direct spelling instruction, and a rather common dependence upon the incidental method. The children were expected to "pick up" their spelling from their more or less chance contact with words in their other lessons. The words were constantly before them, they were constantly read and copied by them, and "exposed" as the children were to the correct spelling, it was assumed that this "exposure" would conquer a majority of the words, and that the occasional focusing upon a difficult word at the time the difficulty was discovered, in whatever subject, would complete the process. For so it seemed to have worked out in the experiments.

But there soon proved to be a serious falling-off in spelling ability as the result of the "incidental" process. It became evident that it was not getting the results that were hoped for it and that had seemed to come in the experiments. A possible explanation of

the experimental results is that perhaps in the experiments teachers, enthusiastic for the "incidental" method, had really put more time upon spelling than they realized, and had been especially conscientious in watching for opportunities to meet the real spelling need of the pupils; but that the rank-and-file of teachers, pushed by the great number of details of their work, and not so enthusiastic for the spelling teaching, rather unconsciously fell into the habit of neglecting spelling entirely.

There is no doubt but that the teachers engaged in the experiments got the results; but it is probable that they did not really save much time by the process. The sum of the necessary little bits of time given to incidental teaching was probably as great in the long run as would have been the time devoted to a regular spelling period. At any rate, the experiment and its application have shown that when teachers get anywhere with the teaching of spelling, they do so by putting definite work upon definite things, either in a definite spelling period or in little bits scattered through many periods. And the "exposure" part of the process showed that spelling is not very contagious upon mere "exposure." It required a real "inoculation" process to be efficacious; for if "inoculation" is properly carried out there is a certainty of result unless the person proves to be absolutely immune.

As a result of this experience most schools are back

to the old spelling period, and to direct attempts at "inoculation." For it is safe to say that the keynote of the new spelling is that spelling must be definitely *taught* — that mere "exposure" is too uncertain. Specific word-lists must be handled and specific difficulties found and conquered. Experiments have been made to determine what words children should learn to spell, *the continuity of the spelling course is made in terms of those words*, and words necessarily dealt with in other courses are regarded as temporary and relatively non-essential. Experiments have also been made as to how best to fix the spelling of specific words; and organic, non-formal, direct technique of "inoculation" has been developed, and the spelling course now comes much nearer to knowing where it is going, and how it expects to arrive.

The problem of study, or "How to Study," has had a similar evolution. In the whole history of modern education until very recently the teaching of how to study has been on an indirect basis. In so far as teachers tried at all to teach children how to study, they did it *by studying with children.* In this studying with children they used good methods of study, or at least they used the best methods they knew. Thus they "exposed" children to the methods which they hoped would be so contagious that the children would "catch" them. There was some contagion, especially of the repetitive, memoriter method, partly because this is the easiest method

to catch, and partly because it is the natural method with no teaching at all. Moreover, when teachers did make an attempt to tell how to study, about the only *conscious* method in their own minds was "the read it over so many times" method; and it was, therefore, this method which was consciously passed on.

No one really took the trouble to analyze study into its factors — to become conscious of what the problem really involved. Much less did they have any idea of making children conscious of the factors. Then came Dr. F. M. McMurry's contribution in the form of a real analysis of study into factors which could be isolated for both teacher and pupil; and his advocacy of a more conscious use of these factors. Teachers could then even improve their "exposure" technique and could have greater hopes of an improved degree of contagion, because, with the factors clearly in their own minds, they could arrange the studying so that the factors were much more likely to carry over than they were before.

But teachers could improve vastly more by stopping the mere *studying with* pupils, with its incidental "exposure" theory, and its dependence upon a contagion which was never very virulent; and by turning to the direct "inoculation" theory, and beginning really *to teach children how to study*, through making children themselves conscious of the definite factors involved. Then there could be real focusing upon the important factors, real illustration of them, and

real drill upon them. The whole could constitute a course *with a continuity in terms of the factors*, and hence there became possible a direct drive toward a definite goal. Such a course in "How to Study" or "How to Think" is a real part of the curriculum in many schools, and will become more and more so everywhere. It is the logical outcome of the conviction, earlier discussed, that it is no longer possible to teach all of the multitudes of facts accumulated by the race; but that it is possible to develop "methods of attack" which will make the student independent in his solution of difficulties as they arrive. A good course in "How to Study" or "How to Think" fulfills this purpose. It attacks its problems directly and not incidentally, but it does not "preach" the factors for mere mechanical memorization. It welds them into the child's experience by connecting them with real life in the most vital way, through an application of the best project method.

This decision for direct method is supported by some of the oldest and most definite and most authentic of American psychology. James outlined it, and it has been featured in a number of books since his time, besides being everywhere implied in educational writings. It deals with the necessity for repetition *with attention*, as contrasted with mere repetition; and hence calls for specific aims, and a concentration upon specific factors, which is directly opposed to the "exposure" theory.

The facts about the two theories are the common possession of every one. A person who stops to think about it knows that he seldom learns the number of steps which lead up to his door, or even the number of buttons on his coat, merely by repeated "exposure" to the facts. There must usually come some reason for focusing upon, some reason for fixing attention upon, them; and for having emotions and attitudes raised concerning them, before the facts become really fixed. But let the specific aim appear, let the attention be focused, and especially let the whole be accompanied by a considerable amount of emotion, and no effort has to be made to remember the facts. They fix themselves as an accompaniment of the experience, as an integral part of the experience, and they come back as such, and not as a detached series of facts to be remembered.

Even so short a consideration of the psychology involved is perhaps sufficient. It shows that the teacher's business is to be very conscious of the specific things upon which she wishes to center the attention and the emotional experience of the child. It shows, moreover, that she must, if she is to be most effective, not merely see that a child repeats an experience, but that he repeats it in a life situation fraught with enough of attention to a specific thing, and enough of emotion concerning it, to cement it into the experience as a living part of it.

It will be recognized that this is but another way

of saying that successful teaching requires project method focused directly upon specific aims held very consciously by the teacher, and accomplished through specific aims of the child, connected with the project. There is also to be again mentioned the implied responsibility that the teacher shall make the child more and more conscious of the specific aims which are in her (the teacher's) mind; and also of making it more and more certain that the child will be emotionally moved by these aims. For teachers leave their pupils, and pupils must then stand alone; and the only guarantee that they will stand alone when the teacher is gone is the fact of their doing some standing alone when the teacher is with them.

In thus emphasizing the project method, the method of "self-activity at work solving problems," it is not intended to minimize the importance of that other great original tendency, the tendency to uncritical conformity to the action of the group. Conformity is important; even uncritical conformity has been one of the means by which the race has advanced, and it still has its importance. But uncritical conformity to new situations is not the essential virtue of democracy. It is rather the essential virtue of the rank-and-file in an aristocracy where the many are under the control of the few. In a democracy, conformity has its place; but, theoretically, it is to be critical conformity which comes after the matter in hand has been attacked as a specific problem and

a decision arrived at. Even if a person reaches a conclusion averse to the idea, he may conclude to conform because the idea has received the approval of the majority if not of himself. Yet even then his conformity is *intelligent* conformity; and his thinking about the idea has furnished a basis for future effort at influencing change in the direction in which his thought has led him.

Thus far the chapter has made a claim for the use of a direct "inoculation" attack, instead of an indirect incidental "exposure" attack, upon the problem of a certain course; and has attempted to justify the stand in favor of the direct attack by giving concrete examples taken from American educational experience, and by making a very brief survey of the psychology involved. If this plan were carried out in the case of the project subject, it would result in a course which attempted consciously and directly to instill into the minds of the children the factors which weigh in the significance of work; and a course which tried finally to make children the conscious servants of the democratic ideals of which the factors are the center. The course would have its continuity in terms of the factors, and would be organized with reference to them, just as a definite course in "How to Study" is directly organized and attacked on the basis of the factors in study.

But is this demand for the formation of children's ideals through direct teaching not an imposition

upon them? Ought there to be any direct attempt really to *form* children's opinions? In this case is not the "exposure" theory better after all? Should not children just be brought into experience, put through it, and allowed to make their own way and to form their own opinions? Ought children not to be allowed to live their own lives without adult interference? Is not every one entitled to the unrestricted formation of his own opinions? The unthought answer to these questions would be, "Yes"; but the thoughtful answer is, "No." The world does not run upon the principles implied in the "Yes" answer. It is true that there is a certain policy of non-interference with the lives of children. It is true that non-interference has become a sort of stock phrase for a certain attitude toward children; but as already pointed out in these pages, the really justified non-interference is a non-interference with *processes of development which are natural and cannot be changed without loss.* These processes are psychological: they belong to the nature of the learner and of learning, and interference with them causes loss. Hence teaching follows the laws of specific aim, repetition with attention due to specific aim, etc.

But the aims themselves are not fixed. They only indicate *directions* which processes of growth *may* take, and these directions are multiple. Education — development — may be in practically any direction (good or bad) and the child must be aided in his

choice. The knowledge of the "good" and the "bad" comes out of the rich racial experience; and the child has a right to his inheritance in these aims. Otherwise, in directing his course he cannot stand upon the shoulders of those who have preceded him; but he must beat out his whole problem for himself, with the inevitable mistakes and consequent loss.

Hence there ought to be an end put to the confusion about non-interference with the lives of children. The policy of non-interference is a policy of non-interference with *processes* of development. If adults see a child developing toward dishonesty they interfere to turn him toward honesty — they do not expect that he will absolutely form his own opinion about it. If he persists in dishonesty he is finally even put into restraint so that he cannot exercise his dishonesty. If he fails in other fundamental principles of democracy there is definite attempt to turn him back into the accepted pathways. Yet a weak and indefinite acceptance of this principle, coming because of its confusion with non-interference with processes, has led to much laxness and indefiniteness in both home and school training.

But, after all, direct teaching does not actually *impose* adult aims upon children. The policy of interference in the matter of aims does not really drive us to this rather unpalatable conclusion. There is another way out; and there must be, for the importance of the training and exercise of the critical judgment

has already been emphasized as one of the essential virtues in a democracy, and children should, therefore, be allowed experience in judging. Yet the ethical judgments of children, of necessity, must be to an extent *weighted* judgments. There are those directions, such as the one already cited, in which it is not desired or permitted that they shall go without protest or final restraint, and a compromise has to be made.

The situation is very similar to that of the pruning of a tree. The tree must grow, if it grows at all, according to its own inner processes — according to its own law and nature of growth; but the *direction* of growth is interfered with by the pruner. Certain external things are done to the tree which militate against its growth in certain directions; and doors are opened, and inducements offered for it to grow in other directions. There is not the *imposition* of a specific thing, but there is interference with certain possibilities and encouragement of others among which the tree is left to select. Of course what is left is the possibility of a limited *selection*, and it is a great responsibility for the gardener so to limit it. He *may* spoil the tree unless he is very expert; but the tree *certainly* cannot reach its highest possibilities without his interference, and he feels justified in taking the responsibility.

So, with children, mankind has come to take the responsibility of conscientious *guidance* toward (not

imposition of) aims, ends, ideals. The human work course contemplates such guidance. It contemplates guidance toward the fundamental ideals of democracy, and it feels sure of its justification in such guidance. The ideals involved constitute a sincere and carefully thought-out social philosophy. The philosophy is more than carefully thought out. It has been wrought out in the very blood and tears and final triumphant success of generations. It is believed to be the true solution of social life, and it is dreamed of as the heritage of future generations. As such, there is an obligation to pass it on. If this is not done, democracy will be beaten out by other opposed influences which do take the trouble to inculcate a definite program; and these opposed ends, aims, ideals, inconsistent with the good of humanity as a whole, may prove a world tragedy — chaos and unutterable pain and loss. The world is just now in danger of such a catastrophe, due to Germany's direct teaching of an opposed social philosophy.

So America ought not to be afraid — she must not be afraid — to use her whole power to weave her democratic ideals into the very warp and woof of the being of the young whose lives are to be the only channel through which the currents of the ideals can be continued. She must deliberately try to make her ideals dominant because she believes in them with her whole soul, and because she believes that, in the long run, the world must rise or fall by the ideals

(the philosophies) of its dominant groups. But to do this she must go at it directly and not incidentally; she must do direct teaching of her sociology to the young; and she must reach these young while they are still young enough to be sufficiently unformed and sufficiently plastic. It does little good to try to "build in" *theories* in the upper grades which theories are not founded upon continuous life experiences of early years. Hence America's direct teaching of her sociology must begin with definiteness in the lowest grades; but it must be of such an elementary and informal character that it meets the real demands of child development and yet is effective in its own behalf. These demands have been partially met by the industrial arts courses which in themselves are really elementary sociology courses. But it can be more fully met by the expanded human work course, if that course features direct teaching of the principles involved.

But such a course, focused as it would be toward ends, aims, ideals, of work, is really ethical, and the plan calls for direct teaching of it. Can ethics be directly taught? Is the course not doomed to failure from the first, just because, as Dewey says, no amount of *knowledge about ethical principles* will insure the translation of that knowledge into ethical action; and no amount of teaching (preaching) about the dignity of work can make a person see it as dignified.

It is [illegible] course, that failure would result if the

plan were really to preach or to teach these things formally. But it is far from that, as has been made clear. The plan is to teach them in direct contact with life, and in direct relation to life, just as Dewey would have them taught. The attitude toward work is to come through contact with work — in many cases, through participation in work. The facts are to be taught in these organic connections, fitted to the ages of the various children; and with a certain balance of emphasis which creates certain predispositions to certain views, and therefore to certain actions. For ethical action is influenced by a very vivid conception of facts. One acts upon the basis of either an unconscious, uncritical crowd psychology (which action is in general to be discouraged in a democracy), or he acts upon a conscious weighing of ideas one against another. Hence the way to interfere successfully in the direction of democratic ideals — the way to secure the ethical action desired — is, through teaching, so consciously and intentionally to *weight* the facts which control the ideals that this very weight will create a predisposition in favor of action upon them.

Hence the gist of the chapter is that in the "human work" course whose continuity is to be in terms of facts concerning the significance of work, there ought to be direct as opposed to indirect teaching. This means (1) that there ought to be a very vivid

consciousness of ideals involved, and of the relations of the facts to the ideals; and (2) that the teaching of the facts, in its turn, calls for attentive focusing upon them in such vital life situations that they become weighted in favor of the action required by the ideals.

IX

SUMMARY

It is hoped that the reader will not make the mistake of looking upon this monograph as a book upon industrial arts. That phase of the subject has necessarily been prominent in the discussion; but it is only an element in the main purpose which attempts to take a rather vague term — project method, project teaching, etc. — and to save it from formality and the device level. It does this because it sees in this term the most significant summing-up of modern education.

By means of a brief survey of certain phases of the evolution of educational principles, the attempt is made to show how they are related and focused in "learning to do by doing" or in "self-education through activities." Then it is shown that this self-education through activities is exactly what is meant by the best conception of project method. But project method and a project subject are, very generally, partially or wholly confused; and the attempt is made to separate them. In the process of this attempt there has developed the discussion of an ideal project subject, taught by project method, and focused toward the perpetuation of democratic ideals. This perpetuation is to come about through the cen-

tering of the project course upon man's greatest project—his struggle with his environment. This struggle with environment—this great project—is WORK; and attitudes toward work are shown to be at the root of the fundamental opposition of aristocratic and democratic social philosophies. Hence there is the conclusion that the fundamental facts concerning the significance of work should be *directly* taught, and dependence put upon the weight of these facts to turn the balance in favor of democratic ideals.

From the whole discussion, therefore, two opportunities for teachers are apparent:

(1) To make themselves free from formal, memoriter teaching, and to keep a school vitally related to life and to the nature of the child, by accepting the creed of "self-education through activities," with the resulting use of project method in all subjects.

(2) To realize that it is vital that America should begin a conscious resistance to that type of individualism which leads to caste and classes, and also to those unwise and extreme social doctrines which, on the other hand, lead to instability and disorganization; that this resistance should be organized and apparent in the education of the young; and that teachers may further the work through the conscientious teaching of some course which appeals to them as attacking the problem without preaching, and yet with a sincerity and a directness which gives promise of arriving at the goal.

OUTLINE

PART I—PROJECT WORK AS A METHOD

I. THE EVOLUTION OF THE PRINCIPLES UNDERLYING THE PROJECT METHOD

II. THE TRANSFER OF THE PRINCIPLES TO AMERICA

III. MODERN AMERICAN PRINCIPLES OF EDUCATION

OUTLINE

OUTLINE

PART II—PROJECT WORK AS A SUBJECT

VI. THE EVOLUTION OF THE PROJECT SUBJECT

VII. THE BROADER CONCEPTION OF THE CONTENT OF THE PROJECT SUBJECT

OUTLINE

VIII. THE NECESSITY FOR MORE DIRECT TEACHING OF THE PROJECT SUBJECT

OUTLINE

IX. SUMMARY

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