THE PROJECT METHOD IN EDUCATION

MENDEL E. BRANOM

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BY

MENDEL E. BRANOM

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TO

E. GEORGE PAYNE

PRINCIPAL OF HARRIS TEACHERS COLLEGE
WHOSE ENCOURAGEMENT HAS MADE
THE BOOK POSSIBLE

PREFACE

Modern education attempts to direct the child's development in such a way that the child will be a worthy participant of the institutional life of society; at the same time, an attempt is made to develop the particular abilities of each child, since institutional progress is dependent upon individual initiative. Rapid evolutionary changes in society have emphasized the need of reevaluating and of reorganizing subject matter.

During the World War the children of the schools were called upon to assist in numerous ways. An unusual opportunity was presented of motivating the school work through out-of-school activities. The effects were no less marked upon the teachers than upon the pupils. They were inspired by the field of usefulness that was opened to them. Teachers, everywhere, now that the war is ended, are not satisfied to go back to the bookish, theoretical education of former days, but there is considerable uncertainty as to how the work can be motivated through the out-of-school activities of ordinary times. Other institutions, during the war, needed the cooperation of the schools; the schools now keenly need the assistance of other institutions. The problem can be solved if teachers will make use of the various activities and materials of society. The chasm that has encircled the school, separating it from out-of-school activities, forever should be blotted out. The teacher needs to be a practical man or woman, who can make use of the present in educating the child. The requirements are much

more exacting, but the recognition is correspondingly greater.

In an effort to relate the world's work to the child's interests and abilities, teachers of the manual arts have organized their work about situations, the manual efforts involved looking toward the completion of a particular unit of activity, which, to the child, has some value that makes the work meaningful. A project in agriculture may involve the care of a garden; a project in manual training may involve the construction of a chair. It is natural that the term, project, should be applied to this unit of activity that results in concrete, objective achievement. Because of the rather aimless, colorless, theoretical, impractical way that such subjects as history and geography have been handled, it has not been clear that projects likewise were involved. The manual projects were concerned with the refashioning of materials of the present. The "bookish" subjects may be concerned with the activities of any time and of any place, and may be any number of steps removed from real, virile twentieth century living. The real nature of mental activities, apart from manual activities, therefore, is obscured. For concrete materials, man may substitute imagery, and without engaging in manual activity, may "think through" a complete unit of purposeful activity, the result of which is fundamental in influencing behavior. Such a unit is as characteristically a project as the manual unit.

All educative effort, worthy of the name, affects behavior. An intellectualized, purposeful unit of activity is a project. All intellectualized work of the school definitely must be related to some project. The more effectively the material is selected and organized, the more economically will the development of the individual proceed. An efficient use of the project method requires that the materials shall be or-

ganized in such a way that, irrespective of whether manual activity is involved, the pupil will engage in a whole-hearted, purposeful unit of activity. All intellectual effort is worth while and is possible only because it functions in a project. The problem of the teacher is to bring about an intellectual development of the individual, along desirable lines, rapidly and efficiently. This can be done through the proper selection of material, and through its motivation in such a way that the child whole-heartedly attempts to overcome his difficulty, deriving much satisfaction not only because of the purpose and its realization, but also in the steps necessary to realize the purpose. A conscious recognition of projects as necessary units of human growth, in relation to the aims of education, should bring about a selection and reorganization of materials in such a way that maximum social and individual realization is effected.

From the standpoint of the teacher, who is interested in the child's world, the interpretation of a difficulty, and the enlarged child's world as a result of the new experience, the unit of activity is a project, and the development goes on through the project method. From the standpoint of the pupil, the primary interest is in the difficulty or problem, and its interpretation, and the development goes on through the problem method. Whether the method of human development, therefore, shall be called the project or the problem method depends upon the viewpoint.

This book has been written in response to numerous inquiries that have come to the author, since the publication of several magazine articles on the project method, last year. It has been written, in addition to other heavy responsibilities, with the hope that it may "do its bit" in helping the teachers to meet the additional responsibilities and opportunities that have come. The author wishes to thank his

colleagues of the Harris Teachers College, for their helpful encouragement in making this book possible.

Harris Teachers College, MENDEL E. BRANOM.

St. Louis, Mo.
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CHAPTER I

THE NATURE OF THE PROJECT METHOD

The word "project" should represent a definite idea. The term project has not been coined to meet a special need in the pedigogical field for a new word to represent a nameless concept. For many years the word has been used by the English speaking public, although with its customary freedom the public has used the word in a variety of ways. According to Webster's New International Dictionary, the meaning of project as a noun is "that which is projected or designed; something intended or devised; a scheme; design; plan." The dominant idea involved is a consciously planned activity. The use of the word has been limited, by some people, to a proposed activity of considerable complexity and difficulty, while other people have used the term to include every type of intellectualized activity whether simple or complex, difficult or easy. The popular use of the word is indicated by the statements made in recent newspapers and magazines concerning "the project to extend a lane of ships from the United States to Europe," "the project to revive traffic on the Mississippi River," "the project to train disabled soldiers and sailors for suitable vocations," and "the project to establish a league of nations." A less gen-

eral use of the word is indicated by statements concerning "the project of changing the time of the band concert," "the project requiring people to keep off the grass during dry weather," and "the project requiring the water to be cooled at all restaurants." Those who use the word in a general way to represent practically any type of intellectualized activity, also would include the types recognized by the more conservative groups. There is no fundamental difference of opinion concerning the meaning of the word, but the difference lies in the degree of elasticity that should be permitted. In every case a unit of purposeful, intellectualized activity is involved.

Since the word project has been secured by educators from the general English vocabulary, it is natural that similar misunderstandings with respect to its use should arise when attempts are made to associate the word with a definite educational concept. A present need in education, therefore, is to determine and agree upon whether the use of the term should be confined to situations involving complex intellectual difficulties, or whether its use should be extended so as to include the simplest of intellectual reactions. An agreement upon the use of the word will afford a common ground for discussion, thus avoiding apparent but not actual differences of opinion in reasoning that arise, if the same word to different individuals represents materially different or even slightly different concepts. If the broader meaning of the term project is agreed upon (a) the varying concepts of the term will be included, and (b) since the difference between a simple intellectual difficulty and a complex intellectual difficulty is relative, and since these difficulties in reality are aspects of the same type of mental development, the word may well be used to include all types of intellectual difficulties, with the class further subdivided into simple and complicated types.

The pedagogical word "project" should meet a real need. The word project may be used as a part of the general vocabulary that is drawn upon in discussing pedagogical problems without delimiting the use of the word in a specific manner. If the word is to be included in the nomenclature of the science of teaching, however, a specific use should be assigned to it. If there is another word in the pedagogical terminology that serves the same purpose, the recognition of the word project as a scientific term is undesirable, as there will be duplication of functioning, and consequent waste of energy.

In spite of striking similarities between man and other animals, it long has been recognized that there also are striking differences, particularly with respect to the possible activity level. In contradistinction to other animals, man can intellectualize his activities and direct them with a conscious purpose. There is need in education for a term that can be applied to the class of intellectualized activities that differentiate man from other animals. All such activities are purposeful although the quality of purpose differs decidedly. Since the word project as now broadly used, outside of educational circles, denotes this meaning, which finds its justification on the basis of need, with practically no violence to the meaning of the word, it readily can be included in the pedagogical terminology, to denote a unit of intellectualized activity.

The project method is the way of growth through which man is differentiated from other animals. All forms of life, plant and animal, instinctively make certain adjustments to their environments. These adjustments generally enable the life form to protect itself or to extend its influence in some positive fashion. A certain amount of development in making these successive instinctive adaptations occurs. Man, in common with other animals, make these instinctive adjust-

ments. If man's ability to develop were conditioned in the same way as that of other animals, practically no other method than the instinctive method would be possible. Since man can think, can plan, and can engage in sustained thought, he can intellectualize his activities in a way that somewhat abruptly differentiates him from other animals. Man develops, therefore, not only through the instinctive method, which is characteristic of the growth of all forms of animal life, but also through the project method, which is particularly reserved to man.

A project involves a complete unit of activity. The derivative meaning of the word project is "to throw forward" (pro—forward and jacere—to throw). As used in the educational field, the word project involves the idea of a plan that is to be carried out, but also carries with it something of the derivative meaning in that, through the project, material looms up before the child for interpretation, and the child, in grappling with this material, moves forward or grows. If a child seeks to meet a situation, he starts with the experiences and attitudes of his own life, and through his interpretation of the situation, increases or enriches his concepts. He starts with his own small world, or microcosm, and utilizes it in mastering situations by means of which his world becomes larger. Through the project the child relates himself to knowledge that is not a part of himself, but knowledge that is within his reach. He plunges out of his own world into the larger world, and returns with valuable experiences. These experiences, in turn, become a part of his ever enlarging world by means of which he again can interpret. A young child, with limited experiences, necessarily will engage in projects of a simpler nature, but as his personal world becomes larger and made up of more varied material, the situations that he can meet become increasingly

difficult. The concept denoted by the word project therefore involves the various steps, starting with the personal world of the child, by means of which he interprets related unknown material, thus enlarging and modifying his world of experiences and attitudes.

The significant development of the child, from the educational standpoint, comes through the project method. The public schools have been established, not with the idea of preparing the children for an animal existence, but for the purpose of preparing them for a human existence. It follows, therefore, that the activities of the school are concerned primarily with the project method, which is Nature's particular way of developing the child as a human being. There is no other method. Mankind, in general, has found that his progress has been most rapid, when he intelligently has moved in the direction indicated by nature. To the extent that results have been secured in school room practice, the project method should be given credit. If results apparently or actually have not been commensurate with the energy put forth, in some way or other the natural growth of the child has been blocked, either by surrounding him with material too far removed from his personal world, by surrounding him with material that possessed no unknown elements for his stage of development, or by placing insufficiently related unknown material within his grasp. If sufficient material properly is related to the child's world, and if the pupil keenly is interested in the material, rapid growth for a normal mind is inevitable.

The project method may be abused (a) by keeping the child in the same environment. Undue repetition of material may be, and often is, deadening. In geography, it is an unfortunate but not altogether uncommon practice to disregard or to discount the work previously accomplished. A

type study of the Eskimos may be made in the second grade. The third grade teacher may take up the same type and consider the same topics, concerning food, shelter and clothing. The teacher of one grade may consider the coal industry and the teacher of the succeeding grade may consider this industry practically in the same way. The teacher of history may consider the biography of Abraham Lincoln, or the development of the Erie Canal in one grade, and a succeeding teacher may consider the topics from a similar viewpoint. In the subjects of a mechanical nature, as arithmetic and spelling, a useless waste of time may be involved in drilling children upon material which they thoroughly have mastered. Many beautiful recitations are not so successful as a superficial examination indicates. A teacher, with respect to every recitation, should attempt to discriminate between what the children know and can do at the beginning of the recitation, and what they know and can do at the close. Each period should contribute something toward the definite enlarging of the child's experiences.

The project method may be abused (*b*) *by placing insufficient, related, unknown material within reach.* Every adult can recall the restless days of childhood when he craved for something to do. The child energetically considers one thing after another, trying to find something to do that to him seems worth while and that he believes he can do. A child, discouraged in his quest, may lie down to take a nap, quickly to jump up to continue his search for something to do. In the vegetable world, a plant thrives best where it has available needed nourishment in the right proportions and an otherwise suitable environment. Many dwarfed plants, perched on the rocky bluffs or in an otherwise unfavorable environment, make a pitiable struggle for an existence. No one can measure accurately the amount of retardation in de-

velopment that has gone on among children simply because they were not supplied with a favorable environment for growth. In the school room the class may "finish" the material assigned, and practically waste the rest of the period. A larger proportion of the study period is lost because the child does not know what to do. He gives himself up to the pleasures of "anticipations and retrospections" of his own choosing, aimlessly and unsystematically pursuing the line of least resistance. The teacher may have developed with the children the distribution of rainfall in Missouri. She may have assigned them the task of indicating the unequal distribution on an outline map of the state. The study period may be twenty minutes long, but if the child finishes the map in ten minutes, he has one-half of the study period for "wool-gathering."

The project method may be abused (*c*) *by confronting the child with material that is too difficult.* The mistake of surrounding the child with material beyond his ability to master is just as unfortunate as the mistake of making the environment too easy. An occasional attempt to master, ending in failure, may be justified because of the future opportunities that may be suggested. One who fails habitually, however, not only becomes discouraged, but does not engage in sound, healthy growth. In the school room, if work assigned is too difficult, the child either slavishly will engage in a study of form (words) without the represented content, or will neglect the assignment. If the child faithfully follows directions, but cannot interpret, he is making little or no progress. His time, of great potential value, is being wasted. Because of his desire to succeed and his faith in the teacher, he may master the words, but real ideas are lacking. Another type of student loses interest, begins to question the value of school work, and if he is a typical wide

awake American boy, finds material for himself that he can and desires to interpret. The child cannot be blamed, but this independence of spirit, unfortunately, often removes the child from school influences at too early an age.

The project method admits of growth either through good or bad experiences. The project method, it is to be noted, is exclusive of neither good nor bad experiences. The child may have experiences that socially are undesirable, but his horizon of knowledge thereby may be increased just as surely as if his experiences were the most valuable that society can give. The process in either case is the same. If the school loses its hold on the child, or does not afford him the desirable stimuli for growth, our active child will secure experiences elsewhere. In his haphazard wanderings he will come into environments that attract him. The experiences which he thus acquires may or may not be desirable. It is a particular function of the school to place the child in a favorable environment that not only will stimulate him to action, but that will give him experiences and attitudes that are socially desirable.

The project is concerned with four closely related parts. Four factors are related to the development of the child through the project method: (a) the macrocosm, or general world of knowledge; (b) the personal world of the child; (c) the movement of the child from his own world further into the larger world; and (d) the personal world of the child after he has met the new situation.

(*a*) *The general world of knowledge is represented by the several institutions of society.* The personal world of the child may be regarded as a variable that approaches a limit, the general world of knowledge, but never reaches it. The child starts with no demonstrable knowledge of this world. He first instinctively, and then consciously and

purposely reacts to his environment. His life is occupied in making more and more of the racial experiences and present conditions his own. The life of social groups is represented by organizations known as institutions. These institutions are economic, social, political, religious, educational, and æsthetic. The present organization of society has not been secured without effort. For hundreds of years man has struggled with his environment. In the days of Abraham the institutions of society were not sharply differentiated. In the primitive responses to nature, the institutions were not recognized as separate entities. Although to-day there is a saying "that religion and politics will not mix," the noble patriarch Abraham drew no such distinction. With the evolution of society, these institutions gradually have grown apart from each other, although even to-day they have numerous bonds of relationships to each other and are fundamentally interdependent.

The institutions of society have arisen in response to man's needs. Early in racial history the divine fiat went forth to man "By the sweat of thy brow shalt thou earn bread." Nature was not at the service of man, unless man were willing to put forth the effort necessary to subdue her. Plants of special value were selected and cared for, animals were domesticated and herded. The earth's resources gradually were placed under the control of man, through man's activities, intelligently directed. In response to a fundamental need of man, therefore, arose the industrial institution. As man developed, his wants and needs increased. He soon found that the resources of the earth are unequally distributed, and that materials of use to himself could be secured from his neighbors through barter. In the same community a subdivision of labor occurred. One person fished, another hunted, another made boats, etc. To facilitate trading operations a

medium of exchange, as beaver, silver, and gold, was adopted. Transportation facilities were improved and the commercial operations of man became world-wide in scope. The establishment of commerce may be regarded as a further expansion of the industrial institution.

Man found himself instinctively interested in his own offspring. In common with other animals, he was willing to risk his own life in protecting his child, or in supplying it with the needs of life. Proper food must be secured, shelter from the elements must be provided, and protection from other animals, including other human beings, was necessary. Because of the interest of man in his children, there was a grouping of human beings on the basis of relationships, and the family institution was established.

In the struggle of man for a comfortable existence, he was not always careful of the welfare of others. He had a strong instinctive tendency to help others of his kind, but only rarely acted positively unless this assistance could be given without depriving himself of some benefit, or without affecting his increase in comforts. In numerous instances he even went so far as to rob another of the results of honest toil, or he even inflicted personal injury upon a fellowman. With increase in population it became more and more difficult for man to "live unto himself alone." Protection of life and property was found to be fundamental if life were to be enjoyed with greatest abundance. The political institution was created, therefore, to assist men to live together with a minimum of friction.

Man cannot "live by bread alone." While engaged in improving his methods in the utilization of the resources of the earth for satisfying his physical needs, he also was interested in ministering to his spiritual requirements. He could only in part master nature, he must also adjust himself to

her laws. The welcome rains nourished his crops; the dry, hot wind withered the plants. His flocks and herds increased and flourished, until a drought or some mysterious disease or the attacks of wild animals reduced him to poverty. He did not understand the reasons for these things, in many instances, but was affected by the results. It was natural that he should think of evil spirits directing movements that were harmful to him, and of good spirits directing movements that were beneficial. It behooved him to show his appreciation of the good spirits, and to seek to placate the evil spirits. With the evolution of man further refinements in religious attitudes were affected.

The knowledge which man could acquire through actual experience with his environment was limited. Unless the knowledge gained through his contact with nature could have been transmitted to posterity, racial progress would have been impossible. These experiences could not be transmitted physically. It was necessary to record the knowledge in some available form. The present social groups, interpreting these records, can profit from the experiences of others who are outside of the immediate environment, either in place or time. Economy in the acquisition of the social inheritance required an organization for its transmission. In response to this need, the educational institution gradually was evolved.

Man rejoiced in his ability to do and in his accomplishments. His very being was swayed by the emotions and imageries that were aroused. His pent up energies, as represented in his thoughts, feelings, and aspirations, could not be contained. He found pleasure in cherishing and in indicating his ideals through self-expression. These expressions took various forms,—literature, music, and art.

The child's activities are severely limited by the institu-

tional life into which he is born. The various institutions of man, whether economic, spiritual, social, intellectual, or æsthetic, have been evolved and developed in response to man's needs. They are an outcome of the relationships of man. These institutions are fundamental, although the details change so as to reflect the varying viewpoints of successive generations. The child is born into these institutions and, to a certain extent, must conform to them. The proper development of the child demands that he shall understand the nature and purpose of these institutions, but that he also shall have initiative aroused by means of which he can aid intelligently in altering them so as to meet present and anticipative requirements.

(*b*) *The personal world of the child is the apperceptive basis for further growth.* The child's earliest experiences deal largely with home life, and before he enters school his horizon materially has been extended. He knows the different pieces of furniture and their uses, the various articles of clothing, various foods, and some values of heat and light. He has sat upon his mother's knee during the story hour, and has entered into the social life of the home in other ways. The older members of the family probably go to church and the child may go to Sunday School. The child may know at least one simple prayer and some member of the family may say grace at the table. He may tell his father and older brothers and sisters good-bye when they go to work, and he may greet them on their return. He knows that many things which he wants and many things that are secured for the family life must be bought, and that their purchase is associated with the income of the family. He has noticed roads being repaired or cleaned, streets being lighted, a fire department "making a run," and a policeman helping people across a busy street. He listens eagerly to stories and com-

poses them, sings his own songs or songs that he has been taught, makes rag dolls, paper furniture, and mud pies. The phantasies of his imagination have been given full play. He has seen the older boys and girls going to school, and has talked about the time when he also will be old enough to go to school. At the time of entering school, therefore, the child has become acquainted with all of the fundamental institutions of society. Since he has made their acquaintance largely with respect to their relationships to his own life, he tends to interpret them in terms of their significance or use to himself.

This broad foundation, not nearly so restricted as many teachers are inclined to believe, is the apperceptive basis for school work. It is because of this great variety of apperceptive tentacles that a pupil often can grow, not necessarily because of, but frequently in spite of, the teacher. The personal world of the child is much more comprehensive in the upper than in the lower grades. The difference in ability is so marked that there has been a tendency to regard children as passing through periods of development, the periods being rather sharply defined. This may be illustrated by the fallacy, not yet extinct, that the child for some years is a memorizing creature, and on passing into the next period, becomes a reasoning creature. Recent researches indicate that the child is in possession of practically all of his mental abilities at a very early age, and that their development in part is conditioned by the natural growth of the child, and in part by the intelligence with which pertinent materials are furnished him. The child normally does not actually develop by plateaus, but by a constant although irregular climb. The child's world is constantly dynamic. It is impracticable, therefore, accurately to gauge the child's world without knowing the particular antecedent conditions that have

influenced the child's development. Many of the experiences of the children, however, outside of the school, present elements of identity or similarity, and, fortunately, the general order of presentation of school material does not differ fundamentally in our various school systems. It is possible, therefore, for the teacher wisely to assume that the children of a particular grade have had certain fundamental experiences, and if she acquaints herself with the special environments of the children, she may, with comparative certainty, utilize their past experiences as a means of further growth.

(*c*) *The teacher primarily is concerned with the steps by means of which the pupil moves from his personal world farther into the larger world.* The teacher may select the material that she considers pertinent for the child, but she cannot think nor act for him. If the child is to master the material, he must make and interpret his own selection. The placing of appropriate material within his reach, however, will enable him to establish the relationships in an economical manner. The teacher has the child's project in mind, while the pupil is interested in the problem or new situation presented. It is possible for the teacher to anticipate the needs of the child and systematically to provide for his growth.

After the material has been selected by the pupil, possibly with the help of the teacher, the next step involves its interpretation. Certain relationships and interpretations are established at the time the material is selected, but a more thorough-going study generally is necessary. The situation must be analyzed. The elements of the situation must be related to the child's world, and to each other.

The situation may be of such a nature as to demand a physical response on the part of the child. In manual training the problem may involve the construction of a table, a

chair, a hat rack, or a swing, or the expression work may involve the construction of a map, the drawing of a picture, or the molding of clay into a statue. The situation may involve a field trip to some feature of nature, or to some factory. When the statement "there can be no impression without a corresponding expression" was first accepted as an educational axiom, many enthusiasts immediately jumped to the conclusion that this expression must involve a manual muscular response in relation to materials of the environment. Careful studies have since established the fact that the mind may react to the situation, furnishing the corresponding expression, without the accompanying muscular manual effort. The situation, therefore, may be of such a nature as to involve primarily an intellectual response.

A person frequently does a thing because he feels that he ought to act. A man may shout "Amen" while the preacher is talking. A friend may be crying and we rush to her to find out what is the matter and to extend our sympathy. A blind man holds out his cup and almost before we know it our penny is lying within it. There may be a big celebration, as was true when the recent premature peace agreement with Germany was announced, and regardless of reason, and even though there is danger of contracting influenza, we get on the street car and go down town to enter enthusiastically and perhaps foolishly into the activities.

The situation may be of such a nature as to call forth primarily a physical, intellectual, or emotional response, and each type educationally is of fundamental importance. In developing the child, it should be noted, that with respect to a particular situation, the material and not the child is the variable factor. The child is not to be adapted to the material, but the material is to be adapted to the child. Even this is not enough. After the teacher has decided what

material the child can master, the next problem is an appropriate selection from this superabundant material. Having made this decision, the teacher next should consider how to make the child feel that this selection is the best for him. If the child is keenly interested in the situation and wants to interpret it, progress may be made very rapidly.

(*d*) *The child's world, enlarged through the project method, is also changed either for better or for worse.* As a result of the child's study, the situation becomes meaningful. His world not only has become larger, but probably has been modified. He has stronger, more numerous, and probably more dependable apperceptive tentacles, by means of which he can meet other situations. When a child has interpreted many situations and has made them his own, he is spoken of as a bright child, and if he quickly interprets correctly situation after situation, it is said that he learns rapidly.

Each impression permanently changes the individual in some respects. The pupil of yesterday is not the counterpart of the pupil of to-day, and the pupil of to-day is not the same as the pupil of to-morrow. When we associate with a person day after day, since the individual as a whole generally changes very slowly, we scarcely recognize the fact that a change is in progress. When we have been away from a person for a long time and return, frequently we think that he has changed remarkably, in some cases for the better, in other cases for the worse. A few years ago a young man met a girl and spent several hours in her company. He went on to a leading normal school, but as he studied his thoughts reverted again and again to this girl, and he almost worshipped her as his ideal. As he developed rapidly in the normal school his outlook on life constantly was changing and enlarging. As his ideals changed, he unconsciously read

them into this absent girl. At last, about a year after his admission to the school, the girl made arrangements to visit him. She stayed several days. When she had returned home the boy seemed much depressed. In a few weeks he visited her, but when he returned, he was almost heartbroken. The girl, who measured up to his ideals twelve months before, no longer met the requirements. A teacher, whose duty it is to enlarge and alter a child's world, accepts a great responsibility, but has a wonderful opportunity. It is not sufficient that the child's world shall change, but the change should be for the better.

The full significance of the project method should be grasped by every teacher. The instinctive method common to all animals is largely beyond the purpose for which the school exists except insofar as this method illuminates or is used as a basis for, or an essential part of, the project method. Nature has provided a method of growth for all animals, but she has provided a special method of growth, through the development of intelligence, for man, by means of which he is differentiated from other animals. Out of school or in school the project method determines the way of growth, but the teacher has it within her province to influence materially the direction and rapidity of development. Her task primarily is the establishment of proper relations between the child and the successive situations. The conception of a project, as suggested in this chapter, should help a teacher to perform her work more intelligently, should help her to appreciate the dignity of her calling, and should add to her pleasure of living because of her appreciation of her relations to society.

Problems

1. Indicate as many concepts as possible which the word project, on the basis of derivation, definition, or use, may represent in educational nomenclature. Which concept, everything considered, preferably should be associated with the word?
2. What is the significance of the instinctive method of growth in the development of man? What is the relation of this method to the project method? How does the education of man differ from the education of other animals?
3. Indicate by concrete illustrations (a) how the project method may be abused; (b) how the project method properly may be used.
4. Give an illustration of the use of the project method which brought (a) bad results; (b) good results; (c) no immediately discernible results.
5. Is the child a slave to the institutions into which he is born?
6. Name some experience that an individual may have and indicate the ways in which it may affect his personal world.
7. Is it literally true that in all cases the teacher should adapt the material to the child, or are there conditions which might arise that would make the reverse adaptation desirable?

CHAPTER II

THE EVOLUTION OF THE PROJECT AS AN EDUCATIONAL CONCEPT

The word project represented somewhat varying concepts as long as it was part of the general rather than specific vocabulary of the educational field. When a word with a general use is included in a specific discussion of some educational topic, it is to be expected that the author or speaker will exercise the same freedom in the use of the word that is permitted to all users of good language. Since many words of a general vocabulary have varying meanings, educational writers will use a word to indicate somewhat different ideas, the particular meaning being evident through the context. According to circumstances one writer will tend to stress one concept related to the word and another writer will tend to stress some other concept. The various uses of the word will be held in mind, but the writer gradually will find himself prejudiced in favor of some particular concept. During the period, therefore, that the word is mentioned in a general way in educational literature, there is a tendency for each leader to limit its use to a specific concept, and to the extent that the use of the word varies, the possibility of one writer misunderstanding another is ever present.

With the inclusion of the word project in the terminology of pedagogy, the varying specific concepts, independently adopted by different leaders, have persisted. If a word, secured from the general vocabulary, meets a specific need in

representing an idea that is vital to some part of organized subject matter, in addition to its general varying use, it may come to have a scientific, restricted application. If a word becomes a part of pedagogical terminology, however, it should have an exact and a practically unvarying meaning. When a leader begins to limit the use of a word to the expression of a definite concept, he is beginning to recognize the word as a scientific term. Each leader naturally will be prejudiced in favor of the use of the word as he has limited it. Since, as we have seen, the specific applications vary, it is to be expected that more or less controversy will arise as to the exact meaning that generally should be adopted by the teaching profession. It will not be surprising to find that our leaders are not agreed upon this point, but a study of the trend, it is believed, will indicate that there has been a movement irresistibly in the direction indicated in the preceding chapter.

A recognition of a project as an educational term is limited to the present century. In the early part of the present century, as related by Professor David Snedden, "some of us began using the word 'project' to describe a unit of educative work in which the most prominent feature was some form of positive and concrete achievement. The baking of a loaf of bread, the making of a shirtwaist, the raising of a bushel of corn, the making of a table, the installation of an electric bell outfit—all these, when undertaken by learners, and when so handled as to result in a large acquisition of knowledge and experiences, were called projects. . . . The primary characteristics of projects as thus conceived were: (a) The undertaking always possessed a certain unity; (b) the learner himself clearly conceived the practical end or outcome to be attained, and it was full of interest to him, luring him on, as to a definite goal to be won; (c) the stand-

ards of achievement were clearly objective—so much so that the learner and his fellows could, in large part, render valuable decisions as to the worth—in an amateur or in a commercial sense—of the product; and (d) the undertaking was of such a nature that the learner, in achieving his desired ends, would necessarily have to apply much of his previous knowledge and experience—perhaps heretofore not consciously held as usable in this way . . . and probably would have to acquire some knowledge and skills. . . .

"In a sense any concrete job undertaken in a vocational school where the realization of valuable results in product constitutes an important end, might be called a 'project'; but to be an 'educational project' such a job (e. g. turning a spindle, wiring a room, growing a half acre of potatoes, taking commercial charge of three cows for a year, cooking family breakfasts for a month, making ten saleable shirtwaists, cooperatively building and selling a cottage, etc.) must be of such a nature as to offer large opportunity, not only for the acquisition of new skill and experience in practical manipulation, but also for application of old, and learning of new, 'related knowledge'—art, science, mathematics, administration, hygiene, social science, etc. . . . We might want our pupils to obtain some information as to comets; can we devise what can legitimately be called a project for this purpose? Of course we can call an enterprise destined to give the pupil more knowledge of comets (using books, pictures, and perhaps, if circumstances favor, some naked-eye observations and a peek through a telescope) a project in learning; but this simply stretches our useful term to unmanageable and unserviceable dimensions. I do not forget that Webster defines project as: 'that which is projected, or designed; something intended or devised; a scheme, design, or plan.'

"Nevertheless I had hoped that we could give to the educational project a limited and definite meaning which would make it the designation of a useful type of teaching (or learning) unit, distinct from the lesson, the exercise, the topic, the experiment, the reading assignment, the inquiry, the investigation, etc. . . ." (Snedden, David, The Project as a Teaching Unit, School and Society, IV, 419-23.)

From the above extracts, it will be seen that Prof. Snedden placed the emphasis upon a unit of activity resulting in purposeful, concrete achievement, the aim being realized through a utilization of the acquired skills and experiences of the child, and related skills and experiences which he necessarily acquired in working out the project. Since the project resulted in objective accomplishment, the child could evaluate his own work. In acknowledging that a lesson on comets might be called a project in learning, but that the term would become too all-inclusive, Prof. Snedden shows his desire for a limited specific use of the word, which is not in accord with the use ordinarily given it. It is not clear as to just how the use of the project in this limited sense is to be differentiated from the lesson, the exercise, the topic, the experiment, the reading assignment, the inquiry, the investigation, etc." The outstanding feature was the attempt to secure recognition for the project lesson as a lesson type of correlative value with the numerous types of lessons already recognized.

An attempt to distinguish between a "project exercise" and a "problem exercise" has been made. "Both project and problem exercise," according to J. A. Randall, "are special varieties of question and problem. A question calls for a statement of knowledge on the part of the person questioned and of necessity only for a repetition of fact. A problem is a question demanding the organization of knowl-

edge and the exercise of judgment before the answer is given. The school project is now being confused with the generic word 'problem' and the term 'problem exercise.' A school project is a problem the solution of which results in the production of some object or knowledge of such value to the worker as to make the labor involved seem to him worth while." (Randall, J. A., National Educational Association, 1915, 1009-12.) Mr. Randall regards the school project as a special type of problem. According to his viewpoint the emphasis is placed, not necessarily upon wholehearted activity in the solving of the problem or in the meeting of the situation, but upon satisfaction with the results which in turn makes one satisfied with the effort put forth, even though at the time the effort may have been disagreeable. It is possible for a pupil reluctantly to solve a problem, but on its being solved to be very happy in the achievement. The scope of the project is broadened by the admission that the school project need not necessarily result in "concrete achievement," but may result either in the production of some object or of some knowledge.

A distinction between an agricultural project and an agricultural exercise has been made. In discussing an agricultural project, S. H. Dennis has written: "It might be wise here again to call attention to the distinction between an agricultural project and an agricultural exercise, as these terms have been somewhat confused in some sections of the country. The agricultural exercise is a simple experiment, or demonstration, or illustration, and is usually of short duration. It is not organized in the same manner as an agricultural project. It is not so comprehensive, as it usually deals with one principle or operation which can be completed in a short time.

"The agricultural project on the other hand is very defi-

nitely studied out and planned on a systematic basis. It involves much preliminary study and organization of agricultural matter bearing upon the work to be undertaken. It involves not only the learning of a scientific principle related to some farm practice, but the application of such principle or principles to farm practices. It usually extends through a period of time.

"An agricultural project, to be of value, must be of economic importance. It must involve the improving of some conditions or the production of some crop, etc. It must be carried out on such a basis that the success of the project means financial gain, and failure of the project a corresponding loss. In other words, a project is a business enterprise carried out on the farm or in the garden.

"The boy must be made to realize that he has an investment which, if possible, must be made to yield a satisfactory return or income. The scientific principle involved, and their relation to accepted principles, will be properly emphasized under such conditions." (Dennis, S. H., Home Project in Secondary School Agriculture, National Educational Association, 1916, 622-6.)

The emphasis is placed upon a complex situation, requiring a period of time for its solution. If the school work were thought to be arranged on a scale, the lower part consisting of simple questions and answers, and the upper part of very complex situations, one part of the scale gradually shading into the other, the lower part of the scale would include agricultural exercises and the upper part of the scale, agricultural projects. Projects are not regarded as necessarily being economically valuable, but if any educational value is to be secured from them, the economic consideration is considered fundamental. The project must involve a business enterprise, the success or failure of which can be gauged definitely by profits and losses.

The consolidation of district schools has emphasized the value of certain kinds of project work. At Little Compton Commons in Rhode Island a number of district schools were consolidated, as a result of which more effective teaching was possible. The environment of the child was used extensively. (a) The child was led to observe his physical environment, including plant and animal life, topographic forms, and physical processes. (b) Through the interest aroused in the environment, the child desired to join boys' and girls' clubs, cooperatively to consider topics, and to compete in a friendly manner. (c) In the upper grades project work was emphasized, this type of work meaning "that a pupil does a piece of work, whatever it may be—raising corn or cattle, canning fruit or making bread—at home, like a real grown-up. Clubs and project work are a new development of the older form of school gardens. The difference and improvement lie in the doing of the work at home. A garden or a loaf of bread made at the school is applied science, but done at home, it is living. The children compete for results just as their parents do with their friends; they figure costs and profits in the same way, and they contribute their share of wealth and comfort to the family." (Higgins, Henry. Carrying the School into the Home. House Beautiful, 41, 310-12, April, 1917.)

According to this conception of project work, there are three successive steps involved in the educational endeavor: (a) the child becomes acquainted with his environment and has the individualistic point of view; (b) the child becomes interested in community affairs and is stimulated, through association with others, to compete in an attempt to excel in his activities; and (c) the child, after having secured the social viewpoint, has an adequate foundation for engaging in agricultural activities in the same way and for the same purpose as the adult farmer. This latter type of work is

called project work. The distinction, educatively, is relative rather than absolute.

Massachusetts successfully has worked out the home project plan of vocational agricultural education. In Massachusetts considerable emphasis has been placed upon home projects in connection with the teaching of agriculture. In 1912, twenty-five boys, representing five different types of farming, earned from their farm work, that was carried on in connection with their school work, $5,102.30. The viewpoint of Massachusetts in emphasizing farm project work is as follows: "Neither skill nor business ability can be learned from books alone, nor merely from observation of the work and management of others. Both require active participation during the learning period in productive farming operations of real economic or commercial importance. The masterful constructive imagination may accomplish much for him who possesses it, and for his needs, books and observation may finally result in vocational efficiency. The difficulty is that such powerful imagination is so rare as to constitute him who has it a genius, far removed from the common run of boys 14 to 18 or 20 years of age who live on farms.

"To see a thing done, however good the demonstration, is not to do it oneself. To participate in the carrying out of an enterprise planned and ordered by another—by even an agricultural school instructor—may leave one little better than a gang laborer.

"Farming activities readily resolve themselves into what may be termed farming projects. A farming project is a thing to be done on a farm. The thing done may contribute some element of improvement about the farm—as constructing a concrete walk leading to the front door; planting and nurturing shade trees; making and maintaining an attractive lawn. The thing done may be of an experimental nature—

the planting of an untried variety of fruit, the feeding of an untried ration, the testing of one or another of much advertised roofing materials. Finally, the thing done may be of a productive nature, as the growing of a crop of clover or alfalfa; the growing of a field of potatoes; the growing of a crop of silage corn, or the production of eggs for the market. A farming project is, further, something to be done on a farm which involves a limited and definite amount of equipment, materials, and time, and which is directed toward the accomplishment of a specified and valuable result.

"Finally, a farming project, as the term is here used, is a thing to be done on a farm which, in the preparation for doing it and in the carrying of it out to a successful result, involves a thoroughgoing educational process. The improvement project of constructing a concrete walk to the front door might involve a study of the nature of cement; its action on sand, gravel, and broken stone; its resistant qualities to the weather; the seasons in which it might be used; its costs as compared with other materials, such as boards, plank, tar, brick, flagging, and asphalt; the mathematical determination of proportions of sand, cement, and stone to be used; the geometrical determination of the sections into which it should be divided and whether it should be crowned or flat; the geographical sources of the raw material and the commercial conditions for purchasing the cement. The experimental project of planting an untried variety of fruit might involve a study of the probable adaptability of the variety selected to the soil of the farm, the climate of the locality and the market demands within reach of the farm. The productive project of growing a crop of clover might involve a study of the various varieties of clover; the comparative adaptability of those varieties to the given field on which the crop must be grown and to the climate of the

locality; the most reliable places for the purchases of seed; the best time for seeding; the best time for cutting; the best methods of curing and storing; the mathematical calculation as to the saving in cost of feeding stuffs which the crop would afford; the chemical elements it would furnish in the ration, and the beneficial chemical, biological, and mechanical effects on the soil in which would be grown." (Stimson, N. W., Massachusetts Home Project of Vocational Agricultural Education, United States Bureau of Education Bulletin, 1914, No. 8, Whole No. 579.) Trained men visit the boys upon the farms and assist them to work out their projects. The project is carried out on the farm, but work at school bearing on the project is assigned the boys. This type of work is called "project study."

The organization of school material on the work level profitably may consist of projects. When a pupil engages in activities looking toward a vocational pursuit, or toward the proper shouldering of individual and social obligations, such responsible activities may be termed work, and while the child is engaged in this type of work he may be regarded as being on the "work level" of educational training. Prof. Franklin Bobbitt has suggested the significance of the project method on the work-level of experience as follows: "On the work-level, the task to be performed is central; and the science is organized about it. . . . There is a strong drift in public education toward this project-method of organization. The school corn clubs, for example, assemble all possible information relative to the growth of corn and use it for the control of practical procedure. Children engaged in an anti-mosquito campaign assemble just the entomological, bacteriological, and other information needed in their labors, rejecting for the moment all irrelevant scientific information. The tree-protecting league gathers all possible facts concern-

ing the species of trees attacked by insects, fungi, etc., together with the scientific information needed for combating the destructive influences. They reject for the time all botanical or entomological information that has no bearing on the problem in hand. In weeding out the grammatical mistakes made by children in their speech, the grammatical information is assembled that relates to the specific mistakes found; all other grammatical facts are passed by as irrelevant.

"In brief, one learns the things needed for directing action in connection with the situations in which the action is to take place, and just previous to the drawing-up of the plans. Only under such circumstances can knowledge properly reveal its significance, be rightly focused upon human affairs, or be normally assimilated. Knowing and doing should grow up together. . . .

"The technique of the project-method requires that in the teaching the major attention be given to what we have called the antecedent performance rather than to the objective or culminating performance. It also requires that the antecedent activities be performed by the students.

"In the use of this method the necessary ideas are to be got from at least three places. To make the matters clear let us resume our illustration of the gas-engine:

"1. In the first place, the boy, motivated by intention to make the engine, will observe such engines in as great variety as available. . . .

"2. In the second place, he will read descriptions, pictures, drawings, and diagrams of engines that he has not seen, by way of extending his vision of possibility. . . .

"3. For illustrating the third step, let us isolate the single feature of the ignition system. Instead of further widening his understanding of the electrical science involved by look-

ing to still more engines—there is a limit beyond which little or nothing new appears—he might look off and view the wide field of electricity in general and its applications in general. He is still motivated, let us say, by his project of developing an improved type of ignition system. . . .

"But though taking a full survey of the 'pure' science, he is only sorting over the possibilities of the field, locating suggestions, trying to find the ideas that he can put to work. This pure-science overview is the ultimate level of project-science experience.

"While in a sense this is 'pure' science, it is very different from the usual non-functional type. Here the primary thing in the student's consciousness is the project, the piece of work to be done; not the satisfaction of intellectual interests. He examines every fact and principle in relation to his practical problem, and not merely as a field of intellectual sight-seeing." (Bobbitt, Franklin. The Curriculum, 30-33.)

On the work level, Prof. Bobbitt favors the organization of school activities about tasks. The task should be so related to the child's point of view that the value of performing it will be seen. If the situation involves "doing," a proper execution of the task will involve "knowing." From the educative standpoint, while the pupil should be motivated by a strong, persistent purpose, the actual growth is dependent upon the activities in relation to "doing" and "knowing" by means of which the purpose is realized. In realizing his purpose, the pupil may study actual similar accomplishments of others, and indirectly, through representative materials, further may increase his knowledge. The "pure science" field itself may be surveyed for suggestions, bearing upon the problem. The center of emphasis, therefore, is shifted from pure science, which draws upon applied science for illustrations, to applied science, which draws from

pure science for assistance. Pure science thus becomes the ultimate and not the immediate goal.

The project has been considered a complex unit of work taking place in its natural setting. In a recent paper, Professor W. W. Charters adopted the following viewpoint: "In this paper the project is considered to be an act carried to completion in its natural setting and involving the solution of a relatively complex problem.

"Four terms of the definition should receive a few words of explanation.

"First, the project is a problem. This differentiates it from reflex and habitual acts.

"Second, the project is a relatively complex problem. . . . It is thus possible for a portion of subject matter which appears as a complex problem to the teacher to be a series of isolated small problems to the students. But the term project applies to the complex rather than the simple problem, although we are able to divide a large project into a number of subordinate ones.

"Third, the project contemplates the solution of a complex problem as one step toward carrying over of the fruits of the solution into some form of action.

"Fourth, in order that the multiproblem which is carried over into action may become a project it is necessary that the action be completed in its natural setting.

"The project seems to be an attempt to return to the concrete conditions of home education from the abstract isolation of the school. It presupposes natural activities flowing in spontaneous currents. Problems arise; they are analyzed and solved and are made to perform their intrinsic functions in actual situations." (Charters, W. W. The Project in Home Economics Teaching, Journal of Home Economics, X, 114-19, March, '18.)

Prof. Charters regards the project as a special type of

problem, a complex problem. The project, as a complex problem to the teacher, may be a series of smaller problems as experienced by the pupils. These simpler problems of the child are not regarded as projects, although it is admitted that a large project can be resolved into a number of smaller ones. The article is not clear as to how the author differentiates between the "isolated small problems" and the "subordinate" projects. The activities are to be carried on in a natural setting. The end to be realized is found not in concrete, objective accomplishment, but in the use to which the thing accomplished may be put. The fruits of one project, consequently, may be used in the mastery of some succeeding project.

The project has been considered whole-hearted, purposeful activity proceeding in a social environment. Prof. William H. Kilpatrick in discussing the project method presents the following viewpoint: "In attacking with successive classes in educational theory the problem of method, I had felt increasingly the need of unifying more completely a number of important related aspects of the educative process. I began to hope for some one concept which might serve this end. Such a concept, if found, must, so I thought, emphasize the factor of action, preferably whole-hearted, vigorous activity. It must at the same time provide a place for the adequate utilization of the laws of learning, and no less for the essential elements of the ethical quality of conduct. The last named looks of course to the social situation as well as to the individual attitude. Along with these should go, as it seemed, the important generalization that education is life—so easy to say and so hard to delimit. . . . There came increasingly a belief—corroborated on many sides—that the unifying idea I sought was to be found in the conception of whole-hearted, purposeful

activity proceeding in a social environment, or, more briefly, in the unit element of such activity, the hearty, purposeful act.

"It is to this purposeful act with the emphasis on the word purpose that I myself apply the term 'project.' I did not invent the term nor did I start it on its educational career. Indeed, I do not know how long it has already been in use. I did, however, consciously appropriate the word to designate the typical unit of the worthy life described above. Others who were using the term seemed to me either to use it in a mechanical and partial sense or to be intending in a general way what I tried to define more exactly. . . .

". . . Suppose a girl makes a dress. If she did in hearty fashion purpose to make the dress, if she planned it, if she made it herself, then I should say the instance is that of a typical project. We have a whole-hearted, purposeful act carried on amid social surroundings. That the dressmaking was purposeful is clear; the purpose once formed dominated each succeeding step in the process and gave unity to the whole. That the girl was whole-hearted in the work was assured in the illustration. That the activity proceeded in a social environment is clear; other girls at least are to see the dress. . . . This is not to rule out group projects; a class presents a play, a group of boys organize a baseball nine, three pupils prepare to read a story to their comrades. It is clear then that projects may present every variety that purposes present in life. It is also clear that a mere description of outwardly observable facts might not disclose the essential factor, namely, the presence of a dominating purpose. It is equally true that there can be every degree of approximation to full projects according as the animating purpose varies in clearness and strength. If we conceive activities as ranging on a scale from those performed

under dire compulsion up to those into which one puts his 'whole heart,' the argument herein made restricts the term 'project' or purposeful activity to the upper portion of the scale. As to the social environment element, some may feel that, however important this is to the fullest educative experience, it is still not essential to the conception of the purposeful act as here represented. These might wish to leave this element out of the defining discussion. To this I should not object if it were clearly understood that the resulting concept, generally speaking, demands the social situation both for its practical working and for the comparative valuation of proffered projects." (Kilpatrick, William H. The Project Method, Teachers College Record, Vol. XIX, 319-335, Sept., 1918.)

The conception of Prof. Kilpatrick, in some respects, is a radical departure from the commonly held viewpoint. The emphasis is not placed upon concrete, objective achievement, or upon a complex problem as such, but upon a unit of work, involving whole-hearted, purposeful activity. Small problems, as well as large, may be projects. There may be all degrees of activity from an activity carried on under dire compulsion to an activity that is absolutely whole-hearted and purposeful. The use of the term project would be confined to the upper part of the scale. Unfortunately there has been devised no way of determining on this scale where a compulsory act leaves off and a project act begins. With respect to the same unit of work, as well, certain parts may be effected whole-heartedly and purposely, while other parts may be effected under some sort of driving, dire compulsion. Not only is there difficulty, therefore, in determining whether a unit of activity is a project or not, but the same unit of activity, according to the variability of whole-hearted, purposeful activity that enters in, may be alternately a project

and a mere activity. The question arises as to whether absolute, continued whole-heartedness is necessary in a project. That it is desirable is not open to question. If the pupil is working on a project, however, the technique of teaching involves the making of the project as whole-hearted and as purposeful as possible. The degree of perfect whole-heartedness with which the work is carried on influences efficiency, but possibly this is to be regarded as a means of promoting the child's economical relations to the project rather than as an essential or a fundamental aspect of the project itself.

The project has been regarded as growth based upon the meeting of difficulties. Prof. John F. Woodhull, in a recent address, advanced the following viewpoint: "In using the project method, one does not begin with a topic or a caption as in the case of a proposition in geometry. The project is in its nature less formal, less conscious of what conclusion is to be reached. It can not, if genuine, proceed according to a plan of organization imposed by another. It works toward conclusions which may be far distant. It is merely the method of research adapted to the age and capacity of the individual. It works toward definitions and fundamental principles rather than from them. In short, it reverses the prevailing order of school procedure and follows the natural method of scientific workers. . . .

"The great masters of science, Galileo, Faraday, Pasteur, Darwin, etc., illustrated in all their lives and work the project method. The intelligent man illustrates it in all his work outside of the fields of education. High-school pupils use the project method in all their self-directed work outside of school. But when the school-master undertakes to direct the pursuit of knowledge, he formalizes, he systematizes, he schematizes, and invariably inverts the natural order of

learning. The result is that our young people are getting their real science through various outside agencies. . . .

"About the time of our Revolutionary War there lived in the parish of Selborne, England, an excellent exponent of the project method. His name was Gilbert White. He roamed the fields and woods to see what he should see and made notes of his observations upon a great variety of subjects. . . .

"If it is true, as I believe it is, that the project must always arise in some 'cross road situation,' some doubt as to the next step, some question, vital and impelling because of its personal interest, then air is not a project. No intelligent person inquires about air. And no free person would submit to the protracted instruction which we require the young people to endure upon that topic. Nor may we camouflage the situation by calling this sort of thing general science, or project study, as some misguided persons do. If, however, a pupil says, as one did to me, 'I can understand the use of a propeller to a ship in water but how a propeller may be useful to an air-ship is a mystery that I would like to have explained,' we have a challenge to enter the topic of the air by way of a project.

"It is not necessary that project study by high-school and college students should always involve experimental work. To read a description of project study by a master scientist is often more profitable.

"According to Pasteur, a project has more to do with the general and everyday happenings of nature than it has with academic specialization. . . . The only way to appreciate the project method in the pursuit of science is to study its exemplification in the lives of its masters." (Woodhull, John F. The Project Method in the Teaching of Science. School and Society, VIII, 41-44, July 13, 1918.)

According to Prof. Woodhull, the project is the normal method of growth by means of which related material is interpreted and then classified into life's experiences. Supplied with appropriate materials, the child uses them for his own development, and effects his own organization. The child, confronted with situations having certain values, desires to interpret them. This conception seems to include all intellectualized effort, which is put forth because of the student's voluntary, purposeful attitude toward the situation.

The attempt to restrict the use of the word to a special type of lesson has proved futile. In the foregoing discussions it has been noted that attempts have been made narrowly to limit the use of the word project. In the limiting, however, the boundaries have not been even approximately determined, so that it constantly has overflowed the boundary lines to represent a more comprehensive concept. When the attempt has been made to recognize the project as a special lesson type, all other types have not been justified except insofar as they contributed in some important fashion to life's projects. The various other types consequently are seen to be inseparably and inextricably integrated with the so-called project, which accounts for the inability satisfactorily to use the term project in a restricted sense. This integration and constant expansion of the term to cover the various lesson types suggests the need of using the term as a concept that includes all intellectual growth, and therefore all types of lessons. In fact, the various lesson types, if properly presented, are ways of getting at that type of development that differentiates the human being from other animals, and the one method of growth, whether considered generically, historically, or on the basis of present educational usage, properly may be termed the project method.

There is a tendency to confuse the project method with

its economical utilization. In the preceding chapter, ways of facilitating the use of the project method have been suggested. It does not seem essential that whole-hearted, purposeful activity or unusual interest should enter into method as a component factor, for whole-heartedness is a relative matter. Under the influence of numerous factors, whole-heartedness may decrease to a minimum. Even while one is engaged in a given unit of activity, particularly if sustained effort is involved, whole-heartedness may disappear long before the unit of activity has been completed, but external influences may induce the man half-heartedly to complete the work. The moment that a man ceases to throw his very soul into the work, it is scarcely correct to state that the project abruptly has ceased to be a project, although of course the completion of the project may be affected by the changing attitude of the worker. The significant factor is a recognition of the method of growth indicated by nature for mankind, and the responsibility of the teacher is to seek to relate the child to his environment and related materials in such a way that he will work with a will, with an enthusiasm, and with a well-defined purpose. The more effectively the child is brought into touch with the situation, the more economically will he develop under the influence of the project method. When a child is placed in an environment that maximally is suitable for his continued development, the project method very economically is being used. If an attempt is made to force an artificial, adult organization upon the child, insofar as there is development, it is through the project method, but the project method is so incapably utilized that actual real development is at a minimum. The technique of teaching primarily is concerned with the functioning of the project method as efficiently as possible. The pupil may regard the purpose whole-heart-

edly, or he may regard the steps necessary for the realization of the purpose whole-heartedly. The skill of the teacher is tested as she attempts to get the pupils interested whole-heartedly both in the goal and in the steps necessary to reach the goal.

Problems

1. In selecting an educational terminology, is it preferable to adopt words that are in common use, or to coin words to express a definite concept?
2. Is there a meaning, based on derivation, definition, or general use, of the word project that may be adopted in education, for which there is at present no satisfactory word?
3. What is the explanation of the recent interest that has been aroused in projects?
4. Is there a real difference between an agricultural project and an agricultural exercise?
5. What are the relative advantages of a consolidated school and an ordinary country school in the correct utilization of project material?
6. What work is being done in your own school that has been characterized project work, and what was the basis for its being so termed?
7. May there be projects on the "play level" as well as on the "work level"?
8. List the necessary characteristics of a project. List the desirable characteristics of a project. Define a project.
9. Is there a real difference of opinion as to the meaning that should be involved in the word project or is the difference only apparent?

CHAPTER III

THE RELATION OF THE PROJECT METHOD TO INSTINCTS

The project method is based upon and related to the primitive instincts. Every human being, influenced by his instincts and reactions, tends to develop along lines similar to those of other animals. The intellectualized activities of man which so sharply differentiate him from other animals are fundamentally based upon the animal instincts and reactions. While there is a marked difference between man and other animals in ability to do and to develop, the highest accomplishments not only are based upon but inextricably are interwoven with the instincts and animal behavior. The project method, consequently, utilizing the intellectualized activities of man, is based upon and in numerous ways vitally is interrelated with the primitive instincts and reactions.

All conscious existence, so far as is known, has a physical basis. From the educational standpoint it seems useless to speculate concerning any prior or future state of the individual in relation to this mortal life. An actual situation, and not a theory, confronts our schools. Insofar as a prior existence can be utilized in the development of the child, whether this existence were undifferentiated or not, dependence must be placed upon the instincts, reactions, capacities, and abilities that are inherent in the individual. Since the present situation can be interpreted in relation to the past from which it is evolved, it would be fortunate if every

factor in a prior existence could be ascertained. In the absence of such data, however, resort must be made to the judging of the human organism at birth by its constitution and the activities in which it engages after birth, first unmodified by experience, and later, when modified by experience, seeking to ascertain the extent of modification. With respect to the next world, the schools are not directly concerned, except to the extent that the proper adjustment of the individual to the physical and social environment of this world is compatible with and influences his religious beliefs, or to the extent that his religious beliefs may affect his school work. His educative development inevitably affects his conceptions of the hereafter, and to some extent the social conception of the hereafter will affect the individual's educational development, but the direct effects in shaping religious beliefs are a function of the churches rather than the schools. Since the only kind of conscious existence known to man from the practical standpoint is in relation to a physical body, the only kind of conscious existence that can be trained by man is that which is dependent upon the physical body for its unfolding.

There are varying degrees of development among animals. Through the careful work of scientists, the theory concerning the evolution of plant and animal forms has been substantially established. The theory becomes all the more striking when the evidences of evolution are produced for each science, for while no one subject perhaps conclusively establishes the theory of evolution, the combined evidence of subjects is so strong as to drive one almost inevitably to the adoption of this theory. At the extremes, among living animals are found a one-celled form with very simple reactions on the one hand, and a multicelled, highly complex organization, man himself, on the other hand. Between these

extremes there are varying degrees of physical organization. Scientists have considered the problem of establishing a scale of development among animals comparatively simple, with the exception of the last step, the evolution of man. The physical characteristics of man are comparable to those of other animals, but, basing the inferences in part on the mental life of man, it has been believed that the quality of organization is radically different. The gap, even physically, between man and his nearest kindred, the monkey, is so great that strong efforts have been put forth to find the "missing link." In spite of this gap, however, there is strong evidence that man merely is the summation in the evolution of animals.

For the establishment of relations with the environment, there are varying degrees of complexity of physical organization among animals. The simplest organism, the amœba, has undifferentiated parts, but a form of considerable variability. In some respects its behavior resembles that of inanimate materials, while in other respects its behavior is like unto that of more complex organisms. It can send arm-like projections out in every direction. When one of these arms comes into contact with a particle, the rest of the organism may be drawn up so as to envelop the particle. In a similar fashion it may seek to escape an enemy, or change its direction of movement when confronted by an obstacle. Energy for movement is produced within itself, and its movements primarily are for the purpose of securing food or of avoiding dangers. While it reacts to its environment in such a way as to conserve its best interests, there is no more reason for assuming a conscious existence on the part of the amœba than there is for assuming a conscious existence for the numerous organic cells of the blood of higher animals. (Kirkpatrick, Edwin A. Genetic Psychology, p. 42.) Professor Kirkpatrick has written: "The

migratory cells of some of the corpuscles of the blood of human beings, and many of the bacteria, behave in a manner very much the same as the amœba. Immunity to disease of various kinds is due in many cases to increase in number of those cells in the blood that feed upon and destroy the disease germs. If such cells in our own bodies are organic mechanisms without individual consciousness, the amœba and other lower forms of animals probably are, while, on the other hand, if we regard the amœba as conscious, we should think of many of the cells of our own body and the swimming spores of plants as having each a consciousness of its own."

Monkeys, which approach most nearly the ability of man to learn, probably have no reasoning ability comparable to man's reflective thinking. The monkey commonly has been regarded as the animal that has abilities more nearly like unto those of the human being. As a result of experiments carried on by Professor Thorndike (Thorndike, Edward L. Animal Intelligence, 237-240) the following conclusions were reached: "The monkeys represent progress in mental development from the generalized mammalian type toward man:—

"1 In their sensory equipment, in the presence of focalized vision.

2. In their motor equipment, in the coordinated movements of the hand and the eye.

3. In their instincts or inherited nervous connections, in their general physical and mental activity.

4. In their method of learning or associative process; in
   a. Quicker formation of associations,
   b. Greater number of associations,
   c. Greater delicacy of associations,
   d. Greater complexity of associations,
   e. Greater permanence of associations.

"In their method of learning, the monkeys do not advance far beyond the generalized mammalian type, but in their proficiency in that method they do. They seem at least to form associations very much faster, and they form very many more. They also seem superior in the delicacy and in the complexity of the associations formed and the connections seem to be more permanent.

"This progress may seem, and doubtless will to the thinker who looks upon the human intellect as a collection of functions of which ideation, judgment and reasoning are chief, to be slight. To my mind it is not so in reality. For it seems to me highly probable that the so-called 'higher' intellectual processes of human beings are but secondary results of the general function of having free ideas and that the general function is the result of the formation after the fashion of the animals of a very great number of associations. I should therefore say, 'Let us not wonder at the comparative absence of free ideas in the monkeys, much less at the absence of inferences or concepts. Let us not wonder that the only demonstrable intellectual advance of the monkeys over the mammals in general is the change from a few, narrowly confined, practical associations to a multitude of all sorts, for that may turn out to be at the bottom the only DEMONSTRABLE ADVANCE OF MAN, an advance which in connection with a brain acting with increased delicacy and irritability brings in its train the functions which mark off human mental faculty from that of all other animals.' "

The nervous system of the human being is very complex. The nervous system consists of (1) the central nervous system, including the brain and the spinal cord, (2) the sympathetic nervous system, including ganglia distributed here and there in the body, (3) neurones, connecting the central nervous system with various parts of the body, and

(4) special apparatus, as eyes and ears, for the placing of the nervous system within contact of the environment. The significant part of the nervous system consists of neurones, or nerve cells. A neurone may be long or short, and may consist of a nucleus plus a fibrous extent, with numerous branches. The nervous system includes millions of these neurones, each a distinct unit, and yet holding such a relation to each other that inter-activities readily are established.

The nervous system receives, transfers, and sends messages. Practically every part of the body, including both the internal organs and the surface, is provided with communication with the central nervous system by means of sensory or afferent neurones. The central nervous system, also, is provided with motor or efferent neurones by means of which muscular action may be induced in every part of the body. Within the central nervous system are connecting or associative neurones by means of which the impressions received through the afferent neurones are communicated to the efferent neurones in such a way that the appropriate action takes place. The connections thus established between impressions and expressions seemingly are not accidental in many instances, even though almost every neurone directly or indirectly can affect every other neurone, but there seems to be some instintive selection by means of which many desirable reactions are effected. Some of these impressions are translated into action without the aid of consciousness, while other relations definitely are established through the brain, the process being intellectualized. The most significant work of the nervous system is the interpretation of the incoming impression in such a way that the corresponding expression is appropriate. Whether the process is intellectualized or is automatic, if the consequent re-

action results favorably, the nervous system will tend to repeat the performance under a similar stimulus. If the reaction results unfavorably, other reactions will be effected until, if possible, pleasant results are secured. The nervous system consequently is like unto a telephone wire in that it is affected by varying factors, and in that it transmits messages, but it is unlike the telephone line in that the nervous system itself is modifiable, through the impressions and expressions that are made. Not only do certain actions become habitual, but the brain action itself is modified, and its action at any time largely is determined by its inherent and related characteristics, plus the effects of impressions of the past and the present stimulus.

The distinction between the way a monkey learns and the way a human being learns may be one of degree. Professor Thorndike in discussing the "Evolution of the Human Intellect" (Thorndike, Edward L. Popular Science Monthly, Nov., 1901) says: "The process involved in the learning (by a monkey) was evidently a process of selection. The animal is confronted by a state of affairs or, as we may call it, a 'situation.' He reacts in the way that he is moved by his innate nature or previous training to do, by a number of acts. These acts include the particular act that is appropriate and he succeeds. In later trials the impulse to this one act is more and more stamped in, this one act is more and more associated with that situation, is selected from amongst the others by reason of the pleasure it brings the animal. The profitless acts are stamped out; the impulses to perform them in that situation are weakened by reason of the positive discomfort or the absence of pleasure resulting from them. So the animal finally performs in that situation only the fitting act.

"Here we have the simplest and at the same time the most

widespread sort of intellect or learning in the world. There is no reasoning, no process or inference or comparison; there is no thinking about things, no putting two and two together; there are no ideas—the animal does not think of the box or of the food or of the act he is to perform. He simply comes after the learning to feel like doing a certain thing under certain circumstances which before the learning he did not feel like doing. . . .

"The distinction between man and other animals may be summed up as follows: 'The function of intellect is to provide a means of modifying our reactions to the circumstances of life, so that we may secure pleasure, the symptom of welfare. Its general law is that when in a certain situation an animal acts so that pleasure results, that act is selected from all those performed and associated with that situation, so that, when the situation recurs, the act will be more likely to follow than it was before; that on the contrary the acts which, when performed in a certain situation, have brought discomfort, tend to be dissociated from that situation. The intellectual evolution of the race consists in an increase in the number, delicacy, complexity, permanence and speed of formation of such associations. In man this increase reaches such a point that an apparently new type of mind results, which conceals the real continuity of the process. This mental evolution parallels the evolution of the cell structures of the brain from few and simple and grows to many and complex and delicate.

"Nowhere more truly than in his mental capacities is man a part of nature. His instincts, that is, his inborn tendencies to feel and act in certain ways, show throughout marks of kinship with the lower animals, especially with our nearest relatives physically, the monkeys. His sense-powers show no new creation. His intellect we have seen to be a simple

though extended variation from the general animal sort. This again is presaged by the similar variations in the case of the monkeys. Amongst the minds of animals that of man leads, not as a demigod from another planet, but as a king from the same race."

The teacher should consider the learning process both as influenced by instincts and reactions, and by "free ideas." Approached from the physiological and psychological standpoint, the almost inextricable relation of free ideas and reasoning to the animal instincts and reactions clearly is seen even by those who regard the mental, higher life as something entirely apart from the activities of the lower animals. Man's reactions to certain stimuli are similar to the reactions of the lower animals. If the immediate results are satisfying, in either case, there is a tendency for a resultant fixed type of behavior. Even under conditions permitting the liberal use of "free ideas," numerous instincts, primitive or modified, constantly are involved. It is scarcely probable that man's reasoning activities can be divorced from his animal nature.

The instincts of self-preservation, racial perpetuation, and association normally are very strong. The instincts of self-preservation involve the putting forth of the requisite activity for supplying the needs of life, withstanding enemies, and avoiding dangers. The instinctive tendency to perpetuate the race not only involves reproduction, but an adequate care of the young. The tendency of numerous animals, including man, to live in groups gives rise to numerous instinctive modes of behavior by means of which the individual tends to conform to group standards. Among the higher animals, particularly in man, there are preparatory instincts, as play, imitation, and curiosity, which tend to prepare the individuals while young for later adult participation in the environment.

A variety of instincts may enter into every situation. It is not difficult to understand the classes of instincts that are present in children, but the practical utilization of these instincts is another matter. Numerous instincts are opposed. Under certain conditions the instinct of courage, which induces one to take aggressive measures, is desirable; under other conditions, the instinct of fear, which may take the form of caution, is desirable. The instinct to act in all cases should be tempered by the probable desirable consequences both to the individual and to society. Some instincts consequently must be inhibited, while others may be encouraged. There is no known course of training, however, by means of which the instincts can be utilized separately. In the same situation confronting the individual numerous instincts, more or less undifferentiated, will function. The simple analysis merely helps us to understand the complex act.

There are numerous intellectualized forms of activity that inherently are dependent upon instincts. Among the positive forms that instincts take, the utilization of which is desirable in the project work of the school, may be noted the following: (1) The desire to possess; (2) the desire to collect; (3) the desire to construct; (4) the desire to entertain; (5) the desire to help others; (6) the desire to protect others; (7) the desire to compete with others; (8) the desire to conquer; (9) the desire to stand high in the estimation of others; (10) the desire to amount to something over a span of time, which keeps a person at work even under disagreeable conditions.

The reasoning ability of man is fundamental in helping him to control his instincts. Without the ability to reason, to profit by the past, and consciously to plan for the future, the great social organization of society would be impossible.

The present wonderful record of society is due in large part to the ability of man to subordinate his instincts in such a way as to serve the general welfare, and to exercise his instincts in such a way as to permit cooperative utilization of resources. Without the social inheritance, the progress of the individual would be keenly limited, and without adequate direction, by means of which the social inheritance relating to desirable modes of behavior is economically acquired by the child, the present social structure would be impossible. Each child is born into a social organization which teaches him, and at the same time from which he learns, through the exercise of his intelligence, what instincts to encourage and what instincts to inhibit or modify.

It is through the project method that the hopes of the civilized world are realized. The human race should be grateful that, however the differentiation has come about, mankind has progressed far beyond the lower animals. Without the reasoning ability of man, he would be among the weakest animals of creation. It is not man's superior physical strength over other animals, but his superior mental strength, by means of which he can make the forces of nature serve him, that man has risen to the place of supremacy on earth. It is only as this superior mental strength can be maintained that man can hope to continue his supremacy, and it is only as this superior mental strength is increased that man can hope to continue to move from growth to growth. The project method utilizes in every desirable way possible the instincts and reactions of the child as the basic point of departure for the realization of a human life. It goes beyond these primitive tendencies to action, however, in that it places the emphasis for the development of a human being upon the rational processes. It does not seek to consider the subject matter as subject matter apart from

the child, but utilizes the materials of the environment in developing the child. Since the normal reactions of the child are to situations, the project method preferably appeals to the rational activities of the child through unit situations.

Problems

1. Illustrate some ways that individuals adjust themselves to their environment, (a) without the process ever having been intellectualized, (b) the process once having been intellectualized, but later functioning independently of the intellect.
2. If the project method is regarded as including all intellectualized accomplishment, would the instinctive method be the proper term for all adjustments and development otherwise accomplished? Can you think of another term that seems better?
3. What arguments, if any, direct or indirect,—may be advanced to justify the inference that a conscious existence is probable apart from the physical body?
4. What are the various evidences for and against evolution of all life forms from a common simple beginning?
5. What are the arguments for and against the theory that animals can think?
6. What are "free ideas"? Illustrate.
7. Give five illustrations of how the yielding to instincts has caused individuals to run amuck. Give five illustrations of how the yielding to instincts has subserved the best interests of society.
8. Select some situation and analyze the different instincts that were concerned.

9. Is it possible to become so highly educated that one's instincts always are under control?
10. What would be the probable position of man upon the earth if he were unable to reason, but otherwise were constituted as at present?

CHAPTER IV

THE SOCIAL BASIS FOR THE PROJECT METHOD

Education should point in the direction of adult activities. Whether the general aim of education is stated as social efficiency, adjustment to environment, desirable citizenship, the building up of desirable responses, or in some other way, it is generally agreed that the school work should be of such a nature as to point in the direction of adult activities, permitting the child to pass from the school room with knowledge, skills, habits, and attitudes that will enable him to enter intelligently and efficiently into adult activities. In the organization of a course of study, the subject matter that should be taught and the methods that should be employed, in order that the child at the close of his school career properly may enter upon his larger responsibilities on the threshold of the busy world, must be squarely faced.

Education should permit the child, as a child, to enter into the fullness of living. A similar question, also, should be raised concerning the child. It likewise is generally agreed that no one should be robbed of the "golden hours of childhood." Every one, while a child, should be permitted to have a child's joys and sorrows. Adults should make the period of childhood as happy as possible for the children. To impose upon them, prematurely, the problem of the adult group is to deprive them of the opportunity of living naturally in their own sphere. They cannot appreciate much of the adult material, and their young lives needlessly may

be impoverished. If we are to respect the rights of children to live the lives of children, we must consider their state of development, their interests, and their inclinations. We must develop them in their own sphere. We should raise the questions, what subject matter should be taught? and what methods should be employed? in order that the child can enter into the fullness of existence.

The point of view formerly centered about subject matter. In times not altogether past, so far as practice is concerned, the dominant if not exclusive emphasis was placed on subject matter. A systematic, logical organization of material was presented. A fairly definite body of subject matter was adopted, and the teacher's business was to assure herself that the content was mastered. The child's interests were not consulted. The child was the victim. The material was assigned, and the child somehow must master it, or else suffer the consequences of being classified among the dullards or shirkers. There was an objective standard, adopted from the adult viewpoint, to which he must conform. The formal, mechanical requirements were met more or less indifferently. The old saying that "we send the child to school to be educated, and the other children educate him," in a certain sense, was true. The pupils found their own way of reacting according to their interests. Since departure from the formal requirements was regarded as a breach of discipline, it is not to be wondered at that the pupils were regarded as unruly. Since the environment of the child offered a limited opportunity in the selection of activities, it naturally followed that many acts were committed that, even according to modern standards, are to be condemned. The child was not interested in whether his experiences socially were desirable or undesirable, so long as they seemed to afford him a legitimate outlet for his pent-up energies.

The emphasis upon subject matter led to serious dissatis-

faction with results. That something was wrong with the educational system gradually began to dawn upon the leaders of educational thought. It finally was evident that the subject matter was being exalted at the expense of the child. Certainly it was desirable that a child should become an adult, equipped to perform an adult's duties. The doctrine was established that the teacher should follow the lead of the child. The child would select those things in which he had an inherent interest and would undergo a natural, normal growth. The child would deal with the real problems of children. He was not being prepared for life, but was living a life. He would be an adult soon enough, and then he would have time enough to worry about the problems of the adult group. He could solve his childhood problems on the basis of need, and as an adult, he could settle his adult problems in a similar manner. As he became older his interests would approach closer and closer to those of the adult group, and he naturally, without any sharp boundary line being recognized, would become an adult and cease to be a child. The child was not to be crowded, but was to make his own selection of materials, and was to interpret them in his own time, and in his own way. The general plan has many attractive and desirable phases. "If a man could be secure that his life would endure, as of yore, for a thousand long years," the plan in general might be feasible. The evolution of society, however, has involved thousands of years. The child has the problem of recapitulating the racial experiences in a few years of time. An important factor in delimiting this idealistic plan is lack of time. If the child is allowed to follow his own interests, he may commit acts or adopt moral values that are inimical to the best interests of society. Stated in its extreme form, therefore, the viewpoint is impracticable.

The present tendency is to correlate the interests of the

child and subject matter. The present tendency is to correlate the two viewpoints. The best method of procedure seems to be somewhere between the extremes. It is too much to expect that the final viewpoint is being perfected, although it would seem as if more effective ways are being evolved. The undue emphasis that has been placed upon the subject matter or upon the child's interests is fortunate, for, while the disadvantages of each viewpoint have been recognized, the advantages as well have been clearly revealed. The present opportunity seems to involve the organization and application of a course of study that will involve the advantages of each viewpoint and reduce to a minimum the weaknesses.

The complexity of modern institutions adds to the difficulty of properly presenting educational materials. In the first chapter, it was noted that the institutional life of man has been inaugurated and evolved in the light of his experiences. These institutions have become more and more complex and apparently so far removed, in some phases, from the individual that it is not always easy for adults, not to speak of children, to understand their vital meaning. It is easy to understand the need of working in order to satisfy immediate wants; it is less easy to feel the need of exercising forethought for the morrow. A child can follow the instructions of a policeman, who orders him off the grass, but many adults have difficulty in establishing vital relationships between their own lives and the great democratic institutions of the federal government. A child can worship good and bad spirits as embodied in specific people, animals, trees and stones, but trained minds frequently worship generalized spirits, "in spirit and in truth" with more or less indifference. The institutions which at first served the needs of man directly now serve, in part, the needs of man indirectly. Man's interest in these institutions has become in part imme-

diate, but in part remote. These remote interests are none the less vital. A person less readily understands and fulfills an obligation, however, that does not have a direct personal relationship.

Social, institutional progress, moreover, has not taken place systematically and regularly, but pulsatingly. A possibility seemingly has existed at times of devolution; that the social inheritance might be lessened or even lost. These alternations of periods of uplift and periods of depression have led some students of the past to conclude that society moves in a circle. The modern viewpoint, however, regards society as moving vacillatingly into higher planes. Apparent devolution is but a relative retardation of evolution.

In order to benefit from racial experiences, it is not necessarily desirable to recapitulate racial experiences in the order of acquisition by the race. A study of social evolution indicates that there has not been a best order of accumulations of racial experiences from the simple to the complex, from the former to the present, which children should recapitulate. The individual, it is true, tends to recapitulate racial experience, but not necessarily in the order in which the racial experiences accumulated; the racial experiences have been acquired, in part, by the trial and error method, and have been attended with much sorrow and pain. It became possible to formulate problems and the answers thereto, so that when the actual situation existed, it could be met in the most economical fashion. Succeeding generations, therefore, were saved from misfortunes of preceding generations. They did not have to live over again racial experiences, but, profiting therefrom, could adopt the activities that would produce the most satisfactory results.

Children should be trained to meet both simple and difficult situations. The problem of education is complicated by the

necessity of training boys and girls for active aggressive participation in situations of a general as well as of a specific nature; situations that awaken a direct interest and situations that awaken an indirect interest; situations that meet a need directly and situations that meet a need indirectly. Not only are the complexities and generalities of modern life difficult to understand, but the order in which the present has been evolved is not, alone, a satisfactory criterion for determining the way that the child shall be introduced to modern life. In adopting complexities, however, society has not eliminated the simple. In to-day's environment, therefore, both simple and complex situations are to be found, and situations which have both simple and complex elements. The simple adjustments of earlier days may be used in helping to explain the present.

There is a sequential order nevertheless in which the racial experiences may be organized. Approaching the project from the standpoint of the racial experiences acquired, and the order in which they were acquired, the teacher receives suggestions that indicate, but do not dictate, ways of organizing materials. With the maturing of the individual, through experiences and through natural development, increasingly difficult situations can be presented. The adaptation of the material to the ability of the child is insufficient. If a keen interest can be aroused, the results will be much more satisfactory.

Educationally, it is desirable to distinguish between the teacher's and the pupil's project. The instinctive tendency of a teacher who thoroughly is interested in the subject matter is to consider the project from her own standpoint. How many teachers have found the pupils of their classrooms hopelessly floundering with the material under discussion! The teacher subconsciously has assumed that the pupils know

as much about a certain topic as she does, and has attempted to proceed with the class discussion dealing with the project from the standpoint of an extension of her own knowledge. When the pupils do not understand her, and cannot answer her questions, she wonders wherein the difficulty lies. Instead of blaming herself for the indifference or apparent dullness, she may attempt to excuse herself with the adoption of the idea that the children are naturally backward or disinterested. The teacher's project ideally may be adapted to the further development of the teacher, as an individual, but considered in the light of her duty to develop pupils, it must be condemned. The teacher fails because the teacher's project is not necessarily, and in most instances necessarily cannot be, the pupil's project.

The project method, therefore, requires that the project shall actually be related to the child's interests and needs. The teacher who is not discriminating sufficiently between her own projects and those of the children, needs to become again as a little child. It is necessary that the teacher shall know the nature of the child's world and the varied interests of children which aid in their growth. The project, to be maximally effective, must involve a hundred per cent, real situation to the child. The topic for discussion must arise out of the needs or interests of his world, and should involve some specific need. The pupil does not secure his incentive for study, according to this plan, from some outside agency, as the teacher, but from a genuine motive for studying because the topic involves problems personally vital to him.

A real difficulty in teaching projects required by society is to make the projects real projects to the pupils. If the teacher desires that the projects of the school really shall be the projects of the pupils, she finds it very difficult, if not impossible, to realize her ideal because of the work defi-

nitely laid out in the course of study. Much of the material indicated may be included, not on the basis of the child's interests or needs, but on the basis of the knowledge which has come to be regarded necessary for the adult group. It may be that some of this material no longer has the value that it once had, because of changing conditions, but custom has decreed that it must be taught. Even the adult might have difficulty in adopting some of the projects as his own. Teaching is bound to be unsatisfactory if the adult viewpoint is forced upon the child, or if material of little value to society, as at present organized, is emphasized.

Prof. Dewey has said: "Interest is obtained not by thinking about it and consciously aiming at it, but by considering and aiming at the conditions that lie back of it, and compel it. If we can discover a child's urgent needs and powers, and if we can supply an environment of materials, appliances, and resources, physical, social, and intellectual—to direct their adequate operation—we shall not have to think about interest. It will take care of itself. The problems of educators, teachers, parents, the state, is to provide the environment that induces educative or developing activities, and where these are found the one thing needful in education is secured." (Dewey. Interest and Effort in Education, pp. 95-96.)

The establishment of real situations is somewhat interfered with by the restrictions placed upon the individual by the institutions. Children, perhaps necessarily, are not allowed to participate in political elections, and hardly can feel the interest in an election that an adult may exhibit. In the family the general control of affairs is assumed by the parents. In the church, children are allowed a minor voice.

When a variety of industries was carried on in the homes,

and when children were employed in factories, they bore much the same relations to industries as adults. It is now recognized that there is a preparatory period of life to which every person is entitled, and that only to a limited extent should children be permitted to be engaged in industrial work. Many places, as parks, public libraries, and art galleries, are open to children and adults. In all cases, where admission charges are made, however, as at theaters, the opportunities of children are limited. Children, consequently, participate in the institutional life of their group in a restricted way, and under the general direction of the adult members. They become acquainted with these institutions primarily from the standpoint of the use of institutions to them. Their interests in the home, the church, the school, the industries, and the state are chiefly concerned with the numerous ways that these institutions affect their own lives.

The influence of a person in effecting institutional changes increases from childhood to adulthood. The child wishes to engage in certain types of activities, but institutional life forbids; he wishes to extend his experiences in another direction and institutional life permits. Gradually he comes to conform his life more or less to these restrictions and privileges. As he grows older, he comes to see that the specific requirements of the institutions are not nearly so fixed as once seemed to be the case, and that the dynamic is ever present. As he develops, his outlook broadens, and he becomes interested in the policies directing these institutions. He desires them to serve certain ends. Finally, he is permitted to use his influence directly in shaping the policies.

The economical use of the project method requires a usable understanding of the child's experiences with institutions. The restrictions placed upon children make it difficult to secure an ideal form of motivation in preparing children for

adult activities. The situation is not by any means hopeless, however, since children have a broad acquaintance with adult activities. The relationships of children to their environment suggests an important type of motivation. An understanding of institutional life may be approached from the standpoint of use. It is but a step from the use of material to serve the needs of the child to a consideration of the use of material to serve the needs of other people. How other people are affected by their environments, therefore, may be related to the child's world. Insofar as it is desirable to study the origin, nature, and purpose of phases of institutions, the child's experiences suggest an effective method of attack.

Certain interests of the child in his environment should be encouraged, while other interests should be discouraged. While the primitive interests of children must be recognized in teaching, all interests should not be equally encouraged. Society, as at present organized, is not a "natural" but an "artificial" unit. Mankind has not advanced by following the lines of least resistance for the individual. Certain instincts have necessarily been inhibited to promote the general welfare or to protect the individual from himself. Other instincts have been encouraged to develop. Unaided, the child would exercise both good and bad instincts at too great cost. The child's activities, therefore, need to be directed, but in such a way that he will feel that he is making his own selection, and mastering his own problems.

Acquired interests of a desirable nature should be developed. The direct interests of the child are particularly significant during the earlier years of school life. It is true that the child may do a thing because he is interested in it, but he also may become interested in a situation through the doing. It is possible for an individual to force himself to

be attentive to a situation so as to interpret it. Even though the task may be performed at first from the standpoint of duty, and with a positive dislike of the task, an interest in the activity may be aroused. This indirect or acquired interest may be utilized in the same way as a direct or primitive interest as a point of departure for further growth. Many of the interests of life are acquired. In this way the spiritual of man triumphs over the material.

The assumption of an attitude of interest is helpful in bringing a child into desirable contact with a project. In assuming an attitude of dislike for a situation, a person needlessly is prejudicing himself in advance. Since every situation possesses aspects that are either attractive or unattractive according to the viewpoint, a person is likely to find about what he is looking for. An habitual attitude of dislike for types of situations thus may be created. The individual easily is discouraged, becomes pessimistic, and either becomes a successful grouch or a failure. The habit of adopting an attitude of interest toward every situation that one must meet, on the other hand, often enables an individual actually to acquire an interest in the situation. Since many situations that are not at first sight attractive must be met, the adoption of an attitude of liking for a situation, even though a forced interest is involved, will help one in leading a contented, happy life.

The pupil should see the need of adapting his activities to social requirements. The adult does not always find it practicable to engage in those activities for which he seems best fitted. Insofar as it is compatible with the best interests of society, every individual should be permitted and encouraged to follow the line of activities to which he is particularly adapted. Since institutions are organizations of man, and not of nature, it is too much to expect that the correct

number of individuals with the proper aptitudes is being turned out of nature's laboratory to meet the multitudinous callings of man. If a new line of work is opened up, as the manufacture of automobiles, it is almost too much to expect that nature will produce a special class of babies, who, through training, will be better fitted for that industry than any other. There will be people, no doubt, with aptitudes in this direction, but it is probable that such people existed before the invention of automobiles. The situation creates the demand and men are trained if possible to meet the demand, providing the inducements are sufficiently attractive. If a man, for example, wants a pair of shoes costing five dollars, he probably will not think of making the shoes, but will engage in work that is an equivalent. He may have his choice of two positions, each of which involves practically the same amount of manual labor. One position, which he prefers, may pay $2.50, and another position, which he does not like so well, may pay $5.00 a day. In most instances, he will select the better paying position, irrespective of his direct personal preferences. The family welfare may induce a man to continue in a vocation in which he has little original or acquired interest. Perhaps a man wants to work in a shoe factory, but he cannot earn enough to supply his family with necessities; he may not want to work in a tobacco factory; he may even feel that his moral sense is stulted thereby, but if the compensation is sufficient to care for his family, he probably will select the tobacco factory. In choosing a vocation, a person needs to consider his tastes, but he also needs to consider the probabilities of his being permitted to use his abilities if he develops them along a certain line. So far as the indications are concerned, a man may be cut out for a first class lawyer, or a second class physician. If there is a probability that there will be twice as many law-

yers as are necessary, but only one-half as many physicians, the latter profession evidently offers the more favorable opportunity of service. The individual needs to temper his wants with the opportunities that society offers, or will create. The truth involved in this viewpoint was illustrated in the recent mobilization when the government placed many round pegs into square holes, because the number of round holes, figuratively speaking, was less than the number of round pegs.

The school work should be planned so as to help the individual to adapt himself to social requirements. An ideal situation in the school room would be the determination of the line of activity for which the individual is best adapted, to be followed by the proper training that would enable him to serve most efficiently in that field. If the adaptation were one sided and society adapted itself wholly to the interests of the individual, this safely could be done. To a large extent, however, the individual must adapt himself to institutional needs, the general nature of which is beyond his control. Wisdom seems to dictate that in addition to the general preparation which will be useful to every individual's future career, the school should seek to give the pupil an insight into various adult activities, although the development of special aptitudes should not be discouraged.

The child's world is not sharply differentiated from the adult's world. From what has been said, it readily is understood that the child's world is not a peculiar world, that it is not a world distinct from the adult world. Each personal world is made up of the same type of social and physical environment, and therefore includes material in common. The viewpoint of the child, however, is different, although there is an undefined transition from childhood to adulthood. The whole child does not at once become a man. Politically a

child may become a man at twenty-one, physiologically at fourteen, if manhood is determined by the ability and opportunity to engage in adult activities of a special sort.

Drill work as an aspect of project work should be given on the basis of need. In the gradual movement of the child toward adulthood there are certain accomplishments regarded as desirable which should function more or less as habit. It is regarded as desirable that a man should touch his hat on passing a lady, but no special drill work to get most boys to do this is necessary. They adopt this practice so that they may be in harmony with their social environment. In the formation of many habits, however, a considerable amount of drill work may be necessary. The fundamental operations of addition, subtraction, multiplication, and division in arithmetic, and the location of places in geography, may involve drills. In all cases where drill work is desirable, it is preferable that the individual first shall have had a situation, or situations, which could have been met much more economically if certain knowledge had been quickly available. If the pupil can be left with the inference that he will meet numerous situations in the future, involving a recurring need, time after time, of this knowledge, he is then in a positon to feel the need of mastering it once for all.

The project method suggests the desirability of working toward the organization of material. Closely associated with the drill work is the need of organizing knowledge that has been acquired so that it will be held in mind, not so much for its own sake, but in order that it may be drawn on more readily in meeting life's situations. This classification of experiences, and the necessary drill work for the retention of knowledge, merely puts the house in order for future contingencies.

Summary. The study of the relations of the child, actual and potential, to the social group indicates that the child is born into the institutions to which he must conform, although, within limits, he has the ability and opportunity of altering them; that since these institutions are artificial organizations, they are not necessarily in accord with the development of the instinctive impulses; that the inherent interests of children should be utilized in education; that acquired as well as primitive interests are legitimate points of departure for further growth; that forced attention, from the standpoint of duty or because of an indirect stimulus, may lead to an acquired interest, or even if it does not, to a certain extent, is justifiable, because it characterizes conditions that prevail in the world at large; that healthiest and most rapid growth occurs when the child feels an inherent need to interpret the situation; that the child's world is not distinct from the adult's world, but is composed of the same elements, with a different emphasis; that the "use" side of things is the viewpoint of the child, and may be used as an approach to the adult problems; that whatever the type of motivation employed, the situation should be related to the past experiences of the child, the aim of the motivation work being primarily that of getting the child to make the observations and interpretations, or to engage in the drill work with the keenest possible interest; that the acme of good teaching is reached in getting the child to engage wholeheartedly in worth-while purposeful activity.

Problems

1. How should the social and the psychological bases for the application of the project method be related?
2. Is there a necessary difference between permitting the

child to enjoy the fullness of living as a child and the preparing of the child for adult activities?

3. Is the subject matter to be regarded as an end or as a means to an end?
4. How much truth is there in the culture epoch theory?
5. Is it inevitable that there shall be some square pegs in round holes?
6. To what extent is a person a slave to institutions?
7. What is the moral tendency of the new-born babe, and how may this be utilized in developing the child along desirable lines?
8. Name five instinctive interests that socially are desirable, that socially are undesirable; name five acquired interests that socially are desirable, that socially are undesirable.
9. Is it always necessary for a child to assume an attitude of interest only because he actually is interested in the topic, or is it sometimes desirable that he should assume an attitude of interest at the time of beginning his study, whether he actually is interested or not?
10. How does the child's world differ from the adult's world?
11. Would it be possible economically to do away with drill work?
12. To what extent should organized material be given a class for general guidance?

CHAPTER V

THE SIGNIFICANCE OF MOTIVATION IN THE USE OF THE PROJECT METHOD

The teacher's work is to place the child into effective relations with his environment. In the preceding chapters it has been shown that the project method, as a method, is beyond the control of teachers, that it is nature's way of securing results. The teacher, therefore, is relieved of every responsibility in the formulation of the method itself. Does not this, then, minimize the importance of the teacher's work? Decidedly it does not. The teacher needs to recognize the ways of nature in developing the child. Her big problem is properly to relate the situations to the child's experiences and attitudes so that the child can grow. Her problem is to get the child's interest aroused so that he will feel the need and if possible the want of mastering the situation. She has the task of getting the child to focus his attention and interests upon situations whose mastery will develop him in the direction demanded by social welfare. Her opportunity, in short, lies in the direction of stimulating an interest in worth-while situations to such an extent that the child is willing and even anxious to put forth effort in their interpretation.

Every teacher should attempt to relate the work to the child in such a way that there is no problem of discipline. How great is the teacher's opportunity may be measured by the present condition of our schools. In how many

schoolrooms is the attention focussed on the subject matter instead of on the child? In how many schools is an attempt made to adapt the child to the subject matter instead of trying to adapt the subject matter to the child? In how many schools do the children memorize language forms, and mislead themselves and also their teachers into the belief that they really are mastering the substances? In how many schools are children confronted with situations that involve little or no effort on their part to understand them because the situations have already been mastered? In how many schools are children confronted with situations that would tax the fully developed and matured abilities of an adult to master or even, in a reasonable measure, to understand? In how many schools is the work imposed upon the child, instead of the child's imposing upon the work? In how many schools does the child initiate activities? In how many schools does the following quotation apply: "At least three-fourths of all the time spent by a boy of twelve in trying to learn a hard lesson out of a book is time thrown away. Perhaps one-fourth of the time is devoted to more or less desperate and conscious effort; but the remaining portion is dawdled away in thinking of the last game of ball and longing for the next game of tag."

It is too much to expect that an ideal situation can be attained and constantly maintained in any schoolroom. Is it too much, however, to expect every teacher to get a vision of the ideal situation and to devote every energy in an effort to realize it? Is it too much to ask that every teacher thoroughly shall be trained for her calling, and that society shall compensate her sufficiently in order that this may be done? Every teacher has had moments of enthusiastic activity on the part of every pupil in dealing with some situation. All problems of discipline were gone. The situation engrossed their every attention. What a joy it was to teach

under such conditions! Each teacher would do well to analyze the reasons for the spontaneous response in an endeavor to ascertain the essential aspects of ideal teaching.

A child's work is maximally motivated when he engages in whole-hearted, purposeful activity. There are varying degrees of motivation. A person may become so interested in effecting a certain result that he feverishly will engage in the necessary activity, even to the extent of neglecting other duties of life, and perhaps at the expense of his own personal comfort or health. Whether such a person has selfish social aims in view, his work is strongly motivated. While this person practically is living with the situation that so strongly attracts him, or to which he concentrates his energy, other duties that he cannot leave wholly unperformed may be attacked in a very indifferent manner, and with much reluctance. Whatever the reason may be that causes a person to dislike to perform a task, the work of such a person is poorly motivated. In spite of the efforts that have been made to differentiate between incentive and motive, it probably is true that all work, consciously done, involves motivation, in some cases, weak even almost to the vanishing point, in other cases, strong to the extent that it plainly is evident.

H. B. Wilson and G. M. Wilson, in indicating the meaning of motivation, have written as follows: "That attack upon school work which seeks to make its tasks significant and purposeful to each child, by relating them to his childish experiences, questions, problems, and desires, is called motivation. The child's work is motivated whenever he sees a real use in it—whenever it satisfies some need he feels, provides some value he wants, supplies some control he wishes to possess, secures some desired end, or helps him to attain any definite goal.

"The goal sought may be near or remote—as near as earn-

ing a penny to buy a stick of candy, as far as gaining the mental and manual ability to construct an airship. So long as the child comprehends more or less clearly the relationship between the work he is doing and the end sought, his work is motivated. The more definitely he appreciates this relationship, and the more keenly he desires to reach the given goal, the more impelling are his motives for working." (Wilson, H. B. and G. M.: The Motivation of School Work, p. 15.)

Motivation requires an approach to the subject matter from the standpoint of the child. From the child's standpoint, the center of activity is the meeting of his mental difficulties; from the teacher's standpoint, the center of activity is the child and his desirable development. From neither viewpoint is subject matter revered for its own sake. Prof. Dewey has written: "We may have a ready-made conception of use or function, and try the value of what is learned by its conformity to this standard. In this case we shall not regard any pursuit as properly motivated unless we see that it performs some special office that we have laid down as useful or practical. But if we start from the standpoint of the active powers of the children concerned, we shall measure the utility of new subject matter and new modes of skill by the way in which they promote the growth of these powers." (Dewey, John: Interest and Effort in Education, p. 63.)

Motivation requires that a strong initial interest in the situation shall be aroused. An initial interest in the situation is highly desirable. This fundamental principle frequently is recognized in various adult activities. When each liberty loan movement was inaugurated, and when funds for the Red Cross, the Red Triangle, and other organizations were to be raised, great mass meetings, marked with much enthusiasm, were held throughout the country. When a po-

litical or civic organization launches a campaign, an attempt ordinarily is made to make the initial movement as effective as possible. The attention of the people must be secured. Closely related to this securing of attention is the holding of the attention, and this involves either the presentation of material so as to interest the audience to the extent that it will want to listen longer, or a conscious, continued attitude of attention on the part of the listener. Since the latter, so far as voluntary effort is concerned, is beyond the power of the speaker to control, emphasis must be placed upon the former viewpoint. In the schoolroom the same principle should prevail. It is not particularly difficult to secure the temporary attention of a group of pupils. If the stimulus to which they more or less instinctively respond is presented in such a way as to interest them, they will respond with eagerness. If the material presented does not interest, they will respond more or less indifferently. The pupils may stay with the task, even though not interested, but their effort will be divided between holding the attention to the task in hand and the interpretation of the situation. An initial momentum, therefore, should be established, not alone by securing the temporary attention of the child, but by getting him to see some aspect of the situation that will cause him to want to study it further.

It is not always the case that more interest can be aroused in a cause than in an effect, or in the first of a succession of incidents that occurred in the evolution of product. Chronological or sequential order, consequently, frequently must give way to psychological requirements. As has been noted, the child's experiences are largely in relation to use, or in relation to the significance of relationships. The finished product and its uses may be within the experiences of the child. His attention can be secured through the consider-

ation of data already a part of himself. It is insufficient merely to have the child recall and relate what he knows about the product and its uses. In the initial presentation it is desirable as well to get the child to feel his deficiencies, to get the child to feel that the continuation of a study of the topic is going to give him additional related, needed information. In the presentation of the subject, wheat, for example, the logical, sequential order suggests that the topics should be presented in the following order: the seed; preparation of the seed bed; planting; harvesting; threshing; transporting to the elevator; transporting to the mill; manufacture of flour; transportation of flour to the wholesaler; the retailer and the customer; making of bread, pies, etc.

Approached from the psychological standpoint, a somewhat different organization is suggested. A study of wheat involves a consideration of the country and the city part of the subject. If the child's experiences are going to be used as a point of departure, the child in the country will consider first the country end of his subject, while the city child will consider first the city end of the topic, and those aspects of the industry, whether the child lives in the city or the country, with which he has had some contact. In either case, the ground ultimately covered may be practically the same, but the order in which the parts are handled will differ. The logical, sequential order neglects the child and his interests; the psychological order does not necessarily neglect either, although in the hands of some teachers the subject matter may suffer.

A continued interest in the situation is necessary. Each time that an effort has been made to enlist the help of the public in reaching a common end, the initial effort, while given marked emphasis, has been regarded as affording insufficient momentum to carry the issue to ultimate success.

Committees have been appointed to solicit, posters have been placed in conspicuous positions as reminders, additional meetings have been held from time to time, newspapers have kept the movement prominently before the public. An important consideration was the withholding of certain information, or the securing of fresh incidents, so that from time to time, during the progress of the campaign, the interest of the public might be maintained. The principle involved is of profound significance to teachers. On entering into the study of a unit of work, care should be taken to arouse interest. It is just as desirable, however, that sufficient material, making direct appeal to the child's interests, shall be reserved for use in connection with a further study of the topic. Many plans, promising well, both in school and out of school have "fizzled out" simply because the energy of the group was concentrated on the initial outburst. In journey geography work, for example, the teacher will do well to approximate as nearly as possible to the conditions that actually prevail among travelers. If a person were planning intelligently on a trip, he would consider several possible journeys from the standpoint of the opportunities provided by each journey. Reading, the study of pictures, the study of maps, talks with those who could inform him of the advantages of the various trips, would enter into the preliminary work. After a certain journey had been decided upon, the traveler would be interested in reading more articles, in studying more pictures, in interpreting more maps, in interviewing more people, and in making a more intensive study of what could be seen and experienced with respect to the particular route selected. The trip would be in part one of verification or correction of impressions that had been received in advance, and in part one of discovery of things that had not entered into the original anticipa-

tions. From the standpoint of sequential occurrence, the teacher will be inclined to take up the journey once for all, beginning at St. Paul, and noting the changing conditions, one after another, downstream to New Orleans. The psychological viewpoint suggests a different way. In his own community the child may have his choice of visiting one of several parks on some particular day. He will think of the animals in Forest Park, of the lagoon in O'Fallon Park, of the tennis courts in Carondolet Park, of the playground in Tower Grove Park, or of some other concrete thing that he can see, or of some activity in which he can engage at the various parks. He then will make his selection on the basis of what he prefers to do. He then goes to the park with a purpose more or less clearly defined, but this does not prevent him from noticing other things, or engaging in activities which he had not thought of before leaving home.

The teacher, therefore, will begin with some phase of travel that has come to the attention of the pupils. A relative or a friend has traveled. Some one prominently before the public is taking a trip. Several trips that students want to take may be suggested by the students. These trips may constitute a point of departure. The teacher, as a member of the class, may also indicate trips that she thinks will be worth while. The pupils will listen to her and to each other. They will decide on the trip, then will make a more intensive study of what it has to offer, and lastly, will travel in imagination from their point of departure to their destination, making the trip as realistic as possible. This illustration is given, not as a type of perfect motivation, for this probably would require that the pupils actually be allowed to take the trip, but as an example of how, under present conditions, the work can be motivated so as to cause children to want to study things, some aspects of which pertain dominantly to adult life.

The difficulties involved in maintaining a sustained interest in a topic suggest the value of variety of material in its presentation. Concrete and illustrative materials of various kinds should be used. The child should be appealed to through his eyes, through his ears, through his sense of touch, taste, and smell. Different viewpoints should be presented. The situation should be realistic to each pupil. It is recognized that a revival meeting cannot be indefinitely conducted with a constantly sustained interest. In some instances, depending in part on conditions beyond the control of the evangelist, this period of time may be one week, in other instances ten weeks. No set rule, therefore, can be adopted as to how long it is wise to continue the study of a topic. This depends on the special conditions. Some teachers may find it profitable to discuss the journey from St. Louis to New Orleans, for a week or two, while other teachers may find three or four days sufficient. Just as the detailed material must vary in the presentation of a topic, so the topics themselves should vary before monotonous deadness takes the place of wholehearted interest.

Motivation is desirable at the close of a unit of study. If the work properly has been motivated the child constantly has engaged in purposeful activity. He has had a general motive in mind throughout the period that the topic was studied in that he wanted to meet the conditions of the topic as a whole. He has had numerous specific motives and purposes in mind in the different aspects of the situation that confronted him from day to day. He has interpreted the material. As his knowledge of the general topic has grown, the ultimate purpose for the studying of the topic comes nearer and nearer to realization. Each day the general topic in part has been interpreted, and the answer in part has been indicated. The general purpose of the student has helped to sustain his interest in the details of his study. At last the

various parts of the situation have been analyzed, and the child has grown into a knowledge of the situation as a whole. His purpose has been realized. The joy of attaining is supplemented with the joy of attainment. He not only has felt but has met a real need. Step by step the end has been reached. He is not yet satisfied. The material with which he has been working is more or less loosely coordinated. In order that he may have an intelligent, coherent appreciation of the topic as a whole, he wants to bring together the details which he has mastered. As a last step, therefore, he properly relates the material in some organized fashion. The mastery of the situation has satisfied his purposes. While he has been at work, however, his interests in things in general have grown, and he has increased his knowledge, and therefore possible points of contact with his environment. Out of his enlarged experiences and interests, therefore, arise increased opportunities for motivating other topics as a means of further rapid natural growth.

The work of each recitation period should be strongly motivated. In our consideration of motivation in project work, emphasis purposely has been placed upon a unit of work rather than upon a unit of time. Several recitation periods may be involved in working out a unit of work. The story of George Rogers Clark in history, the study of the cotton industry in geography, and the study of the "Lady of the Lake" in literature are examples of topics that will involve much more than one recitation period. It necessarily follows from the discussion that the work of each recitation period should be thoroughly motivated. Some specific purpose, preferably leading in the direction of the realization of the larger purpose, may dominate a recitation. Care should be taken to relate to the discussions that have preceded. Each succeeding discussion increases the possibility of variety and

intensity of interest of a class in the ultimate goal. The desire of the pupil to solve the whole situation, therefore, may grow as his knowledge grows, which accounts for the increasing enthusiasm that some teachers find in their classes from day to day as the topic is considered.

The enthusiasm of the pupils should not blind the teacher to the need of acquainting the pupils with a large field of knowledge. Sometimes we hear excellent teachers remark that they have spent more time on a topic than they had planned because of the enthusiastic work of the children. Teachers, themselves, are loath to abandon such topics to take up topics the results of which they are not sure they can anticipate. Pupils, because of their interest, may not want to drop the topic to take up something the possibilities of which are unknown. Meeting the conditions of a course of study, however, and the need of the child for a variety of experiences as well, requires the teacher to pass on to other topics. Succeeding topics preferably should be closely related to each other, so that a transition rather than an abrupt break may prevail. Since the points of contact of the children with all phases of human activity are numerous and diversified, it is possible, fortunately, for a teacher who has the proper training and outlook, the time and the inclination to study the situations, to motivate in a strong, vigorous fashion practically everything that she is required to teach. A careful study of work assigned, however, should be made by the superintendents of the course of study as a whole, and by the teachers for their particular work, in order that the situation may be presented in the order that will furnish the most nearly perfect motivation for all topics concerned.

In the teaching of every subject there is necessity for strong motivation including (a) geography. Geography is

a study of the earth in its relation to man. Geography particularly is concerned with man in his present environment, and the utilization of the resources of the earth by man. It has been noted that the child's acquaintance with the earth begins with his immediate environment. The problem of the teacher in the earlier grades is to extend the acquaintance of the child with his environment and to assist him in its interpretation. In the higher grades observational, physical and commercial geography are important. There are varying degrees of motivation in connection with the topics of geography. (a) The teacher may ask the class as to how many would like to go to the park. The entire class may volunteer because of the change and novelty involved; (b) The question may be slightly amplified by an inquiry as to how many would like to go to the park to make a study of sink holes. The entire class again may volunteer in order to satisfy an instinctive curiosity to see a certain thing as well as because of the change and novelty involved; (c) The teacher may present in an interesting fashion some facts concerning sink holes, skilfully arousing in the class a desire to see a sink hole. She then may ask how many would like to go. The whole class again may volunteer, but in addition to the novelty, change, and opportunity to see what is presented, there is a curiosity and desire aroused that the proposed trip can satisfy; (d) In connection with the child's normal activities, he may learn that some one has been drowned in a sink hole, or that a sink hole at one of the parks is to be converted into a lake, or that the sink holes have overflowed, injuring the crops in the adjoining fields. He may come to school with the question as to what sink holes are and how they are formed. The teacher may enter into a discussion concerning them, and in connection with the topic may mention the fact that there are numerous sink

holes near St. Louis. It will be unnecessary for her to ask the question as to how many would like to see a sink hole, as the class will ask her if they can go. It is not difficult to see, in the four illustrations given, that there is a marked increase in the quality of the motivation work from illustration one to illustration four.

Some of the children, perhaps, learn that a farmer receives only about seven cents a quart for milk from the dairy companies, whereas their parents must pay fourteen cents a quart. They may come with the question as to why there is such a difference in price. A brief discussion of the care of the milk and the treatment that it must undergo, the expense of transportation and distribution may be made. If the children have not had their normal growth curbed too much by artificial restraints, they are sure to ask if there is a dairy plant that they can visit, or some one may contribute the information that there is a dairy plant that the class can visit. The pupils may visit the plant and also the receiving station for the inbound milk and the outbound empty milk cans, and thus satisfy a need that was created in the natural environment of the child, nurtured in the schoolroom, and as nearly satisfied as possible by actually visiting one of the plants under discussion.

All normal people are interested in the current happenings of the world. Newspapers, magazines, advertising material, meetings, and observations keep people, including children, in touch with current events. There are numerous events occurring, the understanding of which involves geographic material. The government barge service began between St. Louis and New Orleans, in the fall of 1918. What were the factors inducing the government to install this service? Is it probable that the service is but the beginning of the revival of river traffic? What are the factors favor-

ing and discouraging such a movement? A series of related problems is opened up, the original impulse being given by the public interest in the formal opening of the barge service. The papers may spread the news that there is an unprecedented concentration of traffic at New York City. The question arises as to why there should be such a concentration when there are numerous other ports to serve the country. A consideration of this situation may bring out the fact that the Atlantic ports are engaged in a much larger business in the aggregate than the Gulf ports, and this leads to the question as to whether the relative importance of these two groups of ports may be expected to change in the future.

In connection with the school itself many interests of children can be utilized. If there is a school garden, the knowledge of the children concerning these products, or if they are uninformed, their first hand contact with the garden products may be used as a point of departure for a further consideration of the importance of the products in the present economic and social life. The materials of which the school building is composed, bricks, iron and steel, wood, asbestos, tiles, etc., the ventilation of the building, the storing of coal for winter, the location of the school, the routes taken in going to and from school, the sources of the many articles used in the school, leading back to a consideration of the raw materials of which they are composed, these and many more topics offer themselves to the wide-awake teacher as a point of departure for an interesting study of geographic materials.

History should be strongly motivated. The field of history in many respects is as comprehensive as the field of geography. "History in its amplest meaning includes every trace and vestige of everything that man has done or thought since first he appeared on the earth." (Robinson, The New

History.) Or, "History, in its broadest sense, is everything that ever happened." (Johnson, The Teaching of History.) In our public schools emphasis more and more is being placed upon the viewpoint that the history work should be related to modern life, to present-day situations. Since the present has been evolved from the past, history is desirable for every one, not so much because of its intrinsic value, but because it will help us to understand the present. The tendency is to eliminate from our public schools all historical material that has no distinct bearing upon the present. History thus is becoming more and more a subject that is not studied primarily for its own sake, but for the sake of the pupils in permitting them to live effectively in the present. The more closely the work is related to the child's interests and experiences the more readily can motivation be secured.

Important holidays may be used as a point of departure. The celebration of the fourth of July is an annual occurrence within the experience of practically every child. Why do we celebrate on the fourth of July? Why is this day called Independence Day? What were the special conditions attending the Declaration of Independence? These special conditions can be worked out by the children and dramatized. Certain children represent the different colonies, and the meeting is held with the children reproducing the conditions according to their conception of the happenings on that day. It is not essential that the exact conditions shall be reproduced, but merely that the spirit of the occasion truthfully shall be presented. When the Declaration is adopted, heralds are sent forth in various directions to proclaim the tidings. One herald meets a rich colonial merchant, who has close trade relations with the mother country, and also close blood relations. When he hears the news, he scoffs at it, and

says that the rebels will be hanging on the nearest trees in a few days. Another herald meets an industrious, liberty-loving farmer, who hears the news with much joy, for he has no special ties with the mother country and cannot see the need of submitting to a country far across the ocean. This brings out the idea that there were two opposed viewpoints concerning the Declaration. From this situation arises the problem of whether the colonists were justified in adopting the Declaration of Independence, which involves a consideration of the chain of events leading up to the Declaration. In addition to the problem with a backward time perspective, there is a problem with a forward time perspective. Was it sufficient that the colonists should adopt the Declaration, or was it necessary that they should make the Declaration good by the use of force?

How was the Declaration of Independence made good? This problem will include a study of the actual military strategy, and the diplomatic struggle at the Peace Conference.

The chronological order can be justified only to the extent that it psychologically is desirable. The ordinary method of procedure is chonological. The pupils study event after event, drifting down the stream of time, why, they know not, except that it is so. Moving in this blindfolded manner, they come face to face with some culminating event. How much more purposeful the work could be if the pupils were given some situation, the causes of which they felt the need of interpreting, or the effects of which they felt the need of ascertaining.

The birthdays of great men may be used to motivate certain types of work. The birthday of some great man, as Washington, Lincoln, or Roosevelt, may be used as a point of departure for making a biographical study. The situ-

ations with which the man was related will come out more or less in the biographical study. Some particular situation, as the battles of the American forces along the Meuse, may bring a man, as General Pershing, into prominence, or some general situation, as the entire allied battle line, may bring some person, as General Foch, into prominence. The biography of a famous man, therefore, may furnish a point of departure for the study of events, or the study of an event may offer a point of departure for the study of the life of a man closely associated with the event.

The political life of the city, state, and nation is rich in motivation possibilities. The political campaigns, local, state, and national, offer motivation material of a unique nature. Here is an opportunity to see, experience and interpret history in the making. Each candidate is anxious to present his qualifications. The records of various candidates are brought out and criticised, thus relating the campaign to many problems that have come up for settlement. Feeling may run at white heat, and the emotional as well as the intellectual, and even the physical, activities of man may enter into the situation. Harsh things may be said during the campaign to be smoothed over at the close. An uninformed spectator may think that irreconcilable breaches are being made, not realizing that this is America's way of settling her problems. Among the topics that may arise are the following: how the political parties came to be, and their powers; reasons that have called forth new parties, or why old parties have gained or lost strength; problems still in the process of being settled, each party having its particular plan of settlement; party control of the legislative, executive, and judicial departments; method of electing senators, representatives, and President; qualifications required of those elected; determination of the elected; when

and how the successful candidates are inaugurated. Presidential elections are held every four years, so that it is always possible, if the course of study is made sufficiently elastic, for every child at some time during his school career to make an adapted, detailed study of national politics, extending his observations and studies over the period of time actually covered by the campaign. It is to be expected that more will be accomplished in the eighth than in the fifth grade, but while the campaign is on, all children irrespective of age may be interested, and in proportion to ability, can interpret the passing and related events.

Local motivation material can be secured not only for the motivation of local history, but for the motivation of United States and general history, also. Local history frequently may be studied in relation to museum material, old buildings, old landmarks, monuments, and the personal narratives of those connected with important events. This work becomes highly interesting if properly presented and related. All local histories are related to the histories of larger areas. The local history work, therefore, not only furnishes the necessary motivation material for the study of local history, but local history in turn furnishes the needed point of departure for the study of a larger area. Examples of such local material are found in St. Louis in the Jefferson Memorial, the Missouri Biological Garden, the Missouri Historical Society, the monument and grave of General Sherman, the narrow streets along the river laid out by the French, the exact place where St. Louis was founded, and the Mill Creek Valley in relation to transportation routes. No locality is without its local history, although some localities are favored more than others.

Subjects which require considerable mechanizing of activities should be motivated. In arithmetic, the emphasis has

been placed upon skill in the manipulation of figures. Whether the problems were impossible or impracticable from the standpoint of actual life was not regarded as of primary importance. If the proper skill in the combinations could be secured, it was assumed that the problems of life, involving mathematical considerations, could be handled without difficulty. The viewpoint was pedagogical because the child's interests were disregarded on the one hand, and because the subordination of the practical and possible on the other hand did not secure the motivation necessary for securing, economically and assuredly, the desired results. The work was based on desirable accomplishment anticipatory on the part of the teacher of future needs of the child, instead of being based upon real needs of the child.

The individual and social needs of the child must be appealed to in arithmetic just as in other subjects. The amount of actual arithmetical operations required for the activities of most children is severely limited. For the great mass of adults the same general statement holds true. The project method suggests the desirability of eliminating problems too far removed from actual life, and the emphasizing of problems that have a special value to the child, and further value for adults.

Among the situations that may be used for the arousal of problems of personal interest or importance to the child may be mentioned personal expenses and income, problems connected with games, problems relating to school work, problems relating to work out of school, problems relating to receipt and disposition of funds and materials from the home. Problems of a social nature, which only indirectly affect the child, but which are of considerable concern to society in general, also may be used, the emphasis on this type of work increasing as the child continues to develop. Examples of

such classes of problems are: problems concerning public improvements, problems concerning political questions, as taxation, immigration, representation; problems concerning general morality, as prohibition, the tobacco habit, etc.; problems concerning the economical welfare, as problems relating to various industrial topics, wheat, corn, cattle, copper, etc.; problems relating to posterity, as the probable adequacy of wheat production to meet the world's requirements, etc. In fact, there are few topics relating to society or to individuals that have not a mathematical side, although some situations are richer in this respect than others.

A certain amount of drill work in arithmetic is inevitable. The way that the drill work originates, however, is significant from the standpoint of motivation. If drill work is arbitrarily assigned, the pupil may work from the standpoint of faith in the leader, or because of the weight of external authority. The motivation concerned is likely to be reduced to a minimum. In the working out of a worth-while situation, involving considerable mathematical material, however, in working toward the realization of the purpose, the pupil may find it necessary to work out a mathematical problem. He may be unable to make the required combinations, or he may make the combinations too slowly for practical needs. If he is assisted to make the required combinations, he is learning how. After a few problems involving similar combinations have arisen, the pupil may feel the need of increased skill in mathematical manipulations, and as a result is in the proper mood for drill work in order that future similar operations may be solved more quickly. Arithmetic, therefore, can be motivated more readily if the arithmetical problems are related to situations in which the child has an interest, and provided the necessary drill work is preceded by work which places the child in the proper attitude for drill mastery.

The relative ease with which the results of manual dexterity can be measured may lead to a mistaken assumption that strong motivation is present in the doing. In expression work a simple motive, as the desire to make some piece of furniture as a surprise for mother, may prevail, or a complex of motives, which includes not only the desire to please mother, but the desire to construct an artistic piece of furniture, and to excel all other members of the class in its construction, may be involved. In the construction work, the motive may be merely to do the work sufficiently well, that the course can be continued, or so that the minimum requirements will be met. If the activity is not stimulated by whole-hearted activity, some writers would state that the child is not driven forward to accomplishment by motives, but by incentives.

That these two terms are used, however, to denote varying degrees of the same thing is evident if a careful examination of the uses of the two terms is made.

In manual training it is decidedly unpedagogical to begin with a consideration of tools, their care and use, how to plane a board, etc. Some simple constructive work in which the child has an interest should be begun and in connection with the unit of work being attempted, the use of tools will come up. Insofar as practice is required in the use of the tool, this can be done after the child has need for the use of the tool. From the artistic standpoint, it may be preferable to prevent the child from making mistakes in his constructive work, but from the educational standpoint, the attempt to do, ending in not altogether satisfactory results, will bring vividly before the child the need of mastering the tool, and therefore will place him in an attitude that may mean whole-hearted work in tool mastery.

In penmanship, pupils commonly are given forms to imitate. These forms may not be letters or words or sentences,

but merely some element that enters into writing, as ovals, the u-exercise, the m-exercise, etc. Such imitation of the nature of drill work is not harmful in and of itself. If the pupil is assigned this work with the general statement that it will teach him to write, however, the motivation involved is likely to be of an inferior order. If the pupil sees others expressing themselves by means of symbols, and if he wishes to express a certain idea in writing, but cannot do so, conditions are favorable for the teaching of penmanship. During the World War a large number of men was called into service. Many of these men came from districts where few could read or write. In numerous instances, friends of the soldiers, especially the young ladies, became very much interested in learning how to read and write. In the evening schools such people learned rapidly because of the wholehearted, purposeful activity. If the conditions are analyzed and the reasons for certain exercises or for certain devices are understood by the child, imitation and drill work may be highly profitable. The actual external organization of material may be the same in either case, but the closeness of relationship of the pupil to the material is different because in the one case the pupil acts blindly, while in the other case he acts intelligently.

A situation may be motivated irrespective of the different subjects. To the extent that it is found practicable to break down the barriers artificially created amongst the subjects and to organize the work about situations, since the situation is more nearly in accord with the normal experiences of life, the opportunities for motivating are considerably increased over the subject matter organization. To the extent that subjects are permitted to "cooperate" with each other, a similar organization may occur in any subject, although the question of relative emphasis may

enter in to such an extent as to detract from the educative value of the situation. In the regular work of the school as a whole in contrast to classes, an opportunity for the interpretation of such situations frequently is afforded.

The primary responsibility of motivating the work belongs to the teacher. There are two aspects to the teaching process which should be kept in mind, the child and the curriculum. It always is amusing to hear a teacher make the statement that her pupils "did all of the work by themselves." If this is the truth, then why doesn't the poor teacher succeed as well as the good teacher? The difference lies largely in the extent to which the teacher properly places the material about the child and through wise direction stimulates the child to analyse the situations. In bringing the child into contact with the material, the teacher's golden opportunity is found in motivation.

Pupils gradually should learn to motivate their own work. If the guiding hand of the teacher could be present to the pupil throughout life, the need for self-motivation of material would not be so urgent. In America particularly where there is a tendency to insist on equality of opportunity, and upon the privilege of each individual to develop in his own way, compatible with the interests of society in general, the need for self-direction and self-motivation of work is apparent.

Some day the pupil must pass into the great competitive field of industry, where he must learn to give and take. The tasks frequently will be disagreeable, and sustained effort will be necessary. The directing hand of the teacher will not be with him. He must motivate his own work, or lessen his chances of success and decrease the sum total of happiness that comes from the whole-hearted living as expressed by the poet, Robert Louis Stevenson: "Under the wide starry

sky, There dig the grave and let me lie; Gladly did I live and gladly die, And I lay me down with a will." The adult fired with worthy purposes will continue to secure and to nurture acquired interests of the desirable sort.

If it is desirable that an adult shall have learned the secret of self-motivating desirable activities, the school as a special agent of society should accept this responsibility. The teacher, therefore, should not become discouraged if it seems necessary to place before the child materials well within his comprehension, but materials to which he cannot by direct interests give a whole-hearted, enthusiastic response. Such material, however, always should have indirect values which the child can understand. The teacher may leave the child to find the points of contact in the materials which may be used as a basis for the interpretation of the whole situation. The work in all respects may be self-directed so far as the relationship to the material is concerned. Finally the teacher may place the responsibility upon the pupil of securing the material which he interprets. When the pupil has become both a teacher and a pupil to himself, then the dual aspect of teacher and pupil is incorporated in the same human being, then it may be said that the child is prepared to enter into life's activities with the probabilities of success in his favor.

The desire and ability to motivate should be one of the heritages of the school. A certain amount of subject matter should be mastered by the child in such a way that it can be used, and certain attitudes and skills should be set up which will assist in the meeting of problems as they arise. With motivation at a low ebb, however, it cannot be expected that the pupil will realize the most possible out of life, for "Where your heart is, there will your treasures be also," and if the pupil does not enter into his work whole-

heartedly, to the extent that there is opposition of interests, his efforts will be divided, and progress will be effected much less readily. The pupil should cultivate an attitude of willingness to do with respect to those tasks that, irrespective of personal feelings, it seems desirable to perform, and sufficient training in self-motivation should have been given, so that in the most disagreeable of situations the pupil can find some helpful way of motivating.

Motivation is to be regarded as a desirable aspect of life, and not merely a device for schoolroom work. The school is an artificial institution of society, especially established for the purpose of supplementing all other institutions in preparing the children for a desirable participation in modern social and economic life. The school considers the essentials of modern life that are not secured through other institutions, or inadequately are secured, and seeks to emphasize these essentials. Special duties also are assigned the schools, which other institutions attempt to supplement. If motivation is desirable in the schoolroom, therefore, it also is desirable in every activity in which a human being engages. Whether a school project or some other type of life project is being considered, the fullness of living will be more nearly approximated if the person concerned has learned to motivate to the utmost.

Problems

1. What are the teacher's responsibilities in a schoolroom where the project method ideally is being utilized?

2. Are the only essential factors in the education of the child, the child on the one hand and the curriculum on the other hand?

3. Will there be any problems of discipline in a school with ideal projects?

4. Is the distinction commonly made between an incentive and motivation desirable? Are there varying qualities of motivation? Is it possible to have an intellectualized activity without some quality of motivation being involved?

5. What are the relative values of an initial interest, a continued interest, and a concluding interest in a situation?

6. How would the motivation of a recitation differ in organization from the motivation of a situation involving several recitations?

7. How can a teacher determine the right time to shift the emphasis from a situation on which the class has been working for some time, to a related situation?

8. Should the teacher permit the pupils to exhaust their interests in a few situations, or should she attempt to acquaint the pupils with a large field of knowledge, at the expense of intensive treatment?

9. What subject offers the best opportunities for a strong motivation of materials? Justify your decision.

10. Which should exert the stronger control, the choice of material because of the possibilities of strongly motivating it, or the motivation of material, because certain material is regarded as necessary? What should be the viewpoint of education in the light of possibilities of motivation? What should be the viewpoint of education in the light of subject matter regarded as necessary? Are these two viewpoints irreconcilable?

11. Is drill work other than on the basis of need ever justifiable?

12. Indicate a situation which you believe readily could be motivated for a child of a certain grade. Indicate a situation which you believe could not be readily motivated.

13. Which type of activity can be motivated the more readily, (a) the type that results in concrete objective accomplishment, or (b) the type that results in a mere acquisition of intellectual knowledge?

14. How may the cooperation of various subjects aid in motivating? Give an illustration.

15. Give an illustration of a situation in which the teacher assumes a direct responsibility for the motivation of the work. In which the pupil motivates his own work.

16. Indicate concretely how the school, through motivation, may assist an individual to realize the fullness of life.

CHAPTER VI

TEACHING BY PROJECTS

The most comprehensive project that any individual can have is the "project of life." Beginning with the instinctive reactions to the environment, the individual gradually becomes conscious of his surroundings. This consciousness increases from day to day as the child's experiences are multiplied. The various observations are correlated, and life's experiences become unified as a part of the conscious existence of the individual. Life's project differs in quality amongst various individuals, one person preferring experiences of doubtful social value, another person planning his life according to the highest social ideals. Life's project differs in intensity. The late ex-President Theodore Roosevelt lived in sixty-one years, from the standpoint of the comprehensiveness of his life's project, several times the life of an ordinary man reaching the same age. Life's project differs in duration. Many children have their project of life cut short, so far as this world is concerned, at the time when the project seemingly has just begun to develop. Other people are cut down when seemingly their diversified experiences have given them numerous points of departure for enriching their project of life at an accelerated rate. Some few people reach a ripe old age when the maximum growth of the project of life long since has been passed, and when further growth is reduced to a minimum. Whether old, or mature, or young, while the project of life seems far from

complete, every one must pass on. It is this incompleteness of the project of life that helps to raise in the minds of many the hope of the continuation of a conscious life beyond death, by means of which the project can be carried more nearly to completion.

All social endeavor should be in the direction of enabling and inducing the individual to develop desirably his project of life. The ancient Greeks had a saying that life is like a bird that flies in at the door and out at the window. We know what is happening in the flight between the door and the window, but we do not know what happened just beyond the door, or what will happen just beyond the window. That part of the project of life of particular concern to a person is that which relates to the span of this life. If an individual specializes too narrowly, his project tends to become one-sided, and his general development is retarded. On the other hand, some aspect of the project should be mastered in such a way that a particular contribution can be made to the activities of the world. Perhaps the ideal of a project of life that involves a little knowledge of everything, and considerable knowledge about one thing, is to be commended. Not only material, but man himself, is influential in directing the developing project of his fellowman. It follows, therefore, that every individual has the dual responsibility of developing his own project of life desirably, and also the opportunity of stimulating others to do likewise.

The project of life may be resolved into numerous sub-units of activity called projects. While the project of life is the big comprehensive unit of activity of chief concern to all who are "in the flesh," a practical consideration of this subject requires an analysis and breaking up of the project of life into numerous, purposeful, sub-units, called projects. The school work necessarily centers about these projects,

not as ultimate ends in and of themselves, but as a means of permitting the individual to develop, as a human being seeking to realize the purposes of existence. The immediate effort of the class may center about a particular project, and about a particular aspect of a project, but the teacher always should have the setting of the project in the larger field in mind. A unit of activity looking toward definite, purposeful accomplishment is a project. In so far as a project is used in relation to the interpretation of another project, it ceases to be a project, and becomes instead a project-step of the more comprehensive project. An improper idea therefore is secured if one project is regarded as being composed of minor projects. Projects are distinct because the viewpoint differs, although the same detailed material in part may enter into each project.

Projects may be classified as (*a*) *selfish,* (*b*) *social, or* (*c*) *selfish-social.* According to this classification, the purpose involved in the solution of the project is fundamental. The problem of securing some ripe apples from an apple orchard may arise. Irrespective of the purpose, the respective activities may be the same. Some particular orchard must be selected and some particular tree of the orchard. The fruit must be secured in some particular fashion. The fruit must be reached in some manner. A search for a pole may result in failure, a search for a stick to throw at the fruit may be unsuccessful, shaking the tree may bring no results, and attempts to climb the tree, with the shoes on, may end in discouragement. At last the shoes may be removed, and the tree may be climbed without difficulty. If the person wishes the ripe fruit simply to satisfy his own personal appetite, the project may be regarded as selfish, if he wishes the ripe fruit without thought of personal reward, in order that he may give it to his teacher or mother,

the project may be regarded as social, if he wishes the ripe fruit in order that he and a group of his playmates together may satisfy their appetites for apples, the project may be classified as selfish-social. Each type of purpose has its justification educationally and consciously should be considered in schoolroom practices.

Projects may be classified as (*a*) *vocational, and* (*b*) *avocational.* Many people must engage in activities that economically are fundamental. Whether these people directly are engaged in securing a livelihood from mother earth, or serve some special needs of people so engaged, a fundamental requirement of society is met, and through the compensation secured, the varying needs of the individual are satisfied. Numerous projects, demanding a solution, come up in the course of one's ordinary activities relating to a vocation. There are numerous points of contact, which the individual has with his social and physical environment, outside of his vocational activities, which may be economic, social, or religious. In the well-balanced life, each group of projects is represented.

There are projects (*a*) *relating to occupational activities,* (*b*) *relating to physical activities,* (*c*) *relating to citizenship activities,* (*d*) *relating to leisure activities, and* (*e*) *relating to religious activities.* The occupational activities of life furnish man the materials necessary for the physical man, and also afford the basis for the development of the higher life. The physical activities, if rightly engaged in, help a man to maintain himself in good physical condition so that the inner man can work and play with a minimum of friction with the physical domicile. The citizenship activities help man to meet his obligations as a member of a social group by the various active measures that he fathers, or opposes, looking toward changes in some phase of social

organization. The leisure activities afford man a respite from the trying activities of his work, and if the work is not particularly pleasing, permit man during his leisure hours to engage in those types of activities that more nearly meet his needs. The religious activities help man to adopt a philosophy of life that is in accord with his understanding and yearnings.

Specialization of labor, in many instances, is narrowing. In earlier times, when the household was more nearly self-sufficing than under present conditions, the projects related to so many lines of activity that a certain breadth of view inevitably was secured. The requirements of peoples have become so numerous, so exacting, and so complicated, that a subdivision of work inevitably has been emphasized. Men, more and more, are selecting a vocation, and are devoting their working hours to a consideration of projects which will make them more proficient and successful in their restricted field of work, or which will enable them to accomplish more economically the tasks set for them in their vocations. Men who make no selection of a life vocation find their occupational projects, in general, confined to a very low plane. Specialization leads to a dependence of man upon man, but may lead also to a lack of appreciation of the work of others, and also of social obligations. The aggregate of accomplishment for the social group as a whole may be greater, but the individuals may become dwarfed, extremely provincial, and unsocial.

Leisure occupations have become increasingly important. With the oncoming of modern conditions, a serious need of training, not only for a vocation, but for participation in leisure occupations as well, has arisen, to offset the disadvantages of specialization. Before man understood how to make the energy of nature serve him effectively, a long

working day was necessary, and the greater part of the working hours was devoted to the securing of the necessities of life. Prof. Fairgrieve has said: "It may be said that in its widest sense on its material side history is the story of man's increasing ability to control energy." (Fairgrieve, James. Geography and World Power, p. 3.) So many inventions, enabling man to do his work with less energy, to use more energy, and to waste less energy, have been perfected that, in spite of increasing needs and wants, the amount of time actually necessary to secure the necessities has been reduced materially. In many instances a twelve-hour day has given place to an eight-hour day. This decrease in working hours, with prospects of a still further decrease, permits man to engage in leisure occupations and thus to broaden his views through the increased points of contact that he has with his environment. While there is a tendency, therefore, for the projects of man to be restricted to a limited field of human knowledge, so far as modern industry is concerned, the disadvantages of this scheme of organization are in large part overcome or at least minimized by the shortening of working hours and the opportunity that is afforded of selecting those projects, outside of working hours, which best satisfy the individual needs, whether on the work or on the play level.

Leisure hours may be used properly or improperly. Numerous leisure activities are open to man, some of which may waste rather than conserve his energies, some of which may be inimical to his health, or detrimental to the best interests of society. It is the duty of society, in general, therefore, and particularly of the school which has been established as an institution to serve definite purposes, that the individual shall be trained not only for a vocation, and not only for avocations, but that the attitudes resulting from

this training shall be of such a nature that both his vocations and avocations are the best for the individual in particular, and for society in general.

Mr. B. may be a man who spends a certain number of hours each working day engaged in a painstaking, energetic, industrious consideration of his vocation. For relaxation he may visit the golf links, the tennis courts, or engage in some other form of harmless physical activity. He may attend church and the high quality performances given at the opera houses. He may read the newspaper, and spend some part of each day in conversation with the different members of the family. He becomes interested in various aspects of social welfare work, and exerts his influence in the direction of improving conditions. He takes his family occasionally to some resort, or to visit with friends and relatives. In every situation in which he is placed, whether work or play, he enters with enthusiasm into the activities. His whole life is well ordered and centred about health-giving, desirable activities.

Mr. C. may be just as earnest faithfully in performing his duties pertaining to his vocation. When his working hours are over, however, he may patronize low-class dance halls, poolroom, and saloons. He may associate with lewd women, attend shows of doubtful character, and patronize gambling dens. He may be a veritable grouch at home, and may shun all opportunities of engaging in social service. Each man has his own class of projects with which to entertain and instruct himself during his leisure hours. Mr. B., however, has learned the secret of a happy and useful existence, while Mr. C. selects projects that are harmful to him and the social group.

The school should give training in all types of desirable activities not otherwise provided for. The school would be

shirking its duty if it neglected to consider either vocational or leisure projects. It is essential that children shall be given the requisite knowledge and attitudes that will persist in the after-school days in functioning in the life of the child so that he will continue to grow in the direction of becoming more and more proficient in industrial work, so that he will select harmless forms of recreation, and so that he will be a positive social force in society. The knowledge and requisite attitudes cannot be secured merely by getting the child to memorize what he ought to know and by telling the child what he ought to do and what he ought not to do, but by getting the child to adopt projects as his own, the consideration of which will cause him to adopt the proper viewpoints and to secure the needed knowledge.

Professor William H. Kilpatrick recognizes four classes of projects. "Let us consider the classification of the different types of projects: Type 1, where the purpose is to embody some idea or plan in external form, as building a boat, writing a letter, presenting a play; type 2, where the purpose is to enjoy some (esthetic) experiences, as listening to a story, hearing a symphony, appreciating a picture; type 3, where the purpose is to straighten out some intellectual difficulty, to solve some problem, as to find out whether or not dew falls, to ascertain how New York outgrew Philadelphia; type 4, where the purpose is to obtain some item or degree of skill or knowledge, as learning to write grade 14 on the Thorndike Scale, learning the irregular verbs in French. It is at once evident that these groupings more or less overlap and that one type may be used as means to another as end. It may be of interest to note that with these definitions the project method logically includes the problem method as a special case. The value of such a classification as that here given seems to me to lie

in the light it should throw on the kind of projects teachers may expect and on the procedure that normally prevails in the several types. For type 1 the following steps have been suggested: purposing, planning, executing and judging. It is in accord with the general theory here advocated that the child, as far as possible, takes each step himself. Total failure, however, may hurt more than assistance. The opposed dangers seem to be on the one hand that the child may not come out master of the process, on the other that he may waste time. The teacher must steer the child through these narrows, taking care meanwhile to avoid the other dangers previously discussed. The function of the purpose and the place of thinking in the process need but be mentioned. Attention may be called to the fourth step, that the child as he grows older may increasingly judge the result in terms of the aim and with increasing care and success draw from the process its lessons for the future.

"Type 2, enjoying an esthetic experience may seem to some hardly to belong in the list of projects. But the factor of purpose undoubtedly guides the process and—I must think—influences the growth of appreciation. I have, however, as yet no definite procedure steps to point out.

"Type 3, that of the problem is of all the best known, owing to the work of Professors Dewey and McMurry. The steps that have been used are those of the Dewey analysis of thought. This type lends itself, next to type 4, best of all to our ordinary schoolroom work. For this reason I have myself feared its over-emphasis. Our schools—at least in my judgment—do emphatically need a great increase in the social activity possible in type 1. Type 4, where the purpose has to do with specific items of knowledge or skill, would seem to call for the same steps as type 1, purposing, planning, executing, and judging. Only here the planning

had perhaps best come from the psychologist. In this type also there is danger of over-emphasis. Some teachers, indeed, may not closely discriminate between drill as a project and a drill as a set task, although the results will be markedly different." (Kilpatrick, William H. The Project Method, Teachers' College Record, Sept. 1918, Vol. XIX, 319-336.)

Projects may be classified according to the particular part of man's nature that is called conspicuously into activity. The following types of projects may be recognized:

(a) the manual project,
    learning to do (skill),
    learning to solve (interpretation of a situation);
(b) the mental project (not involving manual activity), imagery taking the place of concrete, objective means and ends,
    projects of information,
    projects of interpretation;
(c) The emotional or æsthetic project in which the desirable reaction is appreciation or desirable attitudes,
    simple,
    disconnected,
    intellectualized.

(*a*) *The project of manual activity involves projects that teach the child* (*a'*) *how to do.* The prominent thing in the project of manual activity is the use of the muscles and machinery in producing effects. The boy on the farm learns how to chop wood, to milk the cows, to feed and water the stock, to plow, to cultivate, to harvest, to make repairs, etc. During his spare time he runs up and down the hills, getting acquainted with nature. The girl upon the farm learns how to cook, to sew, to patch, to separate

the milk, to wash, and how to do a thousand and one other tasks about the house. Farm life particularly is well adapted to projects of physical activity, as the essence of farming is the proper handling of material things. The opportunities of the city child are not so great, and the types of projects of physical activity will vary much more among individuals than on the farm. The city boy or girl may learn how to perform various duties in the home. To some extent the children may engage in physical activities in connection with various industries, and various trips, involving considerable physical activity, may be taken, but the nature of city life precludes the possibility of children, in general, learning how to do. School projects, involving the learning how to do, therefore, should be incorporated in the regular course of study in cities to a much greater extent than in rural districts.

The projects of manual activity involve projects which teach the child (*b'*) *how to solve problems.* On the farm numerous problems, requiring considerable thinking, may arise. If a gully develops on the hillside, the problem arises of preventing further wash and of reclaiming the gullied area. If undesirable birds are numerous, the problem of protecting fruits and grains must be met. If the fruit trees are being ruined by rabbits, if the chinch bugs are destroying the wheat, if the sun is burning the corn, and if the dandelions are taking the pasture, how can these problems be met? In the city opportunities are more limited, but even here the boy may consider how he can make a kite that will fly, how he can make a boat that will float, and how he can have a small home garden.

The manual projects involve projects which teach the child (*c'*) *how to meet complex situations.* The boys of the St. Louis Industrial School, at Bellefountaine Farm (a

school for wayward boys), may plan a garden. They may discuss the kinds and amounts of varieties of seeds to plant, the preparing of the ground, planting, cultivating, and gathering the crop. They may engage in the various forms of physical activity required to care for the garden. Their interest in the garden may be due to their desire to furnish their cottage with fresh vegetables, or to dispose of the products for a compensation, or their interest may be due to their inherent love for nature. Such a project situation is a complex of activities, including the securing of information, the learning to do, and the meeting of problems.

(*b*) *Mental projects not involving manual activity may be informational or problematical.* A mental project is a project the interpretation of which involves an absence or at least an incidental amount of manual activity, with the dominant emphasis on the use of the intellect. The mental project may involve questions, exercises, problems, or complex situations. Projects, which primarily are informational, include those facts which dominantly involve memory work. Learning the answers to simple questions and memorizing choice selections are in this class. Much of the teaching of the lower grades particularly involves a liberal use of the mental project of information. Not only are memory mental impressions received as a result of contact with the environment and symbols, but they also are given out under certain conditions. In daily life we continually are asking questions and seeking information from some one else. The giving of information in and of itself may not involve development, but frequently the reaction involved revives ideas and reinforces the breadth of view of the individual.

Mental problem-projects do not involve the objective reality of manual problem-projects, but subjectively are

just as real. The child comes into contact with his physical and social environment and gradually comes to grasp more and more the idea of varying relationships and their significance. His ability to build up in his imagination a picture of events and situations which he has not seen gradually grows. He mentally learns to make combinations and to retain them or reject them according to whether they stand the tests which he applies. Without the aid of concrete material he develops an ability to relate, to compare, to analyze, to synthesize, to reason. With young children, particularly, the mental problem-project more readily can be handled if its solution has a bearing on the working out of some physical project, or if some kind of desirable recognition is given to the child as a result of his having mastered the problem. As the child becomes more mature, in fact, the mental problem-project more and more will be a logical predecessor of the physical problem-project. If the farmer boy makes some preliminary plans for a garden, and meets the varying situations as they arise with the help of his teacher, he is working out a physical project situation. If the boy makes a comprehensive study of all aspects of the garden, as he images it, from one end of the season to the other, and plans systematically every step in advance, he has solved a mental project situation, and the physical project that follows largely is significant as a test of the accuracy of his conclusions.

An architect may draw up plans which he sells to a company. The mental problem-project that he has worked out may not result in his personal construction of the building, or perhaps even in his supervision of the construction. The same kind of accurate imagery, however, that has enabled him to construct the plan, enables him to see the building completed, and so far as he himself is concerned this mental

picture takes the place of the actual testing by the child, whose experiences are more limited. He may solve the problem because of the pleasure that he derives, or, as is more probably the case, because of the compensation that he hopes to receive. While for the child it is desirable that the conclusions of mental problems shall be tested with objective data, gradually imagery becomes more and more trustworthy and the need of an objective test lessens. It is impracticable, moreover, to test many conclusions objectively.

Many mental projects involve an appreciation of social institutions, past and present, or an appreciation of situations that involve many, perhaps millions, of people. Among those of current interest may be noted the following: Is a league of nations, under present conditions, practicable? Has the World War increased or decreased nationalism? Is Prohibition desirable? Is a democracy preferable to an autocracy? How should the problem of the freedom of the seas be disposed of? Was it wise that the President went to Europe or should he have stayed in the United States? The mind not only can project itself elsewhere in place, but also in time. Problems of the past, consequently, may be considered as well as problems of the present. As illustrations of such problems the following may be noted: How did the New World come to be discovered? What influence did the Andes Mountains have on the exploitation of South America by the Spaniards? At the beginning of the last French and Indian War, which country, Great Britain or France, had the better claim to the Mississippi Basin? What was the real cause of the Civil War? Were the pioneers of Kentucky and Tennessee justified in threatening to withdraw from the Union if an open gateway to the ocean by way of the Mississippi River were not maintained? A long list of problems and situations primarily involving mental activity

might be mentioned. It is necessary to hold in mind that these problems are not project-problems until they have been accepted for solution by the individual. The mere listing of problems and their assignment may be insufficient. There is no particular inherent educative value in a list of problems. The viewpoint of the teacher is to endeavor to get the pupils to want to solve a problem, not under compulsion of external authority, but under the compulsion of some individual or social, personal need that will be satisfied.

(*c*) *Emotional projects may be grouped as* (*a*) *harmonious,* (*b*) *disconnected* (*interrupted*), *and* (*c*) *intellectualized.* The emotional or æsthetic projects are much more elusive than either the physical or mental group. These projects have their characteristic representation in music, literature, and art. Harmonious projects involve those which have a simple reaction on the part of the person, because of the unity of impression made. The arrangement of the parts of a picture, of a piece of music, or of a composition in literature is just what one would expect. Interrupted projects are similar to the harmonious projects except that the even movement, or impression, unexpectedly is interrupted. In music, for example, a selection may be proceeding smoothly, but suddenly may be interrupted to represent the hoof beats of a galloping horse, the breaking of an ice dam, the breaking out of a battle, etc. In literature some unusual situation may present itself in the composition. In art, the whole statue may harmonize, with some special exception, as a statue of peace, for example, with a sword in the hand. If a child appreciates the harmonious and disconnected projects he is said to have an artistic nature. It seems to be well established that emotional projects can be mastered much more readily by some children than others, and that many children can see the

project involved without being able to interpret it. The intellectualized emotional project may resolve itself into a problem-project. Some occasions may excite an instinctive response from the individual in such a way that he adapts himself sympathetically. In many instances, however, a situation may arise that requires considerable thought in its artistic expression. The broader the experience of the individual, the greater the extent to which discrimination may enter in. If it is desired to compose a piece of music, to erect a statue, or to write an article that properly will express the participation of the United States in the World War, there are numerous facts and relationships that must be given careful consideration by the authors, artists, and musicians. Not only must the one responsible for the creation assemble, discriminate, and judge, but others who seek to appreciate the creation should consider it in a similar manner.

The relative emphasis placed on these groups of types will vary. The various groups of projects mentioned, physical, mental, and æsthetic, should be used in the development of every child. The extent of use will be influenced by such factors as (a) the out-of-school environment and activities, (b) the abilities of the child, (c) the state of development, (d) the time available, and (e) relative values. With increasing maturity and development, the relative emphasis will shift more and more from manual projects involving "learning to do" and from mental projects involving "giving and receiving facts" to manual, mental, and æsthetic project-problems and complex-project situations. A teacher needlessly is restricting herself to adopt exclusively one classification of projects. Different classifications, from varying viewpoints, are helpful in pointing out the variety of projects that may be used and the particular ends that may

be served. Projects, in every case, should be selected with the view of improving the student, both as an individual and as a social being.

Problems

1. Is it consistent to regard a comprehensive project as including other less comprehensive projects?
2. Which term is preferable to denote the concept involving all of life's intellectualized activities, the "super-project" or the "project of life"?
3. Devise some classification of projects not mentioned in the chapter.
4. Indicate the classification that seems most useful, and explain your preference.
5. Distinguish between (a) question, (b) exercise, (c) problem, and (d) complex situation (complex).
6. Evaluate the social significance of (a) manual projects, (b) mental projects not involving manual activity, and (c) æsthetic projects.
7. What advantage, if any, is gained through a classification of projects?

CHAPTER VII

LEARNING BY PROJECTS

The pupil's viewpoint of his own project is different from the viewpoint of the teacher. The teacher's project is concerned with the economical development of the child. She has in mind the whole cycle of development proceeding from the child's experiences to an interpretation of related material, back to the child's world enriched because of the project cycle that has been completed. The child is not regarding his development from the pedagogical standpoint. He is interested primarily in meeting his needs as they arise. He is not concerned particularly with his past experiences except insofar as they help him to meet the present needs, and he is not bothering himself very much about the use to which the results of his activities may be put in interpreting other situations, or the extent to which his own personal world will be enlarged as a result of certain activities. His interests lie largely in the direction of attempting to satisfy his needs and wants.

The efforts of the child are concentrated on that particular part of the project requiring vigorous action. From the teacher's standpoint, as indicated in the preceding chapter, there are various types of projects each of considerable significance in the life of the child. The teacher tends to place the emphasis on the project as a completed cycle of development and therefore thinks in terms of question-projects, exercise-projects, problem-projects, and complex-

projects. The pupil, interested primarily in satisfying his mental difficulties as they arise, is inclined to think in terms of project-questions, project-exercises, project-problems, and project-complex-situations. The emphasis is shifted from the project as a whole to a particular part of the project, although the pupil, to be sure, to the extent that he relates himself wisely to the project, is utilizing his personal world as a point of departure, and also holds before himself an ideal of the goal which he hopes to reach as a result of his efforts. The realized ideal incorporated into his experiences is the enlarged self that comes from the new experiences. The focus of his attack, however, is on the obstacle, mental, æsthetic, or physical, that he wishes to master.

A project-question involves a mental difficulty that can be satisfied by means of a simple reaction. A project-question must be a question challenging the abilities of the child. A teacher may ask a child numerous questions, significant in and of themselves; questions, however, which are of little value to the child, because they have not arisen in response to his real, inherent needs, but have been imposed upon him by another. Too frequently the questions of a teacher before a class are of this character. The teacher has in mind an objective organization of material which she believes the child should master, and organizes her questions accordingly. If the child were being formed from a mass of plastic clay, such a method of procedure would be excellent, but the self-activity of the child suggests a better way. If the significant factor in development is an inherent mental difficulty on the part of the child, the teacher's questions may or may not be pertinent. How many times has a teacher asked a question, the peculiar response to which was a distinct surprise or shock. Perhaps the question, not at all in line with

the way the child was thinking, came to the child with as great a shock.

Self-analysis will help a teacher to get the correct viewpoint. If a teacher is engaged in studying wisely, she does not repeat over and over again the parts with which she is thoroughly acquainted, but dwells on the particular part of the unit of study which offers her some difficulties. She assumes, within limits, that she knows when she knows, and knows when she knows not. What is the characteristic situation when this same teacher confronts a class? She takes nothing for granted, but attempts to cover the lesson with a series of questions. Too much of the period frequently is taken up with a mere examination of what the pupil has done. Examinations are not to be disregarded, but if they can be conducted incidentally to real development, the latter way is preferable. If rapid growth depends on the child's questions rather than on the teacher's questions, why not let the pupils state verbally the questions that have confronted them in the lesson, and particularly the questions that still persist partially or wholly unanswered? In most instances, if the class discusses the questions raised by the pupils, not only are the questions more nearly in line with the child's inherent needs, but their consideration almost invariably leads to a consideration in relationship of the material of the lesson which offers slight mental difficulties. If the teache. follows the lead of the children, therefore, the particular needs of the children are met, time is not wasted uselessly in informational tests, and those parts of the lesson which offer no particular difficulty to the child usually come out in relation to the real mental difficulties. The teacher virtually covers the unit of work, but the focus of emphasis is where it ought to be, not on that part of the organization which the teacher considers objectively of greatest impor-

tance, but upon that part of the lesson which the pupil subjectively feels is of greatest significance to him, from the standpoint of accomplishment. This viewpoint can be accepted without vitiating the importance of pertinent questions on the part of the teacher. Questions from the teacher, if pertinent, may be very stimulating, but the above discussion should suggest the desirability of formulating all questions with a sympathetic understanding of the viewpoints of the children concerned.

A series of project-questions may arise, one question arising out of the interpretation of another question. Objectively considered, the teacher may have an "exercise" in mind, that she hopes and believes the children will interpret, but the exercise is not a project-exercise unless it is held in mind by the child as an exercise unit to be interpreted. If each of the succeeding questions and answers is the unit of activity without any purposeful relation to the exercise, or series of questions and answers, the "objective exercise" may be mastered by the child, not as a project exercise, but as a series of project-questions.

The answer to one question frequently may suggest another question. A related series may be illustrated as follows: The child may ask, "May I have a piece of meat for dinner?" Answer. "Yes, but the piece will not be so large as usual." Question. "Why will the piece be smaller than usual?" Answer. "Because the price of meat has increased." Question. "Why has the price of meat increased?" Answer. "Because the packers must pay more for the stock than formerly." The questions that might arise might be continued almost indefinitely in this way. The purpose in each case is immediate, and there is no organized plan in advance by means of which the questions take a particular order, but the answer to one question may

arouse another question. A considerable proportion of human development occurs in this haphazard, related fashion. Frequently the answer to a question may arouse different questions in the minds of different people. If a group, consequently, starts with the same original question, the successive questions presented to each member may lead the different members along radically diverging paths of development. If each member does the relating for himself, however, he is growing naturally, according to inherent promptings. This independent relating is much to be preferred to the arbitrary relating imposed on a group by the logic, prejudice, or whims of the teacher.

The project-question, in the form of a successive related series of questions and answers, need not be employed constantly. Some topic as corn may arise as a concept in the mind of the child. A series of questions centering about corn, but without any attempt to answer a central problem, may arise. Was there a good corn crop last year? What kind of corn was grown? How long has corn been grown in America? What use is made of corn? How is the corn cut? How much can a good corn husker make in a day? Many other questions may arise in the mind of the individual, each arising out of the central idea, and having a close relation to it. The questions may not formally be reduced to words, but may be presented to the mind merely as a mental difficulty. For the sake of clarity, it frequently may be desirable that an individual shall attempt to express his questions in a definite, approved form, but too much stress on the form tends to deaden the spontaneous grappling with ideas.

In the above discussion, no attempt has been made to bar the teacher from the placing before the class of questions having close, successive relations to each other, or of ques-

tions having close relations to a central topic, or to prevent the teacher from placing a series of directions before a class to be translated into action. A certain amount of direction undoubtedly is desirable. The intelligent guidance of older people is necessary as a means of insuring that the children will secure the social inheritance. Just as there are various knowledges and skills to be transmitted socially, there are certain ways of doing things that may be transmitted as well. Children should be enabled to profit by racial experiences so far as this is practicable, but the well-trained teacher always should keep in mind that mere imitation is insufficient, and that a proper individualistic development requires that the child shall have a considerable amount of opportunity to establish his own relations and to effect his own organization.

A project-problem involves a mental difficulty the overcoming of which requires the consideration, selection, and evaluation of a considerable quantity of material. There are many mental difficulties, as has been noted, that can be satisfied in a very simple manner. There are other mental difficulties that require a careful consideration, selection, elimination, and evaluation of materials. In satisfying such difficulties, sustained thought is necessary and the judgment constantly must make decisions in the solution of the problem. Instead of numerous minor difficulties, however, that arise in relation to a central topic, there is a central problem the solution of which involves numerous minor mental difficulties. In contrast to the project-exercise, every minor question or problem, not only must have some relation to the central topic, but if retained as an essential part of the problem, must have a direct bearing upon the particular problem. If the project-problem is "How may the corn crop most effectively be tided over the period of summer

drought?" many sub-topics, relating to the topic corn, as "the husking of corn" would be excluded from positive consideration. It is insufficient that the material shall deal with the topic corn; it also must have some bearing on the problem.

A higher type of mental activity is involved in the project-problem than is involved either in the project-question or the project-exercise. The person, under the impelling control of a project-problem, no longer is free to follow the haphazard vagaries of the mind, in moving from idea to idea, but each minor difficulty rigorously must be considered in the light of its relation to the central problem. If there is no vital relation, however interesting the suggested minor problem may be in and of itself, it temporarily must be pushed into the background. In the consideration of the minor problems relating to a project-problem, the central problem in some instances may tend to lose some of its attractiveness, and some minor problem may tend to supplant it. The next possible step is that some question, unrelated to the central problem, may arise in connection with the solution of the minor problem, and the mind either temporarily or permanently may wander from the project-problem. A person, who permits himself thus to be sidetracked, has fallen into a lower type of mental activity, and again is making use of project-questions and project-exercises as a means of growth. While no one would question the educative value of project-questions and project-exercises, at the same time it should be recognized that the substantial progress of the race depends on the ability of human beings not only to feel keenly the need of solving project-problems, but also upon their ability to control the minor problems in such a way that the larger problems will be solved assuredly and economically.

A project-complex involves the interpretation of a unit situation, of considerable difficulty. Strictly speaking, a project-situation, represented by the completion of a cycle of mental activity, may involve a question only, an exercise only, a problem only, or questions, exercises, and problems in any relative proportion or combination. On account of this wide latitude in the use of the word situation, it seems best to regard a situation involving questions, exercises, and problems as a project-complex. The child makes no particular attempt to differentiate among questions, exercises, and problems. He primarily is interested in unit situations. It is only by analyzing these unit situations into their parts that questions, exercises, and problems are discovered. It is seen that unit situations may contribute to larger unit situations, and the larger situation may contribute to the interpretation of still larger situations, etc., until at last through the various unit situations, both large and small, both simple and complex, the individual sees these situations as parts of the great "project situation" of life.

With the increasing ability of man to engage in the higher mental activities, he finds it possible not only to overcome questions or minor mental difficulties, or a situation involving groups of questions, but also to take up a complex situation, the interpretation of which involves the keenest ability and most sustained thinking. Questions, exercises, and problems may enter into the complex situation in varying degrees. The time span involved in mastering the situation may be a long one. The more successfully the individual can meet the problem-complexes of life, the more nearly has he reached the culminating possible mental attainment for man.

The ability to interpret project-complexes is the culminating point possible in mental development. Practically every child can interpret situations involving project-questions

and project-exercises. Almost from the beginning of life a difference in the relation of children to project-situations is observable. Some children, seemingly more self-active than other children, constantly are engaging in mental activities that arouse mental difficulties. Some children apparently must depend upon others to arouse a feeling of need within them. Out of the first group, it may be expected, other conditions being equal, that leaders will develop, and out of the last group, followers will develop. Practically every child is able to interpret situations involving project-questions and project-exercises, but the percentage that successfully can wrestle with project-problems is much lower, while the proportion that efficiently and adequately can initiate and independently interpret the situation-complexes is much smaller. Assistance, therefore, must be rendered many children in helping them not only to have experiences out of which mental difficulties will arise, but also in helping them to overcome these difficulties. Many, destined always primarily to follow leaders, will be able to understand and to adopt the projects of others. Through a study of the various difficulties confronting the child, he interprets and develops. All pupils are given an equal chance to develop, but as they struggle with the various project situations, differences are bound to appear. Since questions, exercises, problems, and complexes are successively difficult, and since each type of project is dependent in a way upon the preceding types, the significance of relating properly these types will be seen. Since the mental difficulties arise out of the situations in which the individual is placed, the teacher will see that her primary task is to place the child amidst environmental conditions so that not only appropriate mental difficulties will arise, so that the pupil not only will find it possible to overcome his mental difficulties, but so that he

also will be provided with an adequate motive which insures success.

In actual practice, types of projects may not easily be distinguished. In order to understand the normal development of the child in relation to materials, four groups of projects, the question-project, the exercise-project, the problem-project, and the complex-project, have been recognized. An attempt has been made to show the relation between an increasing mental ability and an increasing complexity in the organization of materials. In actual practice, however, the teacher does not divide the child's life into four parts, each part representing a particular class of projects. The various groups of projects are recognizable as factors in the child's development, at a very early age. With increasing maturity, the relative emphasis should change. The child will engage in many units of activity the classification of which will be difficult. In each instance, however, it will be found that one of the four types or a mixture of two or more of the types is concerned.

Problems

1. By means of examples, indicate how a teacher's projects differ from a pupil's projects.
2. Give an illustration, preferably from experience, of a (a) project-question, (b) project-exercise, (c) project-problem, and (d) project-complex.
3. By means of illustrations, indicate the relations of the four types of projects noted.
4. Are inequalities in development among individuals inevitable? Illustrate how individual self-realization may be impossible (a) because of social conditions, and (b) because of inherent inability to attain or maintain efficiently the higher mental activities.

CHAPTER VIII

THE PROJECT-QUESTION

The project-question is a relatively simple mental difficulty. As the child comes into contact with his environment, he is eager to interpret it. "What is that?" and "What is that for?", "Where did you get that?", "What did you do that for?", "How did you do that?", "Where are you going?", "What are you going for?" are some of the types of questions which the energetic child uses in indicating the numerous simple mental difficulties that challenge his abilities. It is fair to assume, on the basis of the varied activities of the child, that there are numerous simple difficulties that arise, which are not stated formally. If the child encounters a difficulty, and immediately is able to interpret it, the question and the answer to the question may be practically coincident. The formal asking of such a question may be uneconomical (a) from the standpoint of time, (b) because the close association of question and answer may be interrupted, (c) because the difficulty may be solved so quickly that the formal stating of the question no longer presents a real difficulty to the child. Normal development, consequently, involves the raising of many simple questions which never are expressed formally in oral or written language.

The simple difficulty may require the assistance of another person. When a simple difficulty arises, the interpretation of which readily is not grasped by the child, the tendency

of the child is to depend upon some other person to assist him. An indication of the nature of the difficulty ordinarily requires an expression of the difficulty by the use of words. Formal questions normally are asked, therefore, when the answer is not discerned readily. Since the questions, which the child quickly interprets, may not be definitely formulated, it is to be expected that the questions, in many instances, will be poorly stated, for the child's interest is not in the language as a language, but in the difficulty which the language permits him to convey to another. A few attempts to ask a formal question indicate to the pupil the desirability of expressing the difficulty as clearly as possible. He becomes interested, therefore, in the correct use of language as a medium of expression. On the basis of need, he learns to express his difficulties in the form of clear, concise English.

Assisting the pupil too much may make him an habitual questioner, dependent upon others. It is natural that a person should attempt to meet his difficulties in the easiest possible way. If a person were called to Washington from Chicago on urgent business, he would be regarded as lacking in intelligence if he did not take the best route between these two cities. If the pupil finds that his difficulties will be met by another person, he tends, in time, to depend upon another, not only for assistance in answering questions, but also for assistance in answering questions that he can interpret alone. Another person more and more comes to do the child's work for him. Questions raised formally by the child become more and more frequent, more and more persistent. The normal development of the child is retarded and misdirected because of this dependent, imitative relation thus established. The initiative primarily is exercised in the direction of raising questions, but the initiative in answering them is delegated to another, which means that a follower and not a leader of social activities is being produced.

The next step frequently results in the smothering of almost all initiative. Dependence upon another to answer all questions leads the pupil to doubt his ability to interpret situations. Others finally become tired of his persistent questioning, and frequently carelessly answer his questions. The careless statements of others involve little effort at thinking on the child's part, and even although he is only partially satisfied, he accepts the statements in preference to an attempt to solve the difficulty. Finally, those to whom he asks questions may ridicule him, or smile knowingly at him in such a way as to cause him to withhold the asking of questions. Initiative in answering his own questions has not been developed, and the pupil, much retarded, again must begin not only to encounter but to interpret difficulties. If he has profited from his experiences, he answers his own questions, if possible, and relies upon others only when it is absolutely necessary. Henceforth there is marked educative value, not only in the asking of questions, but also in answering them. If the first cycle is not too long and results in an awakened, enlightened intelligence, it may be justified, not as inherently valuable, but as relationally valuable, because of the attitude of mind established, which results in economical development later. If the first cycle is too extended, or results in a pusillanimous, dependent, despairing individual, who believes that he is incapable of individual accomplishment, the "last state is worse than the first," and very careful guidance is necessary to develop the desired initiative.

The teacher may assist by asking questions. Much of the time of the teacher is taken up with the asking of questions. The teacher may be helpful in getting the child to adopt such questions as his own, the questions presumably being graded in such a way as to cause the child economically to develop. Through skilful questioning the teacher may lead the child to feel his shortcomings, to the extent that he will want to

overcome them. The more wholeheartedly the pupil adopts the question as his own, the more keenly does he experience a mental difficulty. The more heavily the mental difficulty is felt, the more readily will the individual willingly attempt to interpret the question. Too frequently in the past has the test question prevailed. The question which will stimulate the child to question himself and also to attempt to answer, should be given more consideration. The teacher should sense the importance of getting the pupil to take the initiative both in asking and in answering questions. The pupil, insofar as he is able, should be both teacher and pupil in taking care of his own development. The teacher will need to direct and to assist but she will never attempt to monopolize either the questioning or the answering aspect of the difficulty. She will regard each as the rightful and needful possession of the child as he engages in his unit of activity.

The question-project is a very simple unit of activity. The question-project, involving a simple reaction, ordinarily is a very simple unit of activity, involving a brief period of time, and but little reflective thinking. The difficulty may be just as real, and the attempt to overcome it may be just as wholehearted and as purposeful, however, as if a very complex situation were involved. This intellectualized, purposeful unit of activity is just as characteristically a project as the more complex unit. Sooner or later the results of project-question solving may be vital to the interpretation of a project-problem. The project-question owes its value in large part to its relational bearings upon more comprehensive life situations.

The project-question may involve the securing of information. The question that arises in the mind of the pupil may be concerned primarily with the what, where, or when of a situation. Information rather than explanation may satisfy the mental difficulty. The question may arise in response to

a natural tendency to become acquainted with the environment and life conditions, or it may arise in response to a need for the information as a basis for action. The stimulus in arousing the question may be external. In visiting a park for example something moving in the grass may be noted. The question, "What is that?" may arise. A closer investigation may indicate that a snake is moving in the grass. While resting in the park, the person may hear music, and in response to his question as to the source of the music, he may find that an orchestra is playing in the near-by pavilion. The stimulus arousing the question may come from within. In response to the desire to know the time of day, a person may look at his watch. In response to a desire, a person may seek a wild flower, a pleasant retreat, etc.

The project-question may involve the interpretation of facts. The question that arises in the mind of the pupil may be concerned primarily with the why or how of a situation. If an informational question is answered, the interpretative question, which seeks an explanation of the situation, frequently arises. When it is seen that a snake is moving in the grass, the question may arise, "Why is the snake moving in the grass?" or in response to the information secured that an orchestra is playing in the park, the question may arise, "Why is the orchestra playing in the park?" In response to the information that a wild flower is in a certain place, may arise the question, "Why is the wild flower in that particular place?" or in response to the information gained concerning the time of day, may arise the interpretative question, "Why has the time of day seemed to pass so rapidly?" Frequently the informational question is answered so quickly that only the interpretative question, for practical purposes, remains.

Both informational and interpretative questions are fundamental. It is desirable that the question of information and the interpretative question should be differentiated. The pupil who is satisfied with the facts and makes no attempt to explain the facts is living upon an inferior mental plane. The interpretation of facts involves a reasoning process that is based upon, but is of a higher order than the securing of facts. The type of thinking involved in interpreting facts is similar to the reflective thinking involved in project-problem work, and is a fundamental, necessary step in the direction of solving the complex problems.

Illustrations will indicate the difference between informational and interpretative questions. The following lists of questions will suggest the difference between the informational and the interpretative type of question:

Informational Questions

1. Name some of the customs of the Japanese.
2. For what is Tokyo noted?
3. How does a vessel take on coal?
4. Indicate the north and south extent of the Japanese Islands.
5. Who are the Ainos?
6. What is the most important industry of Japan?
7. Japan is part of what great volcanic belt?
8. How do the Japanese sleep?
9. In what ways are beans used?
10. Describe a turtle farm.
11. Name the important industries of Osaka.
12. When and by whom was the silk industry established?
13. What direction is Japan from St. Louis?
14. What is the chief port of Japan?

15. What was the early conception concerning the cause of earthquakes?
16. At what time of the year is the rainfall heaviest?
17. To what extent are ornaments found in the home?
18. What are the sources of the hot water used in bathing?
19. What is a jinrikisha?
20. In what part of Japan are horses used?

Interpretative Questions

1. Why should we be especially interested in Japan?
2. Why is Nagasaki an important city?
3. Why is the climate of the northernmost islands different from that of the more southerly?
4. Why is there greater need for wider streets than a few years ago?
5. Why is the lacquered ware very expensive?
6. Why is it difficult to run a turtle farm successfully?
7. Why is Osaka sometimes called the Manchester of the East?
8. Do the Japanese do things topsy-turvy?
9. Why does Japan feel the need for a strong navy?
10. Why does Fuji-yama, although 2,000 feet lower than Pikes Peak, appear to be higher?
11. What effects do the ocean currents have on the climate?
12. Why should the Japanese let men do the work of horses?
13. Why are there more horses in the northern and northwestern parts?
14. Account for the heavy rainfall of summer.
15. Are the Japanese houses adapted to an earthquake and typhoon region?
16. Why are "godowns" highly valued?

17. Why are fires frequently very extensive?
18. In Japan several people bathe in the same water. Is this custom as unsanitary as if it were done in the United States?
19. Why should the Japanese be called the "Yankees of the East?"
20. Why is the population so irregularly distributed?

The above illustrative questions have been suggested by several supplementary readers that are used in the grades. It may be noted that the interpretative question of the child may be a project-problem for a more mature person, who is interested in a detailed, comprehensive, exhaustive interpretation.

CHAPTER IX

THE PROJECT-EXERCISE

The project-exercise involves question steps looking toward the completion of the exercise. In the project-question, the question and its answer constitutes the child's unit of activity. The succeeding questions may refer to widely different topics, or to the same topic. If the project-questions relate to the same topic, however, it is because the interpretation of one project-question leads to another project-question. There is no purposeful consideration of questions in relation to a central topic, but the pupil, in each case, considers the question-and-answer as the completed unit of activity. A successive series of project-questions, if they happen to be related to a larger topic, may involve the same material as a more comprehensive project, but the more comprehensive purpose, which demands the raising and answering of a related series of questions, is absent. If the question-and-answer is a complete unit of activity, the question is a project-question, but if the question is raised, and the answer secured as an aspect of a larger topic, the activity involved is a project step. In each case the particular reaction may be the same, but purpose may radically differ. A series of related questions, bearing upon a central topic, in which the central purpose is the interpretation of the larger topic, is a project-exercise.

The project-exercise is more difficult than the project-question. The project-exercise is a more comprehensive

unit of activity than the project-question, and is correspondingly more difficult. It involves not only the interpretation of questions, but an understanding of their relationships to a central topic. The fundamental purpose is not to answer a question, but to answer the question as a link in the interpretation of the larger unit. The exercise is more difficult, therefore, because it involves, in addition to the relation of answer to question, the relation of question-and-answer to the exercise.

The project-exercise is a desirable unit in the development of the child. If actual intellectual development is to keep apace with the child's ability to develop, he must attack correspondingly more and more difficult situations. The child, who remains primarily in the question-and-answer state of development, cannot intelligently accomplish much in the way of advancing the interests of himself and society. Throughout life, to be sure, the project-question will be important, but it is desirable that a higher type of thinking gradually shall be developed. There should be no attempt to violate the psychological nature of the child by attempting too abrupt a change in the way of thinking. The transition from one type of project to another type should be gradual, the more advanced type supplementing the simpler, and slowly increasing in relative emphasis, but never being wholly substituted for the simpler mental processes. The relating of questions-and-answers to a larger topic is an advance in the type of mental difficulty, but at the same time so closely is related to the project-question that the experiences and abilities of the child are exercised similarly, but with increasing mental demands.

The project-exercise is a type intermediate between the project-question and the project-problem. While the project-exercise is closely related to the project-question it also

is closely related to the project-problem. The consideration of questions in relation to a central topic necessarily affords training in the raising and answering of pertinent questions in relation to the topic. A selective process is involved by means of which relevant material is discussed. Questions are raised and interpreted, and brought together into a relational unity. There is a relational and organizing process that is akin to the project-problem, although the reflective thinking and relentless evaluation of materials, looking toward the solution of a problem of considerable difficulty, is not present.

The project-exercise may be the preparatory step out of which a project-problem grows. One project-problem may proceed out of another project-problem, but frequently, as a result of a project-exercise, some problem or problems may arise that have all of the characteristics of typical project-problems. Project-exercises that are not related directly to project-problems are a fundamental basis for such work, as the richness of experience of the individual is highly significant, not only because of the numerous points of contact with the larger world which may cause problems to arise, but also because of the great variety of material that is available in the interpretation of project-problems.

Type studies, as ordinarily conducted, primarily are project-exercises. In a large city may be several large dairy plants. Certain details of the plants may vary, but the general processes may be similar. The milk is shipped from the rural districts, taken to the dairy plant, clarified, pasteurized, cooled, bottled, and distributed. Some dairy plant may be studied as a type of the dairy plants of the city. There is no particular problem of considerable complexity about which the work centers, but the purpose is to enrich the child's concept of a dairy plant. A visit may be made to the

plant, and a general class discussion may follow. The study of a dairy plant, or of some other industrial establishment, in a similar fashion, primarily is a project-exercise.

Imaginary, as well as real, journeys frequently are project-exercises. An imaginary journey may be taken, which will involve a discussion of places and activities that can be noted. If the trip were from New Orleans to Chicago, e. g., discussions might hinge about the principal cities and their activities, the rural districts and their activities, and the redistribution of commodities. No particular comprehensive problem may be involved but a variety of concepts may be secured or enriched, each having some relation to the comprehensive purpose of the individual to acquaint himself with the dominant and characteristic activities along the route. Most imaginary journeys are project-exercises.

Project-exercises may include minor problems. In connection with a project-exercise, numerous questions that refer to the underlying reasons for observed phenomena may arise. They may partake of the nature of miniature project-problems. If the project-exercise is a unit, however, and if the problem is not a problem of considerable complexity, it is to be regarded as a minor problem.

The project-exercise is a common type of school work. The project-exercise is fundamental in the development of the child. The schools of the past have been content if the child showed ability in the use of the project-exercise. Within recent years the significance of the project-problem has been emphasized. This higher phase of thinking does not lessen the importance of the project-exercise, but tends rather to magnify its significance, for the project-exercise is not the final goal of educational endeavor. It is a fundamental antecedent preparation for successful project-problem work.

CHAPTER X

THE PROJECT-PROBLEM

A problem of considerable difficulty is a project-problem. Problem work, during the last few years, has been strongly emphasized. The better teachers of all times probably have made extensive use of problem solving, but the recent added emphasis has done much in the way of making the teachers conscious of the significance of problems. Defined in its broadest sense, every intellectualized effort to overcome a mental difficulty is an effort to solve a problem. From this viewpoint the development of the individual is contingent upon a series of successive, appropriate problems. The mental difficulty may be so simple that it can be overcome by a simple reaction, or it may be so difficult that a considerable period of time and a careful consideration of much material may be necessary for its solution. Considered in this broad way, the activity aspect of a project is the endeavor of the individual to solve the problem, which is that part of the project that directly concerns the pupil. The teacher thinks in terms of the problem-project, and the pupil thinks in terms of the project-problem.

Somewhat arbitrarily, perhaps, the use of the word problem has been restricted to a much narrower field in a consideration of types of projects. The project-problem is regarded as a problem of considerable complexity arising out of a situation, and involving the consideration, interpretation, and evaluation of much material for its solution.

The project-problem vitally is related to project-questions and project-exercises. The project-problem is dependent upon project-questions and project-exercises for its solution. If the pupil is to make adequate use of project-problems, therefore, as a part of his educational development, it is desirable that his life shall have been enriched through the interpretation of numerous project-questions and project-exercises. In the lower grades the dominant emphasis will be placed upon project-questions and exercises. The child will be permitted to come into contact with appropriate materials, and through the stimulus effected will feel the need of securing information and of interpreting the materials. He will develop, not through the imposition of a logical, sequential, external organization of material, each child conforming to the same mold, and meeting the same objective requirements, but according to the related questions and exercises that are aroused in his inherent nature.

Since the kind of mental difficulties that will arise in the minds of different children, even with the same objective stimulus, will vary, while the general direction of development will be the same in a group of children, it is to be expected that the details, concerning the particular questions and exercises, will vary. It is the attempt, partly from the standpoint of economy in school management, to impose the same objective organization upon every pupil, expecting all to respond in a similar fashion, that goes far in explaining the relative lack of leadership, and of independent thinking, and lack of individuality, among children, with increasing age. If the teacher has directed, and has not arbitrarily controlled the early development, a considerable amount of initiative, of independent thinking, and of real judging, has entered into the activities of the child. The best possible training for project-problem solving has been given. The more

fact material, pertinent to the problem, that the pupil has available, the more satisfactorily, other conditions being equal, will he be able to meet the demands of the problem. The memorization and organization of valuable fact material subject to ready recall, therefore, is highly significant. With increasing experiences and expanding ability to engage in sustained thought, pupils can attack more and more difficult problems.

Project-problems should be graded so as to be adapted to the child. Educationally it is not sufficient that the child shall have a problem. Problems should be graded so as to challenge the increasing ability, so as to appeal to the child's changing interests, so that, at any particular time, the problems thus far solved will furnish the adequate training for out-of-school life. This does not mean that an objective organization of problems should be effected and arbitrarily applied, but that practice in the definite organization of materials in the form of problems will help the teacher to understand the child's viewpoint in relation to problems. From the standpoint of different children or of successive classes, there is no "best" list of problems.

Increasing ability to interpret project-problems will come with increasing maturity and development. While project-questions and project-exercises necessarily will be given the prominent emphasis in the lower grades, at least so far as the child's viewpoint is concerned, project-problems will not be excluded. With the enriching of the personal world of the child, however, there will be more numerous points of contact with related unknown materials, and greater possibilities of recombinations of ideas, so that the probabilities of project-problems arising will increase. It is fortunate that this increase in number and difficulty of project-problems goes hand in hand with an increase in experiences upon which

the individual can draw as a basis for the interpretation of the elements entering into the problem. In fact, there is a tendency for a continuous process to be established, since the interpretation of a problem enriches the mind, and since the enriching of the mind leads almost invariably to additional problems.

Professor Freeman has written: "In early life a child is particularly prone to make outward movements in response to stimuli. As he grows older, he learns to check these movements. It is evident to any observer of the child that he is impulsive, that he does not stop to compare different courses of action, or to deliberate which course he shall take. The response which consists in making inner decisions, therefore, is one which comes as the result of gradual mental development, and is partly due to the growth of the ability to check the more natural, immediate, outward responses. The response by reflection or by thought is the highest product of the child's education. It begins in the early years, it is true, and should be encouraged throughout his education, but it becomes more and more prominent as he grows older." (Freeman. How Children Learn, pp. 7-8.)

To attempt to organize all school work about project-problems is unwise. A great deal of the development of the child comes through contact with the environment in ways that are not characteristic of a typical project-problem. The project-questions and project-exercises may be thought of as supplying the child, however, with project-problem material. A considerable proportion of an adult's time is taken up with gossip, political gossip, real estate gossip, school gossip, factory gossip, church gossip, recreation gossip, etc. An exchange of information and ideas is effected without any particular attempt being made to solve a problem, but each participant may return to his own work with added inspira-

tion or suggestions that will enable him to meet more effectively his special problems. Much of the school work undoubtedly should center about project-problems, but to seek to organize a course of study exclusively about them, always conspicuously setting them up before the pupil, is to set up an artificial, formal organization that does not by any means exclusively and dominantly prevail in adult life.

A project-problem may be stated in the form of a question, but not all questions are project-problems. An answer to the question, "How old are you?" involves a very simple reaction, without any reflective, thought-provoking relationships being involved. Such questions are to be regarded as project-questions. They may be of considerable direct value, as in the classifying of men for military service, or they may be of great potential value because of problems which grow out of them or because of the use to which the information later can be put in solving problems. It is not necessary that the question definitely shall be expressed. If the child sees heat being applied to water and the rapid disappearance of water, the question can be asked as to why the water disappears so rapidly, or without any one definitely asking a question, the child may say that the water disappears rapidly because the application of heat causes it to vaporize. If the question were asked as to why it is exceedingly difficult to establish a permanent league of nations, no simple reaction would be adequate, and a project-problem has taken an interrogative form of expression. The teacher should regard the problems as parts of projects, and not as isolated unities. The problem, to be effective, must belong to some one. Not the least important of the teacher's work is to recognize problem-projects, and to evaluate them as a means of child growth.

Reflective thinking is an important characteristic of proj-

ect-problem solving. An important feature of the project-problem is the extent to which the individual must reflect upon a large amount of material, constantly exercising judgment in rendering decisions. Material bearing upon the problem must be selected from a great body of irrelevant material. The relative importance of pertinent material must be determined. Conclusions must be reached, in most instances, not on the basis of mathematical precision, but through a consideration of complex, interacting relationships, the relative values of which are very difficult to determine. In adult life, we do the best that we can with many problems, and we should not expect more of the child.

The project-problem may have many forms of expression. The problem may assume (a) the form of a question, as "Why did the New World come to be discovered?"; (b) the form of a debate, as "Resolved that a league of nations should be formed as a result of the World War"; (c) the form of scoring, as "Purpose, to find whether France or Italy has the more favorable natural resources for an important national development"; (d) a prejudicial declarative statement, as "Why America must win this war"; or (e) it may be reduced to a topical outline, as "Location" under an outline on Japan, which to the initiated might contain the implied problem, "How has the location of Japan affected its development?" The particular form of the problem is not nearly so significant as the fact of the existence of the problem as a personal problem to the child.

The pupil's interest is in the project-problem. While the teacher's interest is in the problem-project, in the way that the child, through the problem, will develop, the pupil's interest primarily is in the project-problem. He is not making a special study of his personal world and the laws of growth. That is the duty of his trained teacher. As he

comes into contact with his environment, and as ideas come to him, problems which he wants to solve may arise. The teacher may have been instrumental in seeing that the material was present, and may have aided the pupil in making the problem his own. The problem is not the pupil's problem as long as it is externalized. It should be adopted willingly by the child, and not imposed upon him. The problem part of the project, therefore, is the child's special care. The emphasis of the teacher is placed on the problem-project, while the pupil places the emphasis upon the project-problem. Whether in educational circles we should speak of problem-projects or project-problems depends upon the viewpoint. Each phrase has a perfectly intelligible pedagogical meaning.

Desirable problem-projects are difficult to secure. Not all problems are desirable for grade work, and not all desirable problems can be used. The definite expression of a problem frequently is very helpful. A problem, if stated at all, should be stated clearly and definitely. It should be worth solving, not merely as a mental exercise, but because of the knowledge, skill, or ideal involved. Each problem should be sufficiently differentiated from other problems that the relevancy of material readily can be determined. The ultimate criterion is the extent to which a contribution is made to the enlargement of the pupil's mental horizon.

One of the greatest difficulties under present conditions is the securing and adopting of desirable problems by the pupils. Teachers, as well as pupils, have gone astray, and unfortunately the blind sometimes have been leading the blind. Misled by the problem idea, enthusiastic teachers have proceeded to attempt to recast all subject-matter into project-problem form. Frequently a problem has been stated, and almost any information or interpretation,

whether pertinent or not, has been admitted as a vital part of the discussion. The fact that project-problems have been, and may be, grossly abused, does not at all mean that they should not be recognized. Problems are vital in the education of the child. Practice by both teachers and pupils in selecting and formulating problems growing out of situations, in which there is a personal interest, is desirable. The teacher always should be critical of the value of all problems of the school room, and pupils certainly should be given training in their expression and evaluation.

The more thoroughly the problem is motivated, the greater the probability of maximum success. Arbitrarily assigned lessons may not induce a satisfactory response from the child. The arbitrary assignment of a lesson in terms of a problem, however, is preferable to a purposeless assignment, but there is no inherent virtue in the problem, objectively considered, that insures rapid, healthy growth. How frequently have self-deluded teachers said: "For our next lesson, we shall attempt to account for the rapid development of Southeastern Missouri. Consult the books on the reference shelf for information bearing on this problem. Be sure to have a good lesson. Class is excused." The pupils go at the teacher-selected, teacher-imposed problem with an enthusiasm dependent upon the personal influence of the teacher, plus the particular nature of the child. Without any particular interest in the problem, but from a sense of duty, they may proceed doggedly to master the task. If they eventually become interested in the problem assigned, it will be in spite of and not because of the way the problem was secured and assigned. The problem may be a good one but it will fail to accomplish its purpose because the assignment lacks motivation.

Under such conditions, the pupils may have a problem,

to be sure, the problem of meeting the teacher's requirements. In meeting the terms of their real problem, it may be necessary for them to consider incidentally, insofar as is vital to their problem, the problem assigned. The extent to which the problem assigned will be studied will depend upon the particular requirements of the teacher, as the pupils normally will master only as much of it as is necessary to meet the conditions of the real problem confronting them. If the pupils do not feel the problem assigned as their own problem, or the problem of meeting the teacher's requirements as a real problem, little or no study may be placed on the material as a result. To the extent that the pupils study concerning the rapid development of Southeastern Missouri so as to meet their own problems, valuable material is being considered. The fact that much of such work done in school, however, is done because of the problem of meeting the teacher's requirements, accounts for the failure of much of the material to function properly after the pupil has ceased to have such problems, and begins to consider problems that are inherently and intrinsically valuable to his well-being.

Another way of using a problem, an improvement over the way just mentioned, is to give the class the problem "Account for the rapid development of Southeastern Missouri," the assignment being followed by explanatory material, intended to arouse an interest on the part of the pupils in the problem. This method is similar to the method commonly followed in the pulpit of reading a text and then preaching about it. The chief difficulty with this method of procedure is the reversal of the proper order.

The preferable way for a problem to originate is that it shall arise naturally in the mind of the child out of material that he is considering. Perhaps relatives or friends of some of the children have invested in land in Southeastern Mis-

souri. The newspapers may have carried items concerning the yields of cotton, wheat, watermelons, and lumber. The teacher may be able to supply material indicating the present state of development and the wonderful progress during the last decade. Some section of the Ozarks, where development has not been nearly so rapid, may be contrasted. From this or similar exercise material, a real problem may be aroused in the minds of the children. There is no one problem that inevitably will be raised, but the problem demanding solution may be: "Account for the rapid development of the lowlands of Southeastern Missouri during the past decade." The project-problem, properly motivated, may be practically the same problem that was imposed upon the class as an unmotivated problem. The way the problem originates, however, is vital. The child has a personal interest in the motivated project-problem and feels a need for its solution.

After the class has a project-problem, the next step is to attempt to solve it. After a problem has become a personal problem to every member of the class, the next step is to attempt to solve the problem. If the problem is: "Account for the rapid development of the lowlands of Southeastern Missouri during the last decade," such topics as the following may be discussed: transportation facilities by water, rail and highway; climate; topography; soils; drainage; conditions favoring and retarding production of various products; influx of well-trained farmers; influences of speculators and investors; control of malaria and other swamp diseases; increasing pressure upon agricultural population elsewhere; and markets. If this problem is the real problem on which the child is working, if this problem arises out of his own experiences and satisfies a real mental difficulty, it is the real project-problem of the situation. Under such conditions it

may be expected that great enthusiasm and earnestness will be shown in the securing and interpreting of pertinent materials. If the real problem of the pupils is to meet the requirements of the teacher, the focus of attention of the pupils has become centered about this real problem, and the problem that the teacher had intended that the class should emphasize, and the problem that she may deceive herself into believing the class has focussed its attention upon, is a supplementary means of solving the real problem. Most of the partial failures of project-problems with classes can be traced to the fact that the pupils' real problem has differed from the problem that the teacher had intended should become real, that the pupil never made the problem a personal problem, or that, having made the problem a personal problem, he temporarily permitted the mental difficulty to exist without being willing, ready, or able to put forth the energy necessary for its solution.

The teacher should help the pupil with his project-problem in every proper way. Some years ago systematic, objective organizations were used by the teacher and imposed upon the class. The teacher, as the ruling spirit of the schoolroom, tended to make the pupils the slaves to a particular organization of subject matter. Now that there has been a decided shift in point of emphasis to the viewpoint that subject-matter should be subordinated to the child's interests and development, there is a decided tendency for many teachers to feel reluctant to confess that they have helped the pupils in any way. Teachers are perplexed, for they know that their directing hand is desirable, and yet they are aware that well-meaning supervisors may mistake proper assistance as the attempt of the teacher to think for the child, and to cause all children to conform to a preconceived mold. In the lower grades a considerable amount of

help, both direct and indirect, should be given, and for a number of times the pupils may need much assistance in the solving of project-problems.

The teacher is merely one of many factors of the environment that may enable the child to solve the problem. As the child becomes more and more skillful in the solution of project-problems, the relative importance of the teacher should decrease, and the pupil should come to depend more and more upon other materials. In this way the pupil becomes more and more independent and gradually is prepared for the time when the teacher, as a helping force, will disappear from his environment.

In discussing the various ways by means of which the teacher may secure efficiency in the solving of problems, Professor S. C. Parker offers the following suggestions (Parker, Samuel Chester. Methods of Teaching in High Schools, pp. 198-199):

"To stimulate and assist pupils in carrying on reflective thinking the teacher should

I. Get them to define the problem at issue and keep it clearly in mind.
II. Get them to recall as many related ideas as possible by encouraging them
    1. To analyze the situation and
    2. To formulate definite hypotheses and to recall general rules of principles that may apply.
III. Get them to evaluate carefully each suggestion by encouraging them
    1. To maintain an attitude of unbiased, suspended judgment or conclusion,
    2. To criticize each suggestion,

3. To be systematic in selecting and rejecting suggestions, and
4. To verify conclusions.

IV. Get them to organize their material so as to aid in the process of thinking by encouraging them
   1. To 'take stock' from time to time,
   2. To use methods of tabulation and graphic expression, and
   3. To express concisely the tentative conclusions reached from time to time during the inquiry."

Supervised study is helpful especially in the earlier stages of project-problem solving. In connection with the discussion during the recitation period one or more problems, which are to form the basis for the study period, may arise. The teacher has a responsibility to perform in connection with the study period as well as in connection with the recitation period. Whether the studying is done under her immediate supervision or not, she should make sure that the pupils have the requisite knowledge by means of which they intelligently can work on the problems. The problem of the teacher is to be helpful enough, but not too helpful. It is a wise teacher who always can find this middle road.

Profesor Herbert G. Lull regards supervised study as an essential part of problem work and discusses this aspect of problem solving as follows (Lull, Herbert G. Problem Method of Instruction and Its Probable Correlations in Library Service and Administration, National Educational Association, 1917,—562-563): "If the recitation and the study of a lesson occur on the same day, the recitation should precede the study. Among other activities of the recitation, the discovery and the setting of problems to be solved in the study-period are important. During the study-period the

children work individually and occasionally in groups of two or three. In this period the children work upon the problems which they have discovered or state in the recitation. If more than one problem has been discovered, each pupil chooses the one in which he is most interested. He first writes down the statement of his problem. Then he begins making an outline of points which he thinks have bearing upon the solution of the problem. At the conclusion of this hypothetical outline he may write down some tentative conclusions. At this stage of the work the pupil begins to investigate the validity of the points in his outline by reading from available sources of information to prove or disprove what he has conjectured. He learns to use the index and the table of contents of books; he learns to use maps, statistical tables, the dictionary, bulletins, to perform experiments of various kinds, to work out practical manual projects; and he learns to use all of these sources as instruments for the solution of his problem and not as ends in themselves. The teacher's function in the study-period is to act as a stimulator of activity and is not that of an authority or a general source of information. It is her business to see that the pupils have materials and sources of information with which to work. As the pupils are studying she should pass quietly among them, looking over their work. She may stimulate them to think accurately and to gather their information carefully by asking individual pupils such questions as the following: What bearing has step '4' upon the problem? What is the relation of point '4' to point '5'? How do you support this point? From what facts do you draw this conclusion? Where would you be likely to find reliable information on this point? etc. The teacher should stimulate suggestions, but she should not be a crutch for the pupils to lean upon."

The discussion of the project-problem in class should be largely in the hands of the pupils. Considerable skill is necessary in directing a class engaged in the discussion of project-problems. Pupils, not thoroughly trained in this way of thinking, constantly will tend to discuss irrelevant materials. A certain amount of irrelevant discussion is desirable, provided, as a result of the discussion, the pupils eliminate the material as having no bearing upon the problem. It is inevitable that a certain amount of time apparently but not actually will be wasted in this manner. If pupils are to be taught to discriminate, they must have practice in considering and selecting. The skill of the teacher may be necessary at times to hold the discussions to the problem, and to secure an interpretation of the materials in the light of the problem. The teacher should not attempt to get the pupils to conform to her viewpoint arbitrarily, but should cause the pupils to adopt her viewpoint because of its reasonableness. The teacher, in general, should be an inconspicuous member of the class, participating as little as is necessary in order that the pupils may secure helpful direction, and at the same time feel their own strength in mastering the problem. The discussions should be general, and, through the liberal exchange of ideas, each student will come to make necessary modifications in his views.

As an outcome of the detailed study, the problem may be solved, or the material summarized. As the class proceeds with the consideration of material having a possible bearing on the problem, all material that is interpreted and accepted may be listed in an abbreviated form. The class gradually thus accumulates materials. When sufficient material has been assembled, the class is ready to pass upon it collectively. With respect to almost every problem it will be found that there are disadvantages as well as advantages in

a certain viewpoint. The relative value of the various facts must be determined. Because these values, in many instances, can not be reduced to absolute terms, it is not always possible to agree on the solution. Each individual should be encouraged to adopt his own honest viewpoint concerning the real solution of the problem. Even though he may be decidedly wrong, it is better that he candidly should assert his opinion than that he openly should agree with others, but secretly should believe otherwise. In some instances, pupils may feel that the evidence is insufficient, or inconclusive, and therefore may prefer to leave the material summarized without committing themselves. Adults frequently withhold judgment. In the limited time at the command of the class, it is not to be expected that project-problems always can be solved, or that more than part of the pertinent material satisfactorily can be interpreted and summarized. Pupils should be encouraged to make tentative conclusions on the basis of the evidence produced, subject to modification with the production of further evidence. Even if the project-problem has not been completely solved, the proper consideration of it, to the extent that the work has proceeded, is a valuable type of training. It is preferable, in most instances, that pupils should not feel that their temporary opinion is an act of finality for all time, insofar as the particular problem is concerned.

Individual problem work should be encouraged. There are many social advantages that may be derived from group problems. It is particularly desirable that every individual shall learn how to cooperate with others. It is just as essential, however, that the individuality shall be preserved. Problems that make a special appeal to some student frequently will arise in the recitation. Such a person should be encouraged to work out the project-problem alone. After he has

solved the problem, he can report back to the class, possibly stimulating others to want to solve individual problems. The individual problem requires the individual to secure and interpret the material and to come to an independent decision. In some cases, each pupil may assume the same problem for individual work. The various solutions of the problems may be presented in class. If there is essential agreement, no further consideration is necessary. If there are fundamental differences, a group problem arises in that it is necessary to go over the material cooperatively in an attempt, if possible, to eliminate the false.

Pupils should have practice in group problems, in individual problems, and in following an explanation of problems by others. The desirability of giving pupils practice in solving problems cooperatively and individually has been suggested. In addition, a certain amount of attention should be given to the solution of a problem as indicated by another person, perhaps the teacher, or some other member of the class. The following of the solution of a problem in a book is but an indirect means of following the reasoning of another. The very poor pupils and the very bright pupils will profit from this kind of work. The poor pupils will be able through studies of this kind to follow the reasoning of others more intelligently, while the bright pupils, able to cover the ground rapidly, to make the arguments their own, and to profit from the experiences of others, will advance much more rapidly than if they had to work out all of the problems in the slow, painstaking manner characteristic of the careful student. This kind of problem-solving should be permitted very cautiously, however, as a lassitude of mind and dependence upon others are possible outcomes.

The numerous advantages of project-problems account for their increasing importance in school-room practice. Among

the advantages, not all of which are peculiar to the project-problem, may be noted the following: (a) Subject matter definitely is considered in the light of an adjustment to material, in much the same way that it is considered by adults; (b) Haphazard growth is supplanted by systematic growth based upon the attaining of an end, several steps removed from the present attainment; (c) A situation, worthy of the metal of the best that is in a pupil, is established, which under proper conditions fosters an attitude of determination to win; (d) Memory work is required, not on the basis of the satisfying of a trivial passing need, but in relation to a problem, which induces organizing and classifying, as well as memorizing; (e) Reflective thinking, of a very high order, is required in the consideration, interpretation, selection and elimination of materials; (f) Training in cooperative social service, in individual mastery, and in following the arguments of others is given in such a way that the relative values of solving problems in these various ways are realized; (g) If the problem thoroughly is motivated, much interest and enthusiasm is aroused; (h) Language becomes a tool for the expression as well as for the transmission of thought; (i) Problems involve practically the concentrated energy of the child, and call into play his various abilities, thus tending toward a balanced development; (j) Problems are very helpful in determining the relative abilities of children, which fact is very significant in the directing of pupils into vocational lines best fitted to their capacities, abilities, development, and inclinations.

An apparent weakness of this method is an actual strength. The relative lack of ability of the weak pupils readily is indicated. It is to be expected that a few of the pupils will show marked ability, that a few will show marked inability, that the majority will show ability in the solution

of problems. This is the situation, whether children or adults are being considered. The schoolroom practice will differ from the practice of the busy adult group, in that the teacher will strive to develop each individual to the limit of his capacity, while in the after school days most pupils will have no such guiding hand. In general, provided the right moral and physical qualities are present, and remain present, the pupils who show marked ability in problem solving probably will continue to grow until they have become leaders of thought and action among men; the pupils who show mediocre ability probably will constitute the great class of society that can weigh intelligently the factors involved in the problems analyzed by the leaders; the pupils who show marked inability, few in number, probably will be dependent on the preceding two classes, both for leadership and direction. The teacher will attempt to secure a maximum development of each member of the class, but it is an advantage of the method, that, in spite of this attempt, the pupils will tend to fall into groups according to ability.

The skillful teacher, aware of the difficulties and dangers of the project-problems, will avoid or overcome them. A difficulty in using the project-problems, from the practical standpoint, arises from the inability of pupils and teachers to secure satisfactory and varied material, bearing on the problems. Teaching is bound to be unsatisfactory if there is a class ready and anxious to solve a problem, but little or no material available through the study of which the problem can be solved or considered satisfactorily. Maps, pictures, museum material, supplementary readers, magazines, and newspaper clippings bearing on the important relations of man to his environment, should be on hand. This nucleus of material, supplemented by any material the pupils can secure, may be the basis for problem solving.

The school material, bearing on problems, should be placed conveniently for the use of the pupils. It is an unnecessary waste of the pupil's time to give vague directions as to where material can be secured. The solution of project-problems does not demand that a child shall wander aimlessly through numerous volumes, accidentally stumbling upon pertinent material. The significant thing is not that general material shall be found, but that, from this material, selections shall be made and interpreted to meet the demands of the problem. Pupils, however, should be encouraged to secure supplementary material. It is a mistake to have numerous duplications of the same reference with which to supply the class. As many different references as possible should be secured. Variety rather than uniformity should govern in the selection of supplementary material for problem work. Pupils, reading different articles, will be stimulated differently, and will come to class expecting to make actual contributions. Through the cooperation of all members of the class, the problem should be solved. If a pupil is engaged in the solution of an individual problem, the same general principles hold true.

There has been a tendency to misuse problems by taking the old, topical, outline organization, and capping it with a problem. Particularly in geography has this weakness appeared in several courses of study. The old topical organization for the study of some areal unit, as Australia, China, or Japan, has been taken, and preceded by a problem. It is assumed that the solution of the problem will involve all factors worth while with respect to the areal unit. Under the guise of a problem, consequently, pupils are permitted to make contributions concerning the areal unit whether related to the solution of the problem or not. Loose, superficial, inaccurate thinking thus is encouraged.

The problem breaks up into a number of exercises and questions. The teacher and not the problem is at fault.

Only contributions of significance in solving the problem should be accepted. A class spirit, unwilling to entertain inaccurate or non-pertinent discussions, gradually should develop. If there is other material concerning the country under consideration that should be discussed, this may be taken care of through exercises or other problems. Sub-problems may aid materially in the solution of a project-problem. Sometimes the sub-problems require explanations, which may give rise to minor problems and so on. The teacher may make a serious mistake by permitting the class gradually to move from sub-problem to sub-problem until it has lost sight of the original problem. The class is lost. The higher mental activities have been supplanted by a lower type of thinking. The project-problem has become a project-exercise or a series of project-questions. Any material not bearing directly on the problem should be rejected, and the sub-problems suggested may be listed for consideration after the study of the project-problem has been completed.

Illustrations of problem-projects will help to make the foregoing discussion clear. That problems should be emphasized in school work is no longer regarded as open to question. The specific motivation must be left to the teacher in every case, but the following synopses indicate what is meant by problem-projects:

Illustration One. *Preparatory step:* Denmark once offered to sell the Danish West Indies to the United States, but the United States refused to buy; later, the United States wanted to buy the islands, but Denmark, under German influences, refused to sell. In 1917 the United States was willing to buy and Denmark was willing to sell. The United States purchased the islands for $25,000,000.

Problem raised: Are the Danish West Indies worth the price?

Materials secured and interpreted: The islands were considered from the standpoint of pastoral, agricultural, mining, fishing, and manufacturing possibilities, from the standpoint of their strategic location in guarding the easternmost entrance to the Caribbean Sea and the Panama Canal Zone.

Problem solved: The islands are worth the price because of their strategic importance in helping the United States to watch over its interests in the "American Mediterranean."

Illustration Two. *Preparatory step:* From a study of maps showing the distribution of agricultural products and population in Argentina, it was found that over three-fourths of the people live, and over three-fourths of the agricultural products are produced, in the pampas region.

Problem raised: Account for the dominating importance, in Argentina, of the pampas.

Materials secured and interpreted: A consideration of factors in the pampas, favorable for agricultural production, thus accounting for its absolute importance, was made; and a study of limitations imposed, in the Gran Chaco region, the Andean foothills, and the Patagonian Plateau, was made, to account for the relative importance of the pampas.

Problem solved: The pampas region is of dominant importance because of its favorable location, area, topography, soils, climate; because of the relatively unfavorable physical factors elsewhere.

Illustration Three. *Preparatory step:* Leaders of British thought have insisted that the British Empire must retain control of the seas.

Problem raised: Is the British Empire justified in insisting on sea-control?

Materials secured and interpreted: Consideration of the scattered possessions of the Empire, the need of guarding the routes connecting them, the island location of Great Britain and Ireland, dependence upon water transportation in times of peace as well as war. On the other hand, the rights of other nations to similar use of the sea, and the undesirability of any nation monopolizing or even potentially controlling the sea were discussed.

Problem solved or material summarized: If pupils are divided over the solution of a problem, preferably each child should be permitted to come to his own conclusion, but he should be required to state his position definitely and concisely, with reasons therefor. Seldom will the members of a class adopt the same conclusions when a problem of this type is presented.

From the foregoing illustrations it will be noted that the project-problem has a fourfold aspect: (1) preparatory step, involving a consideration of material out of which a problem may arise. In many instances the solving of one problem may give rise to another problem. The character of the preparatory material used is important, since the problem and the initial interest of the class in the problem largely depend on it.

(2) Problem raised. A problem is raised and concisely stated. Spontaneous self-activity of pupils should be sought. A problem is secured in an ideal fashion when the pupils raise it. It may be necessary, however, for the teacher to assist the pupils and occasionally even to raise the problem for the class. The significant thing is not that some pupil verbally shall state a problem, but that the class shall have a need, a problem—irrespective of how the need was created—which it wants to satisfy. Care should be exercised in the final statement of the problem, as succeeding

work hinges on the definite expression of a problem worth while.

(3) Materials secured and interpreted. When the class has a problem that it needs, or preferably wants, to solve, various sources of information, as textbooks, supplementary readers, pictures, maps, museum material, newspapers, magazines, and people, should be consulted for appropriate material. This material should be interpreted so as plainly to show its bearing on the solution of the problem. The teacher should not attempt to force her organization on the class. It is far better to accept the pertinent points made by the pupils in the order in which they are made, thus encouraging an easy flow of thought. The pupils should not be thinking, What does the teacher want us to say? but, What does the solution of the problem demand?

(4) Problem solved or material summarized. If the problem has been solved the solution should be stated by the class as accurately, as definitely, and as concisely as possible. The final statement should represent the team work of the class, if the problem is a group problem. It is not to be expected that a definite solution can always be secured, or that the individuals of the class will agree on the solution in all cases. In the actual problems of life, adults often analyze and weigh the factors concerned, postponing judgment. With respect to many problems in life people have widely divergent views. It is the province of the teacher to work with the pupils, getting them to come to their own conclusions, after all the available evidence has been presented. All of the above steps need not and probably will not appear in the same recitation. An entire recitation period, for example, may be devoted to a discussion of the preparatory material and the raising of a problem. It is not believed that the project-problem, as defined in this

chapter, is the whole of educational endeavor, but it is believed that the project-problem should occupy an important place in schoolroom practice.

Project-problem material is an essential part of the project-complex. In the consideration of a project-complex numerous questions, exercises, and problems may be involved. The more effectively the individual has developed, the greater his probability of success in dealing with the project-complex. A person may be fired with a purpose to run a store, organize and manage a factory, engage in the running of a line of boats from St. Louis to New Orleans, or from Buffalo to New York City, devote himself to the prohibition or woman suffrage movement, etc. A big, comprehensive complex situation, requiring a considerable period of time, and involving practically every type of thinking is involved. Looked at from one standpoint, in fact, the project-complex is a very complex problem.

The types of mental activity inextricably are interwoven looking toward the solution of the "project of life" the greatest of project-complexes. For convenience the project question, exercise, problem, and complex have been recognized. There are no sharp lines of separation among them, but there are many mental reactions in the transitional zones. Moreover, if the simpler types of mental activity are analyzed, the materials and processes are found to be potential parts of higher types; if the higher types of mental activity are analyzed, they are found to include the lower types of mental activity. The distinction, consequently, is one of degree and relationship rather than an inherent absolute difference in mental quality. Through questions the individual increases his experiences somewhat haphazardly. Through exercises, a series of related activities is considered. Through problems the knowledge and skill secured

through exercises and questions are utilized, and additional knowledge and skill may result. The questions, exercises, and problems enter into a project-complex, and a series of closely related and inextricably interwoven series of questions, exercises, problems, and complexes, enter into the solving of the "project of life."

Problems

1. If the words "project" and "problem" are used in their broadest sense, what is the relationship between a problem-project and a project-problem?
2. Illustrate the fact that the problem-project of a teacher may resolve itself into questions and exercises for the pupils.
3. If a problem is a problem to a child, is one problem just as valuable, from the educative standpoint, as any other problem?
4. Is it practicable to organize a school course exclusively on the basis of project-problems?
5. What are the advantages and disadvantages of a formal statement of the problem?
6. What weaknesses are to be avoided in teaching by project-problems?
7. Illustrate (a) a group problem, (b) an individual problem, (c) a problem developed by a teacher, and (d) a problem developed in a book. What are the advantages and disadvantages of each?
8. What is the relation of a project-problem to other types of teaching?

CHAPTER XI

MANUAL OR PHYSICAL PROJECTS

Mental and æsthetic values are present in physical projects. The conspicuous factor in physical projects is the refashioning of concrete materials through the use of human, animal, or mechanical power. Mental activity and appreciation of values necessarily are vital aspects of the project, but the characteristic part of the project is the concrete objective accomplishment effected through the relationships established with the physical environment. It is not necessary that a project shall result in concrete objective achievement, as imagery can be substituted in the intellectualized unit of activity, for the concrete aspects of a project. Physical projects not only inherently are valuable, but furnish the basis for imagery projects.

Physical projects may include (*a*) *school or home projects; and* (*b*) *individual or group projects.* The school garden may offer an opportunity of emphasizing school projects, while the home garden or the farm may offer a similar opportunity in home projects. The school garden will afford an opportunity of solving both individual and group projects, while the home environment will permit each child to work out some individual project. A singular opportunity is presented of correlating the school work with the home work, of arousing initiative in the child as he wrestles with his individual projects, and of promoting the social attitude through the cooperative projects.

Physical projects are fundamentally significant in the education of the child. There is a close relation between the development of consciousness in the young child and muscular activity. A basic acquaintance with the environment demands that the child shall have had some direct experience with materials. In a more or less experimental fashion the child reacts to this environment or causes the materials of the environment to react to his voluntary movements, and thereby enlarges his experiences. Later on, with increasing maturity, it may be possible for the child to engage in a unit of project activity without the establishment of concrete objective relations, but the initial projects inevitably, by reason of nature's method of unfolding the human life, must be in relation to the material environment.

The importance of physical projects in education commonly has been overlooked. Physical projects, as long as they were carried on in the homes, were not an essential part of school work. In the carrying out of projects, however, a certain amount of project study was necessary. The schools, emphasizing such subjects as reading, writing, and arithmetic, were established to supplement and reinforce the physical project work of the homes. As the schools came to emphasize more and more the development of the child and as they came more and more to assume a large responsibility for the preparation of the child for adult life, the curriculum substantially was enriched. The natural order of development of the curriculum was along the lines previously adopted, so that the physical projects were not increasingly emphasized. With the decline of physical projects in the home, however, the need of a corresponding emphasis of physical projects in the school increased. The school work, consequently, tended to drift farther and farther away from the useful purpose which it had served. Wide-awake, am-

bitious boys found opportunities for physical projects on the farm or in the factory. Similar opportunities could not be secured through the school as long as the schools did not relate their work intelligently to the other work of the world. Under such conditions, the schools did not efficiently serve society. Since the schools have become leaders as well as followers of human activities, the significance of physical projects again has been earnestly considered with the result that the schools are providing not only for the carrying out of school projects, but for the supervision of home projects.

Physical projects serve a purpose that no other type of project can serve. The following advantages may be noted in the use of physical projects: (a) The child has direct contact with concrete, objective materials which act as stimuli in increasing the child's consciousness of being and experiencing. (b) The use of the imagination is minimized, or at least is developed in relation to material realities. (c) The physical nature of the child is given opportunity for development. (d) A certain amount of muscular skill in the use of tools, and in the manipulation of material things is secured. (e) A firm foundation is laid for the development of the mental and æsthetic life. (f) The fundamental dependence of man upon material things and his necessary relations to material things is emphasized. (g) Since the physical projects are part of the world's work in dealing with materials, the child comes to see the dependence of group upon group. (h) The numerous relationships established through the material directly and indirectly prepare for individual and social efficiency.

Physical projects must be supplemented with non-manual projects if maximum possibilities of life are to be attained. If sole dependence were placed upon physical projects in the development of the child, the possibilities of the

abstract higher life would not be realized. The materialism of the child unnecessarily would be overdeveloped, while the finer aspects of a human life would not develop sufficiently. If the human life is no more than a material being in contact with a material environment, the exclusive use of physical projects may be desirable. If there is a spark of the divine in the child, however, the physical may be regarded as the fundamental means of bringing the child into consciousness and of developing his consciousness so that he can ponder over the good, the true, the beautiful and the spiritual. After adequate material concepts are established, moreover, the mind of the child, through the exercise of his imagination, can recall the material concepts and utilize them in his thinking activities in the working out of immaterial projects. The exclusive emphasis upon physical projects would not be economical in time or in accomplishment, since, if the material concepts adequately have been grasped, the imagination can make use of the concepts in reasoning much more readily than if the materials actually were presented for use. In a general way, therefore, it may be stated that proper educational development requires a relative shifting in emphasis from physical projects with the human being who is just beginning to unfold, to an emphasis upon mental and æsthetic projects, requiring little manual activity as increasing maturity is reached.

Physical projects now are given marked emphasis in primary grades. In recognition of the fundamental desirability of relating the child to the material environment in the early years of instruction, the kindergarten and primary grades make dominant use of physical projects. A unit situation is established, out of which the various aspects of school training and knowledge are secured. In the kindergarten work, the effort centers about games and other

simple social activities. Out of the unit of work grow numerous concepts which are related to the activity. The child is living a life as he engages in the varying activities, is learning in relation to his experiences, and is securing additional skill and knowledge in working out the unit with which he is dealing. He is interested in no subject for its own sake, but insofar as it will help him to meet his difficulties.

The concept of a city may be built up through a physical project. In the first grade of the Wyman School of St. Louis, under the direction of Miss Manual, the concept of city was built up in the following manner: The children constructed out of cardboard a building which they designated the Wyman School. They then constructed other buildings to represent Union Depot, the Railway Exchange Building, prominent churches, etc. The cardboard representing the Wyman School was placed toward the center of the room, while the other buildings represented were placed round about according to the direction they lay from the Wyman School. The pupils thus were securing training in relative location. If two buildings were located in a given direction the children determined which was nearer the Wyman School and placed the miniature representations accordingly. They were securing training in position and relative distances through these exercises. Some of the children had seen the river and told how it sweeps around the city in a large semi-circle. The river was properly represented upon the floor. Office buildings and wholesale centers were indicated near the river, while some of the "nicer" buildings were placed in the "West End," where the more fashionable part of St. Louis has arisen. No attempt was made to place all of the streets, but the children were acquainted with the main streets and the streets that they used in going to and from

school. The familiar streets were located in their physical project. From day to day the project material gradually increased and was changed, as the children worked individually and collectively with it. Numerous questions came up and numerous suggestions were made. Some of the streets were paved. Green cardboards were placed in front of certain residence sections to represent the front lawns, and sidewalks were placed along the streets. On appropriate streets, shade trees were set up, and telephone and telegraph wires were strung along poles. The parks were located, and in Forest Park a "zoo" was established. The question of alleys for the city arose, but the children were not inclined to put alleys in, because they said that alleys were always dirty and were unnecessary. Policemen were placed upon the streets, one being stationed at the busy crossing near the school, and traffic policemen being placed at the busiest crossings of the city. The absence of a fire department was noted, and due provision therefor was made. Refuse cans were placed along the streets so as to help keep the city clean. As the project grew the children became more interested. Toy animals for the "zoo" were brought from home. Toy fire engines, automobiles, soldiers, etc., were brought and, according to the ideas of the children, properly placed in the rapidly growing city. This work was continued for several weeks, when the educational possibilities seemed relatively exhausted, although the interest of the children gained in intensity to the last.

It is to be noted that this project arose out of the children's experiences, and drew heavily upon their experiences, that numerous problems arose which required their best efforts to solve, causing them to secure additional experiences, that the gradual additions from day to day were the results of careful observations of the city carried on whenever pos-

sible, that an enthusiastic, purposeful, wholehearted activity was aroused in the children which furnished a powerful momentum for the successful completion of the project. That a certain degree of skill was developed was indicated in the appearance of the first buildings and the last buildings constructed by the various individuals.

In connection with the construction of the city, rich and varied material was afforded for giving the children training on the basis of need, in numbers, reading, writing, spelling, history, geography, physiology, language, and social relations. The work was not centered about any of these subjects, but the subjects were called upon in helping to meet the requirements of the unit activity in which the children were engaged. Project material was used because of, rather than in anticipation of need. Conditions were favorable for an economical, desirable growth. The teacher was present to direct and counsel, but as much of the work as possible was placed upon the pupils, and the particular order of development of the project was determined by the responses of the pupils to the situation.

Practical arts projects, involving self-expression, have been introduced into the schools. Manual training in the schools is concerned with the construction of numerous useful articles. The original impetus given to manual training as a means of imparting skill in the use of tools has been strengthened by the endeavor to give the pupil a motive because of the worth-while results that may be obtained in the construction of a work of usefulness. It is not sufficient that the article shall be useful, but the pupil must feel that it is worth while from his personal standpoint. Both group and individual school projects may be worked out by the pupils. Not infrequently pupils desire to construct something that is far beyond their ability. Since the aim of the teacher is

the development of the child rather than the production by the child of some artistic article, the pupil may be permitted to consider his project far enough for him to see the futility of his trying to perfect it, and far enough that he may see for himself, with the help of the teacher, any preliminary training that may be necessary. The pupil, then, is in a frame of mind that will enable him to engage in the elementary work with the utmost enthusiasm and concentration of attention. Little by little the necessary skill and knowledge may be secured when the pupil again engages directly in the solution of his favorite project. Frequently pupils may shift their preferences rapidly from one project to another. This should be permitted within bounds, but pupils should be made to feel that they should carefully select their projects, and then engage in sustained effort until the project as a unit is completed.

Practical arts projects satisfy educational standards. Typical projects have been developed in the manual training courses. Prof. L. L. Jackson has written (Jackson, L. L., The Project-Sinning and Sinned Against, Ind. Arts Mag. 7, 138-9, '18): "If he (the pupil) purposes to produce an artistic cabinet-type of furniture and ends with an unsightly botch, then his efforts have availed little educationally. On the other hand, if the pupil desired to present his mother with a piece of his handiwork, and by his honest efforts creates only a travesty on furniture, the educational value of the project is not lost. The first condition of a proper school task, or assignment, is met when the pupil acts under a worthy purpose. . . .

"Furthermore, the practical arts project, even our much abused taboret, satisfies more than the first educational criterion. As soon as the pupil is ready to carry out his resolution, he either takes the first piece of wood in the stack, after the manner of taking the next ten words or problems

or pages, or he seeks the materials most suited to his project. In the latter case he passes judgment on several kinds of wood, different methods of construction, and types of finish. . . . Thus, the despised taboret not only fulfills the second standard of good teaching, namely, the exercise of judgment, but it provides a real motive for gaining a fund of useful information. Then, too, in the matter of motivation, one should not forget its companion, participation, for however compelling may be the incentive to action in a given project, the educational effect is multiplied by individual participation in the activity; and the practical arts project, if properly handled, enlists the service and cooperation of the pupil's power, both physical and mental.

"In passing to the third educational test, our project is not deficient, for no pupil can intelligently execute a chosen design for a taboret without exercising his capacity for organization. The mere assembling of the parts already worked out, according to the specifications governing the design, is an organizing process.

"Even if our taboret proves too weak for service and is relegated to the display shelf, it has none the less fulfilled its educative mission by revealing under test the opportunities for further improvement in design and execution.

"It is scarcely necessary to say that initiative and independence are desirable results of school work, and attainments that must accompany teaching. These standards, too, are not hard to satisfy in conducting practical arts projects. . . .

"The creation of an object may be wholly justified when it has been made so as to fully satisfy its purposes and so placed as to do its allotted work; in short, when it becomes the right thing in the right place; but it has the further important possibility of being made an object of art.

"Such a treatment of each unit of work requires more

time than the sloyd system or the tinker shop, also a much broader preparation on the teacher's part. . . .

"The project method foreshadows the practice of teaching through types, and after all, is not this plan likely to be the ultimate solution of the quantity question?

"This method is not highly scientific and is accordingly more adaptable to school work in intermediate grades. But wherever we may draw the line on the quantity of informational matter in our curricula, the project method in practical arts work furnishes the best way of getting in touch with industrial information. It also through correlation helps greatly to motivate academic information and the three R's.

"Thus our humble taboret is a type which needs only the help of the modern teacher's viewpoint to make it educative by way of purposeful, judicious, logical, and independent thinking and to open the further possibilities of participation, co-operation, information-getting, self-satisfaction, and pleasure-giving."

From the above quotation it will be seen that Mr. Jackson believes in the reorganization of industrial arts materials so that the pupils will adopt projects as their own. He believes in a worthy purpose, the exercise of judgment, the calling forth of both physical and mental powers, the exercise of organizing ability, and education through actual experience, even though mistakes may be made. If possible, art should result, but this is not necessary in project work. The project method, efficiently applied, will consider types to the elimination of much material now considered vital, and to this extent is regarded as unscientific. In no other way can the industrial arts work, however, be motivated sufficiently.

Personal motives, in general, are much stronger than social motives in the execution of physical projects. If a child

attempts to construct an article because it will satisfy some personal need, either ministering directly to his personal welfare, or permitting him to establish some type of desired relation with his environment, the motivation probably will be very strong. The social interests and influences are present, but function most strongly only when a strong personal motive also is concerned. Under the guidance of a skillful teacher, the purely social motive, such as the construction of a piece of furniture for the use of those that come after, may function strongly, but ordinarily this motive is not strongly developed. The writer recently watched boys engaged in manual training work upon articles of no particular value, upon articles of value in the farm work that was carried on, and upon articles in which the children had a personal interest, because of the personal use to which the result could be put, and in the first instance the least interest was shown, while in the last instance the greatest interest was manifested.

The school should make available project material bearing upon the projects of industries. Since the opportunities for home manual projects are limited in the cities, school manual projects become all the more significant. The fact never should be lost sight of that the boy is moving in the direction of actively participating in the world's work. In many instances, it is possible for a boy to secure work on a part-time basis in a factory where real, worth-while projects, which his preparation will not permit him to solve, confront him. The school can render first aid by indicating to the boy its readiness to assist with the necessary project material, either in the day school or in the evening school. The work definitely should be mapped out so that the boy readily can see the relation of the project material to his factory project. If the teacher feels that it is necessary to

assure the boy that in some mysterious, unknown way certain formal material is to assist, it is quite logical that the boy should feel that the teacher is at sea with his material.

Every school should have a shop where manual projects, relating to all subjects, can be executed. In connection with various subjects, a problem may arise which can be met satisfactorily only by the refashioning of physical materials with tools. If there is no workshop available, the need must be passed by without in any satisfactory fashion being met. In connection with the study of the industrial topic, wheat, for example, the question came up as to how wheat can be graded. One of the boys had seen his mother sifting the flour and suggested that a sieve arrangement would be satisfactory. The boys secured various samples of wheat and placed wheat in a sieve with a fine mesh. They found that only the finest materials and undersized grains of wheat passed through. They next devised a sieve with a larger mesh, permitting the grains of wheat and materials of similar size to pass through, but so that the larger foreign materials, as pieces of wood, would remain in the sieve. After having placed the wheat in each of these sieves, they found that some oats grains remained with the good wheat. It was noted that the oats grain is longer and narrower than the wheat grain. A sieve with a long, narrow slit was devised through which the oats grains could be sifted, the wheat grains being retained in the sieve. Experimentally, therefore, the boys arrived at almost the same kind of assorting device that is used commercially in the grading of grain. Had they been told how to grade the grain, they appreciatively could have followed the explanations of another. The real educative development came when they felt the need of meeting the situation, and devised ways and means of doing so.

In connection with a study of the Panama Canal, a question arose as to the nature of a lock. Diagrams and explanations helped but seemed inadequate in giving certain members the needed concepts. One of the boys suggested that a lock could be constructed in the workshop. The boys began to plan its construction. It was arranged to use the faucet of water to secure a stream, to construct with clay a small channel through which the water was to run, to build a dam across the stream except where the lock was to be located. By means of cardboards the upper and lower gates were constructed, and a toy boat was used for the demonstration. While this laboratory expression work was being completed, one of the boys suggested that the same thing could be worked out with a small stream that flowed near the schoolhouse. Shovels were brought to school, a dam was constructed, and solid board gates were constructed to be placed at the upper and lower part of the lock. A small wooden boat was used for the demonstration and while the gates leaked, the fundamental principles of lock construction readily were grasped. How much deeper was the impression and the understanding of locks because of the physical project that was carried out in connection with the book work!

The school training in manual projects and project materials should enable the individual to continue to solve projects in the after-school life. With the view of enabling the individual to continue to solve problems on his own initiative after he has left school, a considerable amount of training in independent or semi-independent physical project work should be given or undertaken. It is a serious test of a school's efficiency with respect to the amount of physical project work that is being performed, but the crucial test comes when the child must meet situations in his vocation.

However beautifully, under guidance, he may have executed projects, if he can not meet the practical situations of his occupation, the school work has broken down and has failed at the critical moment. A piece of work, crudely but honestly done, is preferable to an artistic production that represents blind imitation.

The need for manual projects is not so acute in schools where the boys and girls are from the farms. In schools serving rural districts there is less need of emphasizing manual projects, since the children find numerous opportunities and need for executing them in connection with the farm work. The primary work of the school is not to duplicate the work of the homes, but to supplement and to reinforce such work. In so far as school manual projects are emphasized, therefore, the purpose should be, either to permit the child to secure a much more comprehensive grasp of the world's activities, enabling him to understand the significance of the work of his own community to the rest of the world, or to enable the child to do his home project work more effectively. The emphasis shifts, therefore, to the extent that home physical projects are a satisfactory substitute for school physical projects, from projects to project material or project steps bearing upon the home projects.

Some types of physical projects profitably may be carried on in rural schools. In the cities, school gardens are becoming an important aspect of education. The children not only are brought into close contact with plant forms, but particularly through a study of economic plants are brought into an appreciation of some phases of farm activities. The same line of argument that justifies school gardens in the cities also justifies the introduction of manual training in the rural schools, but just as manual training

relatively should be given more emphasis in the city, so school gardening should be given greater relative emphasis in the rural school. Numerous experiments relating to the selection of seeds, the use of fertilizers, and methods of cultivation can be carried on in the school garden or on the school farm. In the group project work much valuable experience may be obtained for application in practical individual work. The conditions will be placed under the direct supervision of the agricultural specialist, which will permit the close blending of theory and practice. If as nearly ideal conditions as are practicable can be established, the community will have an ideal toward which to work.

The Department of Agriculture has found that the best way to raise the general level of intelligence, relating to farming activities, is to induce some farmer to practice the most up-to-date methods as an example to other farmers in the community. A progressive school garden or school farm may serve a broader purpose than merely to assist the students who directly are concerned, for the whole community by observation may profit therefrom. Most farmers regard school work, however, as impracticable in its application to regular farm practice. Farm projects supplementing the school work, therefore, are being more and more emphasized.

Home project work has been established on an important scale in Massachusetts. According to the Massachusetts home project plan all farming activities may be classified as projects. "A farming project is a thing to be done on a farm. The thing done may contribute some element of improvement about the farm—as constructing a concrete walk leading to the front door, planting and nurturing shade trees, making and maintaining an attractive lawn. The

thing done may be of an experimental nature—as the planting of an untried variety of fruit, the feeding of an untried ration, the testing of an untried spraying mixture, or the testing of one or another of much advertised roofing materials. Finally, the thing done may be of a productive nature, as the growing of a crop of clover or alfalfa; the growing of a field of potatoes; the growing of a crop of silage corn, or the production of eggs for the market. A farming project is, further, something to be done on a farm which involves a limited and definite amount of equipment, materials, and time, and which is directed toward the accomplishment of a specific and valuable result.

"Finally, a farming project, as the term is here used, is a thing to be done on a farm which, in the preparation for doing it and in the carrying of it out to a successful result, involves a thoroughgoing educational process. The improvement project of constructing a concrete walk to the front door might involve a study of the nature of cement; its action on sand, gravel, and broken stone; its resistant qualities to the weather; the seasons in which it might be used; its cost as compared with other materials, such as boards, plank, tar, brick, flagging, and asphalt; the mathematical determination of proportions of sand, cement, and stone to be used; the geometrical determination of the sections into which it should be divided and whether it should be crowned or flat; the geographical sources of the raw material and the commercial conditions for purchasing the cement. The experimental project of planting an untried variety of fruit might involve a study of the probable adaptability of the variety selected to the soil of the farm, the climate of the locality, and the market demands within reach of the farm. The productive project of growing a crop of clover might involve a study of the various varieties of clover; the com-

parative adaptability of those varieties to the given field on which the crop must be grown and to the climate of the locality; the most reliable places for the purchase of seeds; the best time for seeding; the best time for cutting; the best methods of curing and storing; the mathematical calculation as to the saving in cost of feeding stuffs which the crop would afford; the chemical elements it would furnish in the ration, and the beneficial chemical, biological and mechanical effects on the soil in which it would be grown." (Stimson, N. W., Massachusetts Home Project Plan of Vocational Agricultural Education, Government Printing Office, Bulletin 579, 1914, pp. 10-14.)

Home project work may be carried on under the supervision of a skilled teacher. In the project work of agricultural schools, home projects have been found preferable, in general, to school projects. Arrangements are made by means of which the boy is to execute a definite piece of work under natural farming conditions. The work may consist of the production of an acre of some field crop, as corn, or wheat, of the care of a vegetable garden, of the care of a certain number of cows, of the care of poultry, etc. The project for the girl may concern the keeping of her room, or the doing of definite tasks in the kitchen, or caring for poultry, etc. In each case, the students have a definite responsibility, and directly are interested in the commercial side of the situation. The agricultural supervisor makes frequent trips to the farm to advise the students. The school work consists in part of a study of project material, bearing on the home projects. Not only are the boys and girls maximally benefited and interested as a result of this correlation of home and school work, but the parents in many instances are influenced to improve their methods. According to an observer, "In one case a boy had as his Home

Project six rows of potatoes in his father's potato field. The father sprayed the potatoes with arsenate of lead, which protected them from insects, but arsenate of lead does not protect from blight. The boy learned this fact at school, and, coming home, asked permission to make enough Bordeaux mixture to spray his own Home Project, and the father assented. In the fall the boy's potato vines were flourishing, the father's potato vines were dead. The next spring the father told the boy to prepare the necessary amount of Bordeaux mixture for the protection of the next year's crop, and bought a barrel and sprayer. . . . I am not so much interested in what these boys and girls are doing for the soil as I am with what the soil is doing for these boys and girls. This form of agricultural education seems to me to throw no little light on some of the perplexing problems of our American life. It is a great unifier. It brings the school and the home together; the teacher and the parents together; education and life together; and, what is perhaps best of all, fulfills the promise of the Hebrew prophet and turns the hearts of the fathers to the children and the hearts of the children to the fathers." (Editorial. Outlook, July 25, 1917.)

Classified according to accomplishment, according to the above article, there are three groups of workers that may be recognized. If the home project plan is emphasized, it is helpful in developing the pupils according to capacities, abilities, and inclinations. In spite of the fact that equal opportunity may be given all pupils, the three classes will stand out fairly prominently. The three classes are as follows: (a) there are pupils who can acquire a large amount of manual skill, but who always will depend upon others for directions; (b) there are pupils who, in addition to the acquisition of manual skill, can master and apply principles,

who can command and execute in their particular vocation. Such students eventually, not only will be able to manage their own farms, but will employ many from class one to assist in farm activities; (c) there are pupils who can acquire manual skill, who can plan and execute their own work, but who, in addition, will acquire a knowledge of the relative importance of their own work in relation to the work of the world, and who, because of the breadth of knowledge received, will exercise leadership over both class one and class two. There are no sharp lines which separate these three classes of pupils or adults, but the three readily can be recognized in every community.

The schools through home projects are coming into effective relations with out-of-school life. From the preceding illustrations it will be seen that through the home-project work, under the supervision of the schools, the pupils are encouraged to carry on economic work which carries with it the possibility of either gain or loss. The unit of activity is carried on with a natural setting. The pupil has a combination of influences that tends to make him very energetic in working out his project. The school lends a helping hand, not only in supervising the home project, but also by offering the kind of project material at school that will help the boy in working out his individual physical project. As a result the taxpayers, appreciating the value of the school, are much less reluctant to support the school, while the school in an efficient fashion is serving the community and directly preparing the students for future intelligent participation in agricultural activities upon a more comprehensive scale.

The correlation of school physical projects and school projects material with other human activities rapidly is making the school the most prized of institutions. The schools are ceasing to attempt to teach only certain formal, ap-

proved materials, but have taken an active part in aiding society to meet its problems, and to plan wisely for the future. In many instances, not only children, but the adults of the community as well, can go to the public schools for assistance to help them in solving their physical projects. Schools, at the expense of the district, are being provided for adults. Equipment is being placed in the schools so that projects can be worked out in the classroom, in the laboratory, or on the school ground. The school is becoming the great tool of society whereby both adults and children can find assistance in the realization of their purposes, as well as inspiration for the adoption of worth-while purposes. With the schools serving mankind so effectively, he would be rash indeed who would attempt to put a limit upon their future usefulness and significance.

Problems

1. What is the relation of project material to projects?
2. Is there a real or only an arbitrary distinction between manual and mental projects?
3. Give one illustration from your own experience of (a) a group project, (b) an individual project, (c) a home project, and (d) a school project.
4. What is the relative importance of manual projects in the lower grades as compared with the upper grades?
5. To what extent and for what purpose should city projects be introduced into country schools, and vice versa?
6. Illustrate how a concept may be built up or enriched as a result of a manual project.
7. What should be the relative emphasis of discovery and imitation as the child works on his manual project?

8. What should be the nature of a shop for the working out of manual projects that come up in the various subjects? Give an illustration of how each subject could be enriched through shop work.
9. What should be the nature of the manual projects in the schools in order that the students may be maximally efficient in executing physical projects in the after-school days?
10. In what respects should physical projects of city schools differ from physical projects of country schools?
11. Mention various ways that the schools, through physical projects, are coming into more vital touch with the life of the community.
12. Picture a school in which physical projects are used in an ideal manner.

CHAPTER XII

MENTAL PROJECTS NOT INVOLVING MANUAL ACTIVITY

A project may involve the interpretation of a situation without a dominant utilization of manual activities. The mental processes involved in the grappling with a mental project are similar to the mental processes involved in a physical project, except that manual activities resulting in concrete, objective accomplishment are not dominantly present. As a partial substitute for this lack of manual expression, however, there are other forms of muscular reactions accompanying the thinking processes. A mental project is vital in influencing behavior, since the conclusions reached may have important consequences in their applications to projects, resulting in concrete achievement, or resulting in social changes. With the help of imagery, past experiences and reassociations of ideas may be utilized in "thinking through" unit situations.

Projects may involve rational thinking apart from direct contact with concrete materials. In a physical project of manual activity, concrete materials are emphasized throughout the project. Concrete materials afford the opportunity for the project, permit the carrying out of the project, and in a refashioned form are the objective embodiment of the completed project. The acquirement of manual skill as well as knowledge is significant in a physical project. In some project concrete materials may be present, whether observational or representative, and may be important in help-

ing the individual to understand a particular part of his project, but the materials are used for the purpose of understanding, or of illustrating, and are not refashioned or reorganized as an aspect of the project. Materials thus used may be, and probably are, aspects of physical projects for the one who made them, but are mere incidents in the interpretation of mental projects. The adequately trained mind, in many instances, can make satisfactory use of concrete materials indirectly through the exercise of memory, or through the ability of the mind to image a concrete thing that never has been experienced directly as a unit. A considerable amount of freedom from dependence upon direct observational and representative material is necessary for an economical mastery of projects, not resulting in concrete, objective achievements.

Mental projects fundamentally are dependent upon the "free ideas" of man. A project of any class requires the use of "free ideas," but the mental project is particularly exacting in this respect. In the physical project the direct relations of the individual, through manual activities, with materials, constantly are stimulative and suggestive, and make the individual vitally conscious of the various steps of the project. In the mental project there is no such directly stimulating relation. The individual, however, inevitably will deal with the results of physical projects, and to the extent that these projects have become a part of his very nature, they will function vitally through imagery in helping to work out the mental projects. The greater the number of interpreted experiences that the individual has had with his physical and social environment, the more satisfactorily and comprehensively, other conditions being equal, can he grasp mental projects. The mind of man can recall, in imagery, materials, and also can recombine the

elements with which he is familiar, in various new ways, relating the various concepts established in ways that appeal to him as desirable. Through the utilization of principles, facts, and constructive imagery, the individual may consider the effects of various relations, and on the basis of apparent or real values, think the situation through to his own satisfaction.

Mental projects may have a definite relation to subsequent physical projects. Just as the execution of mental projects necessarily involves the utilization of preceding physical projects, so the solution of physical projects, with the increasing intelligence of the individual, may be conditioned by a mental project, through which the physical project is "thought through" before it is undertaken. The "thinking through" of a project, before manual construction work is attempted, frequently will effect an economy in the physical project, and will eliminate many difficulties and mistakes that might be made if the interpretation of each step were dependent upon the actual concrete completion of the preceding steps. Through the mental project the succeeding steps and their significance in relation can be imaged in such a way as to permit the thinking through of the project, step by step, to the result. The quality of the succeeding physical project is influenced by the extent to which, in spite of the well-thought-out situation, new problems arise, and successfully are interpreted.

Mental projects may be highly individualistic or highly social in character. Many problems arise in life the solution of which affects directly the welfare of the individual. There are economic problems of general significance, and economic problems of specific interest; religious problems of general significance, and religious problems of specific interest; moral problems of general significance, and moral problems

of specific interest; intellectual problems of general significance and intellectual problems of specific interest; physical problems of general significance and physical problems of specific significance. On the one hand, the person is asking himself the method of procedure that seems best for himself; on the other hand the person is seeking to ascertain the method of procedure that best will subserve the interests of the social group. There is no hard and fast boundary line between these two viewpoints, but one factor or the other generally dominates a situation.

The boy may seek to design a plan by means of which he can construct a kite, or he may consider suggestion after suggestion concerning the most desirable way of securing some article of clothing, or he may be confronted with a situation involving possibilities of moral or immoral conduct. In each case, the "thinking through" of the various possible acts, and the assumption of the attitude to be taken, is in response to personal needs, whether physical, mental, moral or religious, that the boy is seeking to satisfy. A still higher type of mental project is the project which ordinarily does not result in a demonstrable succeeding physical project. The evolution of religions, for example, may be considered in a painstaking fashion, and as a result of this study the individual may come to the conclusion that every religion has served an important purpose in the world, that religions have been advancing from growth to growth as humanity has advanced, but that the religion which most nearly has reached perfection in meeting the needs of humanity is the Christian religion. On the basis of this analysis the individual may individualize and consider that the Christian religion meets his own inner needs more nearly satisfying than any other religion, and consequently may feel not only that the Christian religion is good for the world in general,

but is vital for himself in particular. The conclusions will function in social and individual behavior.

There are numerous mental projects, highly social in character, that the members of a democracy are called upon to solve. If a mayor of a city betrays the trust of the people, what action should be taken? Should intoxicating liquor be regulated or prohibited? Should woman suffrage be adopted? Should the president be elected directly by popular vote? Should there be segregation of vice? Should Sunday work be prohibited? Should a workingman's compensation act be passed in every state? Numerous problems that concern the welfare of the social group must be decided. In each case an intelligent disposal of the problem involves a careful weighing of the advantages and disadvantages of each possible method of procedure, before coming to a final decision. The physical project, following upon the mental project, may be delegated to some representative member of society, as, for example, when society decrees that a man shall be hanged. The jailor may have the physical project of preparing the scaffold, and of carrying out the sentence.

Mental projects are significant in influencing behavior. The interpretation of any mental project is affected, often prejudiced by, the previous experiences, as well as instinctive tendencies, of the individual. So directly does the past life of an individual bear upon his probable conclusions and actions concerning a problem that confronts him that it frequently has been said that the conclusions of another can be anticipated if his past is known. Since the individual has the ability to think in terms of free ideas, however, the past does not irrevocably determine the course of action. Just as behavior, with respect to a mental project, is influenced by the past, so any particular mental project, once mastered, is significant in influencing the behavior of the individual

with respect to all future situations upon which the mental project has a bearing.

All subjects of the curriculum are not of equal value in furnishing opportunity for mental project work. Certain subjects of the curriculum, as manual training and agriculture, are rich in physical project possibilities. Other subjects, as history, civics, and geography, are dominantly significant from the standpoint of the mental projects which they afford. While, in general, the foregoing statements are true, it should be noted that every subject offers within itself the opportunity either in a major or minor way of emphasizing every type of project. It would be an unwise distortion of subject matter, however, to attempt to teach a subject that offers dominantly physical project opportunities, through mental projects, or vice versa. The subjects should be made to supplement each other in securing the advantages that may come to the child from considering both types of projects.

Observational, representative, and imaginary materials may be involved. In the local environment are many materials that can be observed directly as a basis for the mental processes, e.g., topographic features and processes. Many materials, far away, or for some other reason inaccessible, must be approached through representations, e.g., maps, globes, pictures. In the absence of these materials, observational and representative, or supplementary to them, the individual may reconstruct in imagery the materials desired. General abstract ideas, finally, may enter in an important way into the more advanced stages of thinking.

A worthy purpose is desirable. In too many instances, unfortunately, there is a tendency for an individual to adopt some prejudiced stand concerning a matter of policy, on the basis of personal interests, later on to consider in detail the

materials of the project merely from the standpoint of justifying the stand taken. This method of procedure is to be differentiated from an inference, tentatively made, to be rejected, modified, or accepted later, on the basis of a careful consideration of all factors concerned. If a person's life is well ordered he will try to adopt worthy purposes in all of his activities. If worthy purposes are controlling factors, nothing less than an absolutely impartial consideration of the whole situation will satisfy, and nothing less than strict adherence as a conclusion to the demands of truth will be adopted.

Mental projects are short-cuts in learning. If it were necessary to recapitulate all the racial experiences through direct contact with the environment, through trial, the social accumulation of knowledge is so abundant that progress could be made very slowly if at all beyond a certain point. The ability to profit by one another's experiences would be practically nil. If the human race is to make substantial progress beyond the animal plane of existence, since most of the inheritance of experience must be social, a short-cut in education is necessary. The ability to interpret a type situation is desirable, but man also can analyze a situation into its various parts in such a way as to adopt principles that can be applied to numerous other situations. In a situation never before experienced as a unit, man can think abstractly as well as concretely. The mental execution of a plan may proceed with greater rapidity, and with less probability of eventual material loss than if dependence on physical projects were absolute. In mental projects many mistakes are eliminated, which, if made in actual experience, and then corrected, would be very costly. By anticipating the effects of certain policies, therefore, individuals and

groups of individuals can consciously plan for the future, and can accelerate the evolution of the human race.

Successful mental project teaching requires a knowledge of the relations of a mental project to physical projects and other mental projects. The teacher should grasp a project as a unit, but she should understand the proper relations of projects to each other. The results secured from the interpretation of one project may have a vital relation to the succeeding projects, whether these projects are physical or dominantly mental. The projects should be of such a nature that succeeding projects will make use of certain materials a sufficient number of times to secure the needed skill and knowledge. The materials may be concentrated in the interpretation of a small project, but with a shift in viewpoint the teacher should understand the possible use not only of the same materials, but of the results of project studies in the solution of more comprehensive projects. Unless this interrelationship and repetitive use for different purposes clearly is seen, the most effective results cannot be secured.

CHAPTER XIII

THE PROJECT METHOD IN HISTORY

History teaches the progress of man. History includes all happenings of the past. Every subject has its historical side. According to the idea of history that prevails in our schoolrooms, history largely is concerned with the past activities of man. Scientific studies concerning human history indicate that man has been upon the earth for thousands of years, how long, no one can say, for the records that man has left become more and more meager, less and less decipherable, as we proceed farther and farther into the past. The oldest records suggest a past of unknown duration. The beginnings of man, consequently, are uncertain. A study of history indicates that there have been no abrupt general catastrophes or overturnings in the advancement of man, but that the nature of the human institutions of any period can be interpreted in terms of past activities, from which they have been evolved. The institutions gradually are changing. Marked progress has been made since man has discovered that he consciously can plan to accelerate his evolution. It seems hardly probable that "history repeats itself," but that man, although vacillating, and undergoing temporary backsets, is advancing to higher planes of living. Continuity of activities, change, and advancement, in large part purposely planned, are some of the important lessons that history has to teach.

History in the schools should be less provincial. The

field of history is so broad that a lifetime is inadequate to make more than a brief study of its more important phases. It becomes necessary, therefore, to adopt some standard of selection for grade work, since history is only one of numerous subjects, through the study of which the child endeavors to solve the riddle of life. For many years after the United States became a nation it was occupying its territories, developing its resources, and solving its domestic problems. It had removed itself from European domination by resort to arms. There was no thought of interfering with affairs in Europe; on the other hand, it was expected that others would not interfere with our domestic policies.

Rapidly the United States became a great and powerful nation. While it was at work settling its internal problems, transporting and communicating facilities were being improved, commercial relations with other countries rapidly were growing, and America began to become more and more interested in world affairs and in world politics. The idea that no nation has a right or the ability, under modern conditions, to live unto itself alone, gradually was gaining ground. An unprecedented situation, such as the World War, was necessary to bring the idea fully to the front. We have now come to see that even the internal affairs of another nation concern us insofar as the domestic policies are related to extra-political areas. This may be illustrated by the recent suggestion of the British Government that the United States should guarantee any losses that British capitalists may suffer as a result of the prohibition amendment.

It was natural, during the time that we primarily were concerned with domestic problems, that we should have adopted the idea that American History should be taught in the grades. To a slight extent the European background to American History was emphasized, but the fundamental

purpose was to acquaint the child with the wonderful past of his own country. No one would advocate that the teaching of American History should be slighted under the changed conditions, but the realization that the world has become one small family, with intricate relationships and dependencies established among its various parts, has brought clearly to the front the necessity of teaching the child not only American History, but the significance of American History in its broad relationships to World History. Local history or state history never was considered a sufficiently comprehensive study for the child; national history, more decidedly than ever, should point in the direction of international history. Provincialism gave place to nationalism; nationalism is pointing in the direction of internationalism.

School history should emphasize the present rather than the past. Historians, in defining their subject, have not been inclined to regard the present as a part of history. The present, they say, is not sufficiently removed from present-day prejudices, and the activities are insufficiently outlined for an impartial unbiased account to be made. Until recently very seldom was the chronological, sequential account of history brought up to date. While history was taught primarily with the idea of helping the child to live in the present, a serious gap was left between the past and present, with little or no attempt to bridge it. The child was left to bridge this chasm in his own way, the result being that few vital relations were established. More and more insistently has the idea become extant that, whatever the history of the historian may be, the history of our public schools should be directly related to the present. It is being urged still further that the chief business of the public schools is to acquaint the children with the present physical and social

environment, and their responsibilities and opportunities therein, and that, therefore, all historical material that does not assist the child directly in interpreting the present should be rigorously excluded. Professor Jaeger, in discussing this very point, presents the historian's point of view as follows: "A problem that is whimsically characteristic of our age is raised by the latest question, Should history be begun at its beginning or its end? The first man to conceive and express the bold idea that historical instruction should begin at the present moment or the immediate past and work backwards to primitive times was d'Alembert, as I learn from Mahrenholz. In our days, when we are reforming everything on earth except ourselves, this idea has also aroused some transitory attention, but has disappeared, leaving its mark only in certain textbooks, monstrosities of historical teaching. This much is known to every one, as is also the fact that an antiquarian scholar of importance half adopted this idea, and seized the opportunity of speaking with greater or less profundity as an amateur upon historical teaching; he merely succeeded in proving that any one at the present, with a little reputation, can write upon matters of which he knows absolutely nothing, and find readers, and even professional experts, to take him seriously, to discuss his ideas, and thus to give a certain importance to mere amateurism." (Jaeger. The Teaching of History, p. 33.)

McMurry brings us a little nearer to the modern viewpoint: "As we approach the more recent topics of our history, the large and complex scale of events increases, and, besides, many of these topics are still in the region of controversy and have not fallen into the clear perspective of history. Not a few of the best teachers have avoided the teaching of nineteenth-century history because of this complexity and unsettled aspect of recent politics. On the other

hand, one of the chief purposes of history and school studies generally is to bring the children somewhere near to our modern problems and into sympathy with present social and economic life." (McMurry. Special Method in History, p. 182.)

It is befitting that trained historians shall attempt sharply to delimit their fields. The educator, however, primarily is interested in the child. He conceives the subject matter, not as an end, but as a means to an end. In view of the enlarged and intensified demands made upon us in connection with the World War, the necessity of concentrating upon work that will enable the pupils to interpret the present is greater than ever. Not only do we no longer consider it ignorant for a person to insist that history should have its beginnings in the present, no longer do we consider that the study of history should bring the children somewhere near to our modern problems, but we have adopted the policy, in spirit at least, of bringing the child into contact with present-day situations, and then of using the past, insofar as the historical perspective is necessary, in interpreting the present situations.

The World War, consequently, has accelerated movements that already were in progress, namely: (1) The broadening interests of Americans, and the need of considering present events with a broader historical perspective, and (2) the critical consideration of historical material in the light of the direct bearings it has upon present-day affairs. It is not insignificant that these changes are in the direction of permitting more effective motivation in the history work than ever was possible under previous conditions.

The projects of history are invaluable as an aspect of education. The projects of history are of value because of the direct assistance that they offer to an individual, but

the primary value is in the understanding of social conditions, so that the student realizes the significance of the institutions of society, and is prepared intelligently to advance the interests of society in general. Projects are of value because of the inspiration and stimulation for worthy activities that may be developed, although, to be sure, the character of attitudes thus formed depends to a considerable extent upon the particular quality and order of subject matter, the organization of material and the emphasis.

There are three types of projects that dominate: (*a*) *Reading history for enjoyment.* In the field of history, there are many narratives that appeal because of their inherent interest. There are people who secure great pleasure from reading certain aspects of history. Some people may prefer biographies of military men, or military events, or political men and political events, or captains of industry and industrial events, or men of science and scientific events, etc. Some few people may find enjoyment in almost any phase of history. Such people read not to remember, but merely to experience the pleasurable feeling and satisfaction that come from the doing. Some incidents necessarily will be remembered but the project is realized and can be measured not in terms of permanent acquisitions of knowledge, but in terms of the satisfaction, more or less temporary, that was received while the person was living eagerly in the past. The response involved primarily is an emotional response. If such a person is asked, "What have you been doing?" he will say, "I have been reading history." If the question is given, "What have you been reading about?" the response may be, "I was reading something about the Civil War. I don't remember much about it, but I had a very pleasant time while I was reading." "Didn't you feel lonesome?" "Not at all; the incidents that I was reliving held my

attention to such an extent that I had no time to be lonesome." This type of work satisfies instinctive and created needs of man, and, although the results are more elusive than results when acquisition of knowledge is the primary aim, there is an undoubted gain to the individual if his emotional *response to situations has been effected.* The emotional attitude may, or may not, be according to modern demands, which suggests the need of having the material adjusted to the reader in such a way that inimical social attitudes will be inhibited and desirable ones shall be encouraged. The reading of the activities of pirates, in and of itself, is harmless, but if the pupil develops an attitude that causes him to sympathize with wrongdoers, and to want to be a wrongdoer himself, then, although the project has been a success, the development of the pupil has been along undesirable lines. If the pupil reads about pirates and develops an attitude that causes him to detest such activities, the project likewise has been successful, but the enlarged world of the child will result in social betterment. If the pupil makes a study of the life of George Washington, or Abraham Lincoln, and engages in an emotional reaction that approves of their moral fibre to the extent that he also wishes to possess the same type of moral fibre, the results are desirable, but if the pupil assumes a satirical attitude toward their moral fibre, or agrees with their viewpoint mechanically and not as a part of his very nature, even the study of good deeds may result in untoward social results.

Project work of the emotions, therefore, involves a consideration of both desirable and undesirable types of activities, and the setting up of attitudes that countenance the desirable, and despise the undesirable. To a person primarily concerned with an unthinking, unreasoning emotional response, the particular way that the narrative is told is of

profound significance in bringing about the desired results.

(*b*) *History projects may be primarily informational in character.* Many people read history in order to secure information. In current events, or in ordinary conversation, or at some gathering, suggestions may be given that will cause a person to want to know the exact facts with respect to some incident of the past. The incident will be studied in order that the information thus secured may be used, or in order that the mental need may be met. There are other people who are interested in reading incidents of the past from an informational standpoint, because they want to be prepared for possible situations involving the information, or because they feel the need of a cultured person being informed concerning the past.

Diverse motives may impell the individual to acquire information bearing on the past, but whatever the motive involved, the result is the enlargement of the personal world because of the added fund of information secured. Some plans of acquiring information may involve the accumulation of a great deal of historical material that has no particular value in dealing with present situations. The diverse amount of material available, and the numerous motives that induce man to gather and store facts in his mind, suggest that considerable care should be exercised in getting the student to adopt motives and to select material of such a nature that a maximum of usable knowledge will be secured.

(*c*) *Another type of project is the project primarily involving interpretative problems.* The above types of projects recognized in relation to historic materials certainly should be given attention in school work, but a very important type of project is the project that involves an interpretative problem. The project problem may (1) function in the present, being illuminated by the past, (2) may func-

tion in the past, being illuminated by the present, (3) may function in the past, being illuminated by the past, (4) may function in the present, being illuminated by the present, or (5) may function in the future, being illuminated by the past, the present, or future conditions.

Different individuals may be interested in various types of project problems. The purposeful establishment of interpretative problematical situations in history is of comparatively recent origin. The aim of American History, in times past, apparently has been to give the American viewpoint with respect to the chronological development of our country. The attitude assumed by text book writers has been that every event should emphasize the right position of the United States and the wrong position of any group opposed. As long as this attitude has prevailed, the teaching by interpretative problems in history has been at a serious disadvantage. As long as children are to accept the statements of others that one side was right because of certain situations and the other side was wrong because of certain attitudes, the project of information is bound to be dominant. It is fair to assume that every controversy, whether between individuals, or between groups of individuals, or between governments, is the result of an honest difference of viewpoint and ideals. If the differences cannot be settled amicably, and war results, it is fair to assume that the situation has in it elements in favor of both viewpoints. If the material, in advance, has been studied, and arranged so that the problem not only is stated, but also is worked out, and the conclusion also stated, then, while the material is arranged in problematical form, the problem itself is not a real interpretative problem to the individual studying the article. It was a project-problem to the author of the article, and the child merely memorizes, and only partially appreciates.

If it is desirable thus to organize the material in order that the child will be prejudiced in favor of a particular conclusion, such a method of procedure can be justified. The implication involved, however, is that the history of our country contains some incidents that, if impartially presented, would leave the child unpatriotic and ashamed of his country's past. If our country, indeed, has such a record, the truth is preferable to the perpetration of a lie. If the problem must be stated in the textbook so as to justify the American viewpoint alone in the United States and so as to justify the foreign viewpoint alone in some other country, then false standards are being set up in both countries. Truthfulness dealing with the past will help the present generation to see the errors and the results of the errors, and will permit them to direct the course for the future with greater probability of justice.

Actual project-problem solving involves the unprejudicial consideration of the varying viewpoints, their comparison, the forming of judgments, and in the light of both sides of the problem, a conclusion. It will not lessen the patriotism of an individual to know that the social problems are very complex in nature, and that each side may have certain aspects of the situation in its favor, that in controversies neither side, generally speaking, wholly is right, but that one viewpoint has favorable points, which, because of number or weight, makes it the more desirable policy to espouse. In the light of present policies, every fundamental activity in United States history may be studied without fear of the consequences. The pupil, therefore, should be presented with the varying viewpoints, and should be permitted to come to his own conclusions.

In a recent book on the teaching of history the importance of problems is recognized in the following words: "An

interesting way of teaching history material in the higher grades is the 'problem' method of arranging the work to be studied.

"The subject matter of the lesson is considered under the form of some question whose answer is to be found in the text book. For example, instead of treating the topics which include the French and Indian War as mere facts, the general problem stated for the class to solve is, 'Why did France lose her possessions in America?' or 'Why did England win the struggle for the American continent?' All events that follow one another in this connection are related to the question and are part of the solution. If the lesson be on the Revolutionary period, such a problem may be stated as, 'The Burgoyne campaign is considered the most decisive in the war. Is this true?' The recitation must answer the question and the interest of the class is aroused in discussing the various phases of the story.

"Much American history material may be taught in problem form, and the children grow keen in challenging general statements and tracing out the connection of events that relate to the question. The mere statement of a fact in question form is not necessarily a problem. The real problem must involve an opportunity for doubt and discussion and should include several minor topics. To ask a class, 'What are the beliefs of the Republican Party about the tariff?' is not a problem. It is an ordinary class question; but to put such a query to a class as, 'Why have the two great political parties in the United States always differed about the tariff?' is a topic which would result in an interesting lesson on that rather difficult subject for children to grasp, the tariff question, and the class work could involve both past and present history in its treatment. The use of the problem topic is merely another form of the topical

recitation and makes for variety and mental development.

"After reading the text book in a study recitation, the children themselves are often able to state the problem to be solved for the next day's lesson." (Kendall & Stryker. History in the Elementary School, 64-66.)

The various types of projects are not sharply differentiated. It is not to be understood that there are sharp boundary lines among the various classes of projects. The type of project in each case has been designated by the dominant characteristic. Each of the types involves aspects of the other types. In general, however, the order of emphasis of these classes in grade work, demanded in the light of child psychology, is that the projects of enjoyment and information shall be emphasized in the lower grades, with a gradually increasing emphasis upon interpretative problems of greater and greater complexity and difficulty.

The following set of problems, dealing with modern day affairs, under adequate motivation, may become project-problems. While it is desirable that every teacher should train herself in the formulation of desirable problems, it would be unfortunate if the work were organized about problems which arbitrarily are to be studied. The objective organization of material should not dominate, but the problems arising should be problems that the children actually feel the need of solving. Regarded in this light, there may be a marked difference between a type set of problems that would be satisfactory, if properly motivated, and a set that actually is worked out by a class, but a preliminary type set is of considerable value to a teacher in permitting her to know whether the work essentially is being covered for her grade. It is to be expected that pupils, so far as possible, should lead in the formulation of problems and that, only as a last resort, should the teacher lead the pupils.

1. What were the conditions that made it necessary for the United States to enter the World War?
2. How do the causes of this war differ from the causes of all other wars in which the United States has engaged?
3. Has the war, thus far, been in favor of the United States and its allies, or in favor of the Central Powers?
4. With the nations of the world in their present alliances, what must be the outcome of the war? Explain in detail.
5. Historically considered, does it seem inevitable that a nation, victorious in the end, must have its dark as well as its bright days?
6. Is history helpful in enabling us to draw conclusions as to when the turning point of the war probably has been reached?
7. Have geographic factors functioned in this war in a similar way as in preceding wars?
8. In what ways is it probable that the results of this war will differ from or be similar to the results of all preceding wars of the United States?
9. Are wars probable as long as the earth is inhabited or is this war the forerunner of universal and perpetual peace among men?
10. In the long run, are wars harmful or beneficial to the countries concerned?
11. Is the internationalization of peoples desirable?
12. Is the present war a war of nations rather than a war of armies to any greater degree than the previous wars of the United States?
13. In what ways have the schools participated, and has their participation been significant?
14. How have various social problems as "woman suffrage" and "prohibition" been affected?

15. What have been the effects politically?
16. Why has it been necessary for the United States to conserve meats, wheat, wool, leather, iron, etc?
17. What plans should be made to care for our soldiers after the war?
18. Are the leisure hours of the soldiers being adequately provided for?
19. How is the moral fibre of our boys being maintained?
20. Why has the United States been prejudiced in favor of the volunteer system? Has the conscription system proved superior? Has the basis for the selection of soldiers been fair?
21. Have the financial needs of the government been met in the most effective fashion?
22. To what extent should freedom of speech be permitted?
23. Should the teaching of the German language be omitted from the schools?
24. If a candidate for the Senatorship can stand an acid test for loyalty, does it make any difference whether he is a Democrat or a Republican?
25. How has the war affected government ownership and control of industries?
26. To what extent is it probable that the government will be paternalistic after the war?
27. How have the relations between labor and capital been affected? What post-war problems will result and how may they be handled?
28. Who is the greatest statesman of the war? Explain.
29. Is a third term for the president desirable?
30. How has the need for improved transportation facilities been met? Will these improvements be of special significance after the war?
31. Has the Monroe Doctrine become obsolete?

During the present period of reconstruction the nature of the problems will vary somewhat from the above list, although there are many problems that still are pertinent.

The immediate present may be inadequate to provide a sufficiently comprehensive grasp of human knowledge necessary for the child's span of life. The pressing problems of to-day probably will vary materially from the problems of forty years from now. The child's preparation not only is for to-day but is also for the to-morrow when he will have adult responsibilities. History teaches us, however, that there is no abrupt break from one year to another, but that the present for any period has been evolved from the past. If the child, consequently, has interpreted the more important situations of to-day, he is prepared to continue to grow into the new problems of to-morrow. The particular problems that prominently are before the public during a given period of time may be inadequate for the training of the child, but if the problems of the present generation are taken, the possibility of training the child adequately are substantially increased.

Society should be analyzed in an attempt to secure suitable problems. It is insufficient that a teacher shall employ only those problems that come prominently into the focus of public consciousness. Society, as at present organized, should be analyzed; the various topics should be selected and evaluated. Those problems which are vital to modern life should be emphasized, the historical perspective being used to illuminate them.

There are certain groups of problems some aspects of which almost constantly are before the people. The following organization is suggestive of the topics that are more or less pertinent to every generation. If the emphasis is placed upon the present, the possibilities of combining geography and history readily will be seen:

1. Expansion of the American people.
2. Industrial history: (a) fishing; (b) fur trading; (c) forests; (d) pastoral activities; (e) agricultural activities; (f) mining activities; (g) manufacturing activities; (h) transportation and communication; (i) conservation of natural resources.
3. Cities: (a) location and development; (b) municipal problems, relating to building, fires, water-supply, prohibition, social conditions, etc.
4. Social and political history: (a) governmental problems, as suffrage, parties, and form of government; (b) military problems, as the wars of the United States and national defense; (c) financial problems, as money systems, taxes, tariffs, banking, panics, and insurance; (d) industrial topics, as capital and labor, the factory system, labor and unemployment, trusts, strikes and lockouts, redistribution of commodities, cooperative buying and selling, and government control of corporations; (e) social topics, as religion, societies, education, prohibition, crime, charities and pensions, the dissemination of knowledge, parks and playgrounds, recreations and amusements, women in industry, cost of living, pure food control, disease and sanitation.
5. The United States as a World Power.

Problems readily can be used in connection with the chronological development of historical happenings. Illustrations of problems that may be included in a chronological organization follow:

1. Were the colonists justified in adopting the Declaration of independence?
2. What was the basis for the existence of Tories and Whigs at the outbreak of the Revolutionary War?

3. Was the Revolutionary War really a "Civil War"?
4. Was the Revolutionary War necessary, or could the points at issue have been settled peaceably if the colonists had been patient?
5. How was the Declaration of Independence made good?
6. Why was the Constitution of the United States necessary?
7. What were the circumstances giving rise to the Federalist and anti-Federalist parties?
8. In 1789, the United States practically was confined to the Atlantic seaboard. To-day the settled area extends from ocean to ocean, and includes various territories besides. How has the area of the United States been increased to its present proportions?
9. Was the life of a colonial family preferable to the life of your family?
10. With what foreign nation did the United States have its greatest difficulties during the first quarter of a century of its existence?
11. What justification was there for the adoption of the Monroe Doctrine? Has it become obsolete?
12. Resolved, that slavery was not the real cause of the Civil War.
13. Resolved, that war between the North and the South was inevitable.
14. Resolved, that the South was justified in attacking the North.
15. Should we be proud of the Mexican War and its consequences?
16. What effect did the "industrial revolution" have on the development of the United States?
17. Has the growth of political democracy in the United States justified itself by results?

18. Does an uneducated boy to-day stand as excellent a chance of succeeding as the uneducated boy of fifty years ago?
19. Was the reconstruction policy in the South the best policy for the United States to have pursued?
20. Does the expression "The rise of the new South" express a truth or a fiction?
21. What was the effect of the Spanish-American War upon the foreign policies of the United States?

Debating is a desirable type of problem. Many problems of the past have aroused man's keenest abilities, and leading men have been pitted against leading men. Society has numerous unsolved problems over which the leaders are disagreed as to the best ways to solve them. Many problems of the past have been solved wisely or unwisely, according to the viewpoint. History, therefore, has numerous topics that are excellent for debates. In a history class, recently, was debated the following topic, "Resolved, that the Mexican War was inevitable." The class was divided into two equal groups. Leaders were appointed for each side, and the debate was carried on in regular parliamentary form. At the conclusion of the formal speeches, the subject for debate was thrown open to the other members of the class. A committee of three, that had not participated actively, weighed all of the arguments carefully, and presented its verdict before the class with a carefully written summary of the points advanced by each side. At another time judges were called in, and again the class, by secret ballot, decided the issue.

In another class, a brief consideration of the Civil War with the idea of getting the class to visualize the actual conditions was made. The problem arose, "Was the Civil War, which caused so much suffering and destruction of property,

inevitable?" This problem was recast in debate form, "Resolved, that the Civil War was inevitable, that no other solution of the differences of the North and the South could have been found." The class was divided into an affirmative and a negative group. It began a discussion of the factors leading up to the unfortunate civil outbreak. Each side constantly was on the outlook for material suitable in the debate to follow. It was agreed that three members should be selected from each side to engage in the debate at the conclusion of the study of the pre-Civil War period, the selections to be based on the quality of work done by the different members of the class. The debate was really a review or "newview" of the conditions leading to the Civil War. Each girl and boy had a social motive for organizing the material from day to day. When the leaders were selected, the other students helped their leaders in every way possible. The use of the debate in this way was very effective. The pupils had a sustained enthusiasm for many days, worked energetically, organized the material, and constantly were exercising judgment. Not the least important result was the socialization, through cooperative work, that was stimulated.

The significance of strong motivation scarcely can be overemphasized. It scarcely can be emphasized too strongly that successful work in history hinges largely upon the extent to which the work properly is motivated. In one class room a project of information was being considered, "Early conditions of transportation in the Mississippi Basin." The class more or less listlessly was reciting according to an account in a text-book. Real interest was lacking. In another classroom, a similar topic was being considered, but the pupils were keenly interested and visualizing step by step the journey of Joliet and Marquette from Green Bay to the Lower Mississippi. They actually felt themselves transport-

ed into the primitive environment of these explorers. The difference lay in the relative lack of motivation in the former case, and in the presence of strong motivation in the latter case. An unambitious, careless teacher may get by without making a special effort to motivate the work, but the real teacher will have visualization material, as pictures, maps, and a sand table, to supplement the descriptive material, will contribute out of her own experiences, and will be on the alert to ask stimulating questions.

Progress in history teaching depends upon (a) a careful selection of material according to the aims that it is desired to realize, (b) the devising of lesson types that will present the material to the child according to his particular needs and interests, (c) the motivation of the assignment in such a way that the child will want to meet the assignment, because he feels that it is worth while.

Problems

1. What should be the aims of history teaching in public schools?
2. Which is preferable, the chronological order, or the interpretation of the present in terms of the past in the lower grades? In the upper grades?
3. Give an illustration of a history topic (a) that centers in the present but is interpreted by the past, (b) that centers in the past but is interpreted by the present, (c) that centers in the past and is interpreted by the past.
4. If the present is interpreted in terms of the past as a basis for a history course, would the daily newspaper be a satisfactory text-book?
5. Select five topics that are excellent for debating.

CHAPTER XIV

THE PROJECT METHOD IN GEOGRAPHY

Geography has received a powerful stimulus as a result of the World War. No subject, probably, has received a greater stimulus as a result of the World War than geography. Practically every part of the earth in some way or other has been concerned in the great disturbance. When the newspapers recorded the occurrence of events, immediately the questions arose, where did the event occur, and what were the conditions which made the event possible, and what was the relation of the event to the area? The interest aroused led to a desire to know more about that particular part of the world so as to follow intelligently the events and also contingent events that might arise. In many schools the transition of geography from the most hated of subjects to the most loved of subjects in the school curriculum was completed. Geography had come into its own, or, from another viewpoint, the children had come into their own, because of the vitalizing of the geography work.

Modern geography stresses the relationships of life forms to the physical environment. The derivative meaning of the word geography is earth-description, which aptly describes the former idea of geography that "Geography is a description of the earth and its people." The subject was all-inclusive, and therefore readily cared for any scrap of knowledge that could not readily be placed under some other subject, but which it was believed the child should study. Under

such conditions, it was natural that geography should "become the scrap bag of the school curriculum." In common with other subjects, geography has undergone a marked evolution. The idea once prevailed that "an omnipotent creator had, for his own amusement, or glory, made out of nothing a mass of earth, water, and air, whether round or flat was of trifling importance, had suspended it in space, had made sun, moon and stars to revolve around it at various distances and speeds to throw their shifting lights upon the mundane stage, had provided a vast array of scenery and properties, and had placed upon it a motley company of actors to play, each for one night only, the drama of life. Among these the bright consummate star was man, for whom the whole play, with all its leading and subordinate parts, supporters and supes, settings and costumes, was especially designed. In fact, man was the only real actor, the rest being little more than marionettes, wire-worked puppets, under the mechanical control of the stage manager. The relations were considered mechanical. We no longer think of it as a stage setting for the play of human life. The stage has not been arranged by the manager for the actors, but the actors have been fitted to the stage. Everything on earth, from a butte to a beetle, from a pebble to a pope, is in a large sense the product of its environment. . . . The environment has not been adapted to man, but man has become partially, but still imperfectly, adapted to his environment." (Dryer. What is Geography, Journal of Geography, Vol. IV, 348-360.)

The dominant idea in modern geography is the study of the earth in its relation to life forms. The geography of our schools primarily is concerned with the relations of man with his physical environment, including plant and animal forms, and a study of the relationships of the physical,

plant and animal forms that are significant to man. The physical environment is studied with respect to its effects in controlling, directing, or modifying man's activities; man is studied in relation to physical influences, exerted directly or indirectly through other forms of life.

Both life forms and the physical environment should be understood. The establishment of these interacting relationships, manifestly, is dependent upon an understanding of the physical environment on the one hand, and the nature of life forms on the other hand. The better the grasp on these two parts, the relations of which constitute the highest development of the science of geography, the more satisfactorily and the more intensively can geography be studied. With immature children, only simple relations can be established. A large part of the time must be spent in developing the physical and human concepts, although it is desirable to establish comprehensive relations, whenever this is possible. The mere fact of relationships is not difficult to establish. A child can understand that certain climatic conditions are necessary for the production of cotton long before he properly can explain the reasons for the distribution of this particular climate. The reasons for the relationships to some extent can be explained or grasped by the child of the lower grades, but, in general, the interpretation of these relationships must be postponed until the child, with increasing knowledge and ability, has the background for this interpretation.

School geography primarily is concerned with the needs and wants of man, what they are, why they are in demand, and how they are met. Mother earth has an abundance of varied products for man's use. If man depends upon the haphazard gifts of nature, however, he can rise but little above other animals. Many of these gifts, as iron ore, are

not of much value in their discovered state, but must be modified by man. Water may flow through a desert region, but may be of little use to man unless he diverts it for irrigation purposes. Water may flow rapidly down a precipitous slope, but may be of little use, unless machinery is installed for the development of water power. Coal may exist in large quantities, underground, but will not be important until man has learned how to mine it. The economic welfare of man is dependent upon a wise adjustment to the resources of the earth. Since the higher life of man has an economic basis, and in part is conditioned by this foundation, it is important that the foundation shall be well laid, not only to provide man with his material needs, but also to permit him to develop all of his abilities and inclinations to the uttermost. The subject, geography, that provides this fundamental information and outlook upon the world deserves careful consideration.

Progress has been made slowly. The modern viewpoint in geography has been given its impetus primarily by the few universities that have established courses in geography under the direction of trained men. The number of teachers taking this work has been very limited. Among many teachers, even unto the present, therefore, prevails the impression that the geography of to-day is the place and fact geography that they had when they were children. Some teachers become apologetic when they state that they have been attempting to explain real problems to children in the light of geography, ending their statement with the explanation, "Of course, this is not geography, but the children are interested in it and I believe it is worth while."

A prominent educator recently made the remark that geography need not be taught above the sixth grade, because the children can master all of the geography work necessary

in the first six grades. His conception of geography was place geography with a few interesting facts told about each place. He did not know that relational geography has become the important part of the subject, and that place geography has about the same importance in geography that "spelling has in language"—or that the map occupies about the same place that "a dictionary has in literature." (Davis. The Essential in Geography, American Geog. Society, Vol. XXXVI, 470-473.) Teachers have begun to realize that not even the recent text-books have kept up with the modern movement in geography, which accounts for the large classes reported almost everywhere in this subject. There has been a relative lack of suitable material for the study of relational geography, which has caused many teachers "to know better than they do." The necessary detailed material rapidly is appearing, however, in newspapers, magazines, and books, in the relative ease with which many industries and physical features can be visited, and interpreted, in the museum material, etc. It is to be expected that relational geography in practice as well as in theory will gain ground rapidly. As the material becomes available, however, it is necessary that the teachers shall become more or less acquainted with it. With their numerous duties, they can do this only at a rather slow rate. The new teachers entering the field in many instances have not the modern viewpoint due to inadequate preparation, and those who have need several years of actual experience before they can be expected to accomplish much. The gratifying thing is that progress has been made, and that the conditions limiting progress are understood and as rapidly as possible are being overcome.

The World War has accelerated good geography teaching. The World War has accentuated the modern viewpoint in geography. Somewhat suddenly it has dawned upon the

world that, through improved transportation and communicating facilities, the world, in effect, has become very small. The needs and wants of man have become so varied and complex that all parts of the world are levied upon. No longer is even the ocean a scientific boundary line, for the ocean is only a moderate barrier among nations. The interest of the United States at one time primarily was in the United States; this interest was extended, under the Monroe Doctrine, to take in the whole of the New World, and now, under the stress of recent events, there is a suggestion that the Monroe Doctrine has been transformed into an international doctrine that takes in all parts of the world, so extended and vital have our relationships become.

The resources of the earth are very unequally distributed. The distribution of available energy received from the sun is such that in some places, as in cold and hot deserts, only a few specially adapted forms of life can survive. In hot, rainy tropical regions, with favorable soil and topographic conditions, life forms of value to man, as the rubber tree, the cacao tree, cabinet woods, etc., are found. In intermediate latitudes, under favorable conditions of soil, climate, and topography, are found wheat, corn, and many other products that will not thrive under the same conditions as the rubber tree. The polar bear particularly is adapted to high latitudes, the horse to intermediate latitudes, the monkey to hot, moist regions, the camel to the desert, and the fish to the water. Not only are there different forms of plant and animal life according to the environing conditions, but the minerals likewise are unequally distributed. Much of the nickel-bearing ore of the world seems to be located in Canada, much of the tin ore is in southeastern Asia and Bolivia, much of the copper ore is in the United States and Japan, much of the coal is in the United States, much of

the mineral nitrate is in Chile, much of the lead and zinc is in Missouri, etc.

In the face of these inequalities in distribution, there is a distinct tendency for man's needs and wants, in general, to become about the same everywhere, only varying in degree. Important commercial relations, therefore, have been developed for the redistribution of commodities on the basis of these needs and wants. No community is self-sufficing, probably, under present-day conditions. The United States secures coffee from Brazil, furs from Siberia, rubber from the Amazon, nitrates from Chile, hides and skins from Argentina, wool from Australia, diamonds from South Africa, silk and tea from Japan, and bananas from Central America. There is a tendency for each community to specialize in the production of those articles that it can produce most advantageously, the surplus being exported to areas less fortunately situated, while commodities produced in insufficient quantities are brought in from producing areas where there is a surplus. So pronounced has this dependence and cooperation become that the World War awakened us to the fact that a disturbance in any part of the world is of profound interest to other members of the world family.

Before the world closely was drawn together, and before man came to depend so heavily on numerous parts of the world for materials, the conception arose in this country particularly that the people of any political group had the right to work out their own internal problems as they pleased. This generally was interpreted to mean non-interference with the internal policies of another government in any way whatsoever. Recent developments have indicated, however, that under present conditions it is of extreme significance as to the policies that are governing other nations. It is not always easy to distinguish between internal politi-

cal problems and external political problems, for the internal problems may be steps leading in the direction of external aggressiveness. A nation may become so powerful and self-designing that it will seek to interfere with the peaceful development and commercial relations of other nations, that it will even seek to enslave other nations. When it was seen that the peace of the world was threatened, and that neutrals' rights were being ruthlessly disregarded, and that an autocracy was threatening the world, and particularly the future of the United States, there was no other proper course for the United States to follow than to cast the weight of its numbers and resources on the side of those nations that acknowledged the rights of the various nations to develop their resources, to carry on commercial relations without improper interference. As never before, therefore, the geographic viewpoint of other nations has assumed a very important place in our calculations.

The new geography in connection with the World War has brought vividly before the public the desirability of acquainting the child with the resources of the United States, and the extent to which they are being and can be utilized; the resources of other parts of the world, and the extent to which they are being and can be utilized; the relationships of the United States, actual and potential, to the rest of the world. It is coming to be seen that geography is not merely a drill subject, with a primary emphasis on place geography, but that it is fundamental in helping us to understand ourselves, other nations, the relations of other nations with us, and the relations of other nations to each other.

The purposes which one seeks to realize determine the type of motivation that is employed. An adequate utilization of the materials of a subject requires that the opportunities that a subject offers in the development of the child clearly

shall be grasped, and that the relation of the child to these materials also shall be known. The material, with this knowledge, can be organized, and adapted to the successive stages of development of the child. The reinterpretation of the function of geography so as to make it vital to an individual and social being enables the teacher to motivate her work in an effective fashion.

To furnish needed diversity, numerous types of lessons should be recognized. There are many types (sometimes spoken of as methods) of lessons that should be recognized in teaching. According to the viewpoint adopted in this book, the method of teaching is nature's way of developing. The teacher's business is to see that this development goes on most effectively and economically. Her opportunity lies in the direction of securing, organizing and relating the material. The attempt to motivate all lessons in the same way frequently results in monotony and lack of interest. There is no particular type of lesson that exclusively should be employed for any state of development. The number of types that may be recognized is somewhat arbitrary. With respect to any particular lesson aspects of a number of lesson types may enter in, but from the standpoint of a clear understanding of the various ways of relating the subject matter to the child, a separate consideration of lesson types is desirable.

The recognition of the following types in the teaching of geography has been found helpful: (1) journey geography; (2) question-and-answer lesson; (3) topical lesson; (4) type study lesson; (5) the project-problem lesson; (6) a special phase of the project-problem lesson, the argumentative lesson, involving either scoring or debating; (7) dramatization; (8) drill lesson; (9) special reports; (10) story lesson; (11) review lesson; (12) socialized lesson. There is no sharp

line of division among these lesson types, but a consideration of the subject matter from these varying viewpoints yields excellent results.

Local geographic material is one of the more promising sources of motivation material. The immediate environment has given the child his concepts. He has become acquainted more or less with his physical and social environment. His interpretation of the concrete environment has given him a wealth of experiences that are available for further development. In relation to the supplying of the home with various necessities, the child has become acquainted with many of earth's resources. If a rural environment is concerned, the raw materials of nature have been prominent. If an urban environment is concerned, the products of refashioned materials have been prominent. In either case the teacher will consider the experiences of the child, looking to the city end of the study of a topic for motivation in the city, and looking to the country end of the study of a topic for motivation in the country. If the general topic is a consideration of the interdependence of city and country, practically the same material ultimately may be used, but the order of use will vary. If the specific topic is a consideration of how meat is supplied, urban students will be better acquainted with the meat-packing industry, and the distribution and consumption of the products, while rural students will be better acquainted with the production of live stock, and its preparation for market and disposition.

Materials of the immediate environment can be brought to the notice of the child more readily than materials far away, (*a*) *Physical Geography.* There are very few children who have made careful observations of earth forms and processes, and their significance to man. In almost every community there are important processes and features. If

the school is located near a volcanic peak, volcanoes will be emphasized, if near a glacier, the work of glaciers will be noted, if in a dry region, the effects of winds will be noted, but if in a river basin, as is characteristic of most schools, the work of running water and resultant forms and effects will be given the primary emphasis. Physical factors are of profound significance in influencing man's activities everywhere. An understanding of local conditions and influences not only is desirable from the standpoint of an effective development of the child in relation to his local area, but also is an invaluable basis for the interpretation of areas in other parts of the world.

Economic geography requires a careful study of local conditions. The adults of a community are directly interested in the economic activities, while the children either directly or indirectly have similar interests. Since the local industries closely are related to the social welfare, the children in many ways have become acquainted with aspects of the industries. A further study of local industries, moreover, can be made more readily than a study of industries far away because of the concreteness that can be introduced into the study. In many instances children will be able to secure additional information through home channels, or, if they are unacquainted with the industry, may be able to take an actual trip to the factory.

In the study of industries no attempt should be made to understand every part of the business. The stress should not be placed upon the objective organization, the plant as a whole. The same factory offers problems sufficiently simple for the lower grades, and problems that are sufficiently difficult or even beyond the ability of children of the upper grades. The same factory, therefore, may be studied both in the lower and in the upper grades, the emphasis shifting

to meet the specific needs of the child concerned. If there is a large number of factories from which to select, it may be desirable to select certain factories that have a large number of readily understood elements for the younger children, and other factories which have a large number of relatively more difficult elements for the older children. It is not always practicable to make personal visits. In such cases, certain materials may be secured and used in the discussion as a means of increasing the interest and knowledge of a particular industry.

The local industries may be used as a point of departure for a study of areas far away. The raw materials may be traced back to their point of origin, and a study of the conditions under which they are produced may be made. It may not be possible to visit a coffee plantation of Brazil, a tea plantation of Japan, or the nitrate fields of northern Chile, but it may be possible to secure samples of materials, pictures, etc., that will be helpful in motivating the work. If the material in every instance properly is related to the child's experiences and interests, effective results will be secured.

Newspapers and magazines are important sources of motivation. While local events are of much significance for any community, at a very early age the child becomes interested in happenings elsewhere as discussed by the adults who secure the news through the newspapers. The child soon learns to read the newspaper and learns of the world's happenings elsewhere. With the concepts that he has received in relation to his immediate environment, he is able to image and understand conditions far away. Not only local current events, therefore, but current events of the world in general are appropriate materials for interpretation, and for further use in securing broadened experiences

and knowledge. Under the supposition that the tool used by adults is not adapted to children, school papers containing carefully selected material have been published. The newspapers are produced, however, in response to a distinct demand, and reflect the desires of the readers. If both objectionable and unobjectionable materials appear, it is desirable that a child shall have experience in discriminating and in using effectively and intelligently the newspaper which is in common use by adults. The daily newspaper, therefore, is important not only in acquainting the child with current happenings, but also in giving him experience, under intelligent direction, in the use of a tool, which he will depend upon extensively in the after-school days.

In the reading of newspapers from the geographic standpoint, locational geography fundamentally is significant. Every event, whether important or unimportant, has an areal setting. It is desirable that children shall get into the habit of locating, either specifically or generally, every happening in which they have an interest. The incident will be much more effectively related to the child's experiences, and will give him a keener appreciation of the world as the home of man. The mere location of places in anticipation of need is to be condemned, but location in relation to need is to be commended.

In addition to locational geography, which is significant in relation to every happening, it is desirable that children shall be encouraged to note the current events that have a dominantly geographical aspect. An account of the march of an expeditionary force, during the heart of the winter season, 300 miles across the tundra region of northern Russia, for example, not only is valuable because of the locational geography involved, but also indicates vividly the effects of the physical environment upon the activities of

man, and the means that man employs to adapt himself to the conditions imposed by nature.

Current events may be used in a variety of ways. There is no best way of using current events. Much depends upon the conditions. Current events may be used as follows: (1) the current happening may be elaborately treated at the time of its occurrence; (2) the current events may be kept until some appropriate topic is reached; (3) the current events may be briefly touched upon at the time and kept until a topic to which they are related is being discussed, when they may be treated more exhaustively.

Current events may be considered at the time of their occurrence. If current events are considered in a detailed manner at the time of their occurrence, the course of study necessarily must be very flexible. Under prevailing conditions, since there is no necessary relation between the variety of events that occurs and the general field that it is believed should be covered, a very satisfactory arrangement is to permit a teacher, within the limits of the work that is assigned her for a given period of time and for a given large unit of work, to rearrange the order of topics to be discussed so as to relate them to current events. If the teacher's unit of work were South America, for example, and according to the formal course of study the next topic to be considered were Peru, if the current events of world-wide significance, such as strikes, disposition of grains, etc., were in Argentina, the teacher would make use of these current events by taking up a study of Argentina as her next unit of work.

There are several difficulties in the use of this plan, which make modifications necessary: (a) current events may not be diversified sufficiently so as to permit a comprehensive series of topics to be given; (b) current events may not occur rapidly enough, and the work may tend to drag; (c)

current events may occur so rapidly that no topic is considered in a sufficiently detailed fashion; (d) current events may be so unrelated to each other that a detached, unrelated, superficial course of study results; (e) the emphasis may be placed upon relatively unimportant topics.

Current events may be considered after their occurrence. The course of study may be definitely outlined, and the topics may be taken up in systematic order. Since current events do not occur systematically, even from the standpoint of the child, current events material may be gathered by teacher and pupils to be used whenever some appropriate topic is being discussed. This plan has the advantage of permitting a systematic development of child and material, current events being used insofar as they are of significance in illuminating the various topics. It has a disadvantage in that the interest of the child naturally is keenest in the current event at the time of its happening.

Current events may be touched briefly at the time of their occurrence, and referred to more elaborately when a topic to which they are related is being discussed. This plan is a compromise between the two previously suggested. Children will be encouraged to note the passing event of geographical significance, and briefly will refer to it in class. The clipping will be preserved until that part of the course to which it is related is reached. A certain amount of familiarity with the topic will make the children feel that they are studying something that is related to their experiences. A fairly close contact with important happenings is established, while the approved content is not neglected. Current events are used only to the extent that they are pertinent to the topics, and many topics necessarily are taken up that can not be motivated directly through current events. It is not to be expected that one plan alone shall prevail. It is sufficient that a teacher shall have in mind the various possi-

bilities, and that she shall use first one plan and then another according to the particular circumstances.

The topic, wheat, may be used as an illustration of an objective organization that is helpful in securing the psychological viewpoint.

A. Interdependence
- City: Manufacture, Distribution, Consumption.
- Country: Production, Preparation for market, Disposition. Relating city and country: Transportation.

B. City end of the study of wheat.
1. Uses. Have children enumerate uses of wheat products.
2. Sources of the wheat products of the home.
   Made in the home.
   Secured from the bakery.
3. Making of wheat products.
4. Securing the flour (a) the family; (b) the baker; (c) the wholesaler.
5. Manufacturing the flour.

C. Country end of the study of wheat.
1. Source of the raw material, wheat.
2. Transportation of the wheat to the mill, (a) railroad, (b) waterway, (c) wagon road.
3. Production of wheat.
4. Harvesting and thrashing.
5. Disposition of the wheat.

If the study is being made with rural children, the teacher will consider the country end of the study of wheat for motivation material; if the study is being made with urban children, the city end of the industry will suggest the point of departure.

The project-exercise of much significance in the lower grades is journey geography. With the experiences of the local area, the child is prepared to understand the far away areas. Unless these areas are related to the local area, however, geography tends to become a more or less nebulous subject with a fairyland setting. The pupil, through actual journeys hither and thither, becomes acquainted with the local environment. In a somewhat similar fashion, he may visualize routes from his locality to other regions, and can reproduce in imagination the descriptions of others of the geographic material that can be seen from place to place. With a few well-selected imaginary journeys, the child can secure a reasonably satisfactory picture of the earth as the home of man. If the pupil is living at St. Louis, for example, imaginary journeys on the various radiating waterways will help to acquaint him with the great interior depression of which St. Louis is the pivot. These journeys may involve a trip from St. Louis to St. Paul, St. Louis to New Orleans, St. Louis to Pittsburgh, St. Louis to Kansas City, and St. Louis to Peoria. The characteristic activities and the centers of population should be stressed in such journeys.

Project-problems naturally follow journey geography work. After having secured numerous concepts concerning the earth as a whole through journey geography, the pupils have a broad valuable basis for the interpretation of project-problems. As an illustration of the way a continent may be handled with the use of project-problems, the following set of questions, relating to South America, is given:

1. Have the countries of Latin America undergone as important a development as the United States?

2. Why has Latin America undergone a much less rapid development?
3. Which region, the United States or northwest Europe, should have the larger trade relations with South America?
4. Account for the dominating importance, in Argentina, of the Pampas.
5. Why is Buenos Aires the leading city of Argentina?
6. Account for the concentration of the agricultural activities in the Great Valley of Chile.
7. Is the desert region of northern Chile worth fighting for?
8. Is it possible that the forested area will become a much more valuable possession than the desert area of the north? (Chile.)
9. Correlate the location of the cities with the distribution of resources, and not human influences which have favored their development. (Chile.)
10. Explain the sparse population of the Amazon Basin.
11. Account for the greater relative importance of the coastal area of Brazil from Cape St. Rogue southward.
12. In what ways have the various people of Brazil contributed to its development?
13. Why are practically all of the important cities of Brazil on or near navigable waterways?
14. Indicate the possibilities of a "Greater Brazil" based upon a more nearly complete adjustment to natural resources.
15. Account for the slowness and inefficiency with which the resources of the northern Andean countries have been utilized.
16. Account for the location of important cities in the interior. (Northern Andean countries.)

17. Through a comparison of the physical conditions, resources, and people of Paraguay and Uruguay, seek to determine which country has the better advantages for an important national development.
18. Contrast the economic activities of the Guianas with those of northern Chile.
19. Why should the United States be interested in the preservation of order and in the development of the resources of Mexico?
20. Account for the diversity of products represented in Mexico.
21. Account for the location and development of the important cities. (Mexico.)
22. The United States has taken a special interest in Panama in improving conditions. Make a study of original conditions and improvements effected. Is it probable that the other countries of Central America would be benefited by American intervention?
23. Why should the activities of the West Indies be of greater moment to the United States than to any other first-class power?
24. The Pan-American Union, with its headquarters in Washington, seeks to establish more cordial relations amongst the North and South American countries. In what ways may a more satisfactory relation amongst these countries be secured?

The above set of problems actually was worked out in class. In each case there was preparatory material out of which the problem arose, materials were secured and interpreted, and the problem was solved or the materials summarized. (A more detailed account of the above set of problems is given in the Public School Messenger of the St. Louis

Schools, for December, 1917.) It is not expected that the particular problems presented necessarily shall be used, but the problems merely are suggestive of the possibilities of treating a continent from this viewpoint, the particular problems being determined by the conditions attending the class room work, particularly the reactions of the pupils in relation to the situations.

The logical, outline organization is the climax in geography teaching. So accustomed are pupils to an outline organization imposed upon the class by a teacher that, almost invariably, they believe this to be the proper method. So prejudiced have normal school students become in favor of this earlier organization that much patient work is necessary in getting them to understand the desirability of a different presentation to immature students. The pupils should work toward an organization, and not from one. Until the pupils have secured many details, they have little or no material to organize. If they are to organize their own material, they first must have interpreted the material. The logical, systematic outline, consequently, preferably is the pupil's organization adopted after the pupil has material that needs organizing. It is the climax in geography teaching. Since the specialist of a given subject tends to organize his work systematically, the teacher, who has come under his influence, tends merely to pass on to the pupil the advanced type of organization. With the shift in focus of emphasis from subject matter to the development of the child, the logical, comprehensive, outline organization is being pushed to the background.

CHAPTER XV

THE REORGANIZATION OF THE COURSE OF STUDY

Various subjects have been recognized as a matter of convenience. During the last century careful, painstaking work has increased remarkably the aggregate body of knowledge. As this knowledge has become available, more and more of it has been incorporated in the course of study. This has been done in part by enriching the various subjects, in part by the introduction of other subjects. Many topics are being advocated for school use. To such an extent has the number of subjects been increased that superintendents, when approached concerning the introduction of "safety first" material, patriotic material, etc., resolutely refuse to permit the number of subjects to be increased, but if the material seems worthy anxiously scrutinize the various subjects to determine if the new material can be included in the course of study as organized.

Any organization of subject matter on the basis of subjects is somewhat arbitrary. The world-whole of knowledge is interrelated. There is no subject that stands alone, but the relationships among the subjects is very close. Subjects can be recognized only on the basis of different viewpoints. In the central part of the field of each subject there is little difficulty in recognizing the material pertinent to that subject, but toward the edge of the field are numerous materials that it is difficult to classify by subjects. For convenience in teaching the various subjects are recognized,

but it is questionable whether the objective classification has not prevailed at the expense of the real development of the child.

There are weaknesses of organization by subjects, which it is difficult to overcome. The organization of knowledge by subject helps in placing the emphasis upon subject matter that is regarded necessary. It permits the teacher to develop the work of the subject systematically, and helps the pupil, because of the narrow field covered, to grasp the material with relative ease. It is weak in that the subject matter relatively is isolated from that of other subjects, and an undue significance is placed upon the various subjects as objective material. Emphasis, in spite of every precaution, tends to center about the subject matter rather than about the child's needs and development, for the recognition of subjects has been made, not from the child's standpoint, but from the standpoint of an objective organization of the world-whole of knowledge.

Numerous attempts have been made to maintain the present organization of knowledge by subjects, and at the same time to overcome or minimize the disadvantages. The various subjects have been correlated. History has been used to illuminate geography topics, mathematical geography has been used to reenforce arithmetical topics, spelling lists have been selected from reading, etc. Such correlation has not, in general, been systematically pursued. The degree of correlation has depended upon the particular whims or insight of each teacher. Many teachers have erred in forcing correlations and introducing irrelevant material on the one hand, or in becoming so engrossed in the subject that correlations almost altogether were neglected. Some correlation schemes have gone so far as to attempt to have the pupils consider the same or some closely related topic along par-

allel lines. If the history of Greece were being studied in history, then geography, reading, spelling, arithmetic, music, and all other subjects should treat of some aspect of Greece at the same time. This type of close correlation has not been very satisfactory, as too much violence was done to the organization of the various subjects.

Recognizing the weakness involved in considering all subjects as of equal importance in relating the subjects, others have attempted to correlate according to the "concentration plan." One subject, as geography, or history, was selected as the central core about which the course of study should be organized, the order of topics in the various subjects to be determined by the order of topics in the subject constituting the core. The core subject was given undue prominence and this scheme has never been very satisfactory. The best plan of relationships thus far worked out seems to be the organization of each subject from the psychological standpoint, and the "cooperation" of the various subjects, wherever such cooperation will permit the teaching of the subject in question more efficiently.

Departmental work has increased teaching efficiency. As the number of subjects to be taught increased and the standards for teachers were raised, it was believed that much more efficient work could be accomplished if the teacher could devote her time to one or two of the subjects. She could select the subjects in which she had the greatest interest, and could master the details of the subject, whereas if she had to teach ten or twelve subjects, she could not master adequately any of them. The teacher, possibly, could not have the close personal contact and understanding of the child that she could have according to the horizontal plan, but she could master the technique of her subject. The number of subjects was diminished for any one teacher,

but the number of pupils with whom the teacher came into contact was greatly increased. The departmental plan has accomplished much good, particularly in the upper grades, in helping us to understand subject matter, its nature and possibilities, but, in spite of special devices, its great weakness lies in the emphasis that inevitably is placed on the subject at the relative expense of the pupil.

Supervision of special subjects carries with it the danger of over-emphasis of certain subjects. In order to raise the standard of teaching, considerable emphasis has been placed on supervision. The superintendent always has engaged in more or less perfunctory supervision, but with increasing emphasis upon the various subjects, it was deemed necessary that specialists in the various subjects should supervise the teaching of those subjects. In various school systems, therefore, there are supervisors of penmanship, of history, of geography, or physical training, etc. Much good has resulted from this supervision, but the grave danger is that the subject matter will be emphasized unduly at the expense of the child.

The various subjects should be regarded from the standpoint of the child. During the period that emphasis was being placed upon the subject matter, correlation, concentration, cooperation, and departmental instruction, the psychological viewpoint was not entirely eliminated. Only within recent years, however, has the emphasis tended actually to shift from the teaching of subject matter to the teaching of the child. The original emphasis upon subject matter probably was necessary as it now leaves us free to attack vigorously the other side of the problem with an adequate knowledge and control of subject matter.

The subject matter should be organized so as to socialize the child. Subject matter now is regarded not as an end but

as a means to an end. The pupil must be socialized, not by talking about his duties as a social being, but by permitting him actually to participate in social activities. There is a tendency for the army discipline, with the teacher as a dictator, to be eliminated. The teacher is not placed over the group but is placed with the group, and all work together, making suggestions, giving and taking, according to the social needs. The socialized recitation, involving cooperative group work, with the teacher in the background, and socialized general school activities are doing much to help the school authorities, through the materials of the school, and the various subjects, to develop in the child correct ideals, skills, attitudes, and knowledge, for a desirable life as a member of the social organism.

The emphasis is shifting from subject matter to the adaptation of subject matter to the child. The emphasis is shifting from subject matter, objectively considered and organized, to the adaptation of subject matter to the principles of child development. It is regarded as essential that the work shall be adapted to child needs, interests, and ability. It is regarded as much better to get the child to work, not through compulsion, but through desire. The old idea that pupils grow by overcoming obstacles, and that the work purposely should be made difficult and unattractive, has been replaced with the idea that the more interesting the work can be made, the better in order that the child will be willing to put forth effort to overcome the difficulties which inevitably attend many situations. The doctrines of interest and of effort have been correlated. An endeavor is made to make the work meaningful, to have the child engage in purposeful activity. Subject matter as an objective organization has been subordinated to the use of subject matter in arousing interest and in getting the child to seek to realize the needs thus aroused.

The school life may be organized so that it as nearly as is practicable will approximate the out-of-school life. It generally is agreed that children are living a life and at the same time preparing for later-life activities. An attempt has been made to organize the school life so that it as nearly as possible will approximate the out-of-school life. It has been said that adults are interested in knowledge to the extent that they are helped to meet life's situations, that constantly adults are confronted with problems and situations which they must attempt to meet. Each subject, therefore, should be organized by topics in such a way that problems and situations will arise that will give the child experience in using the materials of each subject according to the various uses to which it will be put in the adult world. This viewpoint is very commendable, but it inevitably has its weaknesses as long as the different subjects are kept separate, for adults do not ask, when confronted by a situation, what does geography have that will help me and so on for each subject. They marshal their materials according to the problem to be met and think in terms of the materials and not in terms of subjects.

The preceding discussion has indicated (a) the important accumulation and organization of knowledge that has come about through a careful study of racial experiences and successive environments; (b) that the emphasis in recent years has shifted to the use of material not as an end, but as a means of fitting the child for adult responsibilities and at the same time permitting him as a child to realize the fullness of living; (c) that, to accomplish these educational aims, socialization, motivation, and the organization of material according to the way that it actually is used by adults, has been emphasized. The undue influence of the colleges and universities in inculcating an undue respect for subject matter as objective material gradually has been overcome. In

recognizing the various subjects and in attempting to make each serve a distinct purpose in developing the child, has the highest possible attainment been reached or is it possible to reorganize the material still further, at the expense, if necessary, of the continued existence of the various subjects, so that results will be secured more economically and more efficiently and more assuredly.

The stimulus received from the World War has induced a careful reevaluation of subject matter. For a generation preceding the outbreak of the World War leaders in the educational field had been urging that the schools should be brought into more intimate relations with the out-of-school life of the world. It was recommended that a more extensive use of the local environment should be made; that present-day situations and current events should be discussed and properly related to the past; that the content of the school curriculum rigorously should be scrutinized with the aim of eliminating any material that had no important bearing upon present conditions; that the material of the various subjects should be organized in the form of problems or situations so as to accord as nearly as possible with the use of the material in other institutional organizations; that a study of the possibilities of breaking down the barriers artificially established among subjects should be made with the view of organizing the school curriculum around situations and problems; that method and content should be determined, insofar as practicable, on the basis of the child's interests, needs, and state of development.

Progress conservatively was being made along these various lines. Those who believed in the old order of school activities regarded the innovations with skepticism; those who were full of enthusiasm for the new order of things in education were impatient at the slowness with which the

changes were being effected. At last came the great war with its additional burdens upon the energies of man. The United States attempted to maintain a neutral position, but in spite of this, the relationships of the country to all countries at war were so numerous and important that an intense interest in the war was aroused. The war and problems related to the war afforded the leading topics for discussion in the home, in the church, and in all social gatherings. The interest of the adults was communicated to the children. It was next to impossible, had it been desirable, to eliminate the war and its related problems from the schoolroom. The opportunity for which the progressive teachers had longed, had come to link the school work, with a minimum of unfavorable criticism from the public at large, with the world situations of intense interest to adults and children alike.

For almost three years this interest was maintained, although the American people were following primarily as they believed the fortunes of others. Conditions gradually became intolerable, and it became impossible for the United States to maintain its neutrality longer without discredit and loss of self-respect. The whole resources of the American people were thrown into the terrible conflict. It was recognized that the war was a conflict not merely between armies in the field but a conflict of nations, which involved the closest cooperation of the stay-at-homes, if victory were to be assured. The schools hitherto had been regarded as followers of progress. Many believed that a wide gap existed between the schools and other organizations which could be overcome only by considerable experience after the pupils had left school. It was recognized that the schools were necessary, but few had thought of them as being valuable agencies to cope with present situations and to point the way to a better day.

The world situation was acute and required that every institution should be organized with the common aim of winning the war. There was a strong demand that the schools should assist; the teachers and pupils were anxious to assist. It came about, therefore, that the schools began to sell thrift stamps, to make speeches, to sell liberty bonds, to knit sweaters, socks, caps, etc., to collect newspapers, tinfoil, rags, and various waste articles; to solicit and contribute to the Red Cross and other worthy organizations, to devise various ways of assisting. Without any particular effort, therefore, because of the preparatory period that had preceded during the last generation that the modern ideas gradually were gaining ground, when the need came for the schools to work shoulder to shoulder with the other organizations, they were not found wanting.

The great war is over. Will the schools return to their former status, lose much of their point of contact with the out-of-school life, and again be regarded primarily as followers of society's advances, lagging along sufficiently far enough behind the times that they will not be concerned with present-day problems and difficulties? It is hardly to be expected that the conservatism of generations can be overcome in the course of a few months. It is to be expected that the schools will react to some extent from the prominent position that they have taken. Never again, however, shall we expect to see a bridgeless gap encircling our schools. They have been touched with the breath of life. The children themselves will never be satisfied with the condition of status quo. The teacher who would gain the interest and respect of her children desperately must seek to help them to maintain their points of contact with real human needs. She must motivate her work in terms of the living present. With the passing of the crisis, the insistent demands upon our

school will vary in kind, but the world at large, with an increased respect for the work of the schools and the potential possibilities, will cooperate with the school teachers in permitting the schools, in times of peace, to relate their activities, in a significant manner, with the world at large. Never again can the schools hold the position of relative unimportance among our people, but every encouragement will be given them to lead as well as to follow, to participate in the life of the times, as well as to prepare for intelligent additional participation.

The interests of the children suggested the need of omitting certain formally required parts of the course of study. The children were in a position to dictate to some extent the nature of the material that should be studied. The problem of the educator and teacher shifted somewhat from the attempt to interest the child in material that society has regarded as necessary to a consideration of the subject matter and the possibility of eliminating that which has outgrown its usefulness and of inserting that which according to modern-day conditions highly is desirable. Each subject has been scrutinized searchingly, and all material retained has had to stand the crucial test of modern-day usefulness, and material that is justified on the basis of survival of custom is looked upon with skepticism.

A course of study may be organized about situations. In relation to outside activities the children worked enthusiastically when they knew that their work was contributing in common with the work of adults in helping to win the war. They did not stop to ask each other whether the selling of thrift stamps, or the collection of waste materials, was arithmetic or geography or history. They had worth-while situations to meet and both instinctively and intelligently made use of their whole resources of being to realize their pur-

poses. It seems inevitable that in spite of all of the modern endeavor to make the various subjects serve the best interests of the child, the emphasis cannot properly be placed because of the artificial conditions established. The modern point of view certainly vitalizes the various subjects, but subjects are artificial divisions, and the consideration of problems and situations in any one subject naturally means a distorted picture of the situation and its meaning in as much as all other subjects will be given only incidental mention, however important they may be. A person who studies present conditions in Mexico from the geographical standpoint will have a different picture from the one who studies present conditions in the light of history. Both viewpoints should enter into an understanding of present-day affairs, and this could be done more certainly if the work were organized about situations.

Courses of study organized about situations have failed up to this time, and many are not convinced of their practicability because of the lack of breadth of view which has characterized their consideration. A course of study based on the industrial arts, for example, is too narrow in scope to be satisfactory and acceptable. The organization of a suitable course of study about situations involves a broad consideration of time and place relations, history and geography, if defined with a most liberal interpretation. All essential aspects of the different subjects are involved in time and place relations. The historical perspective and the place perspective suggest the fundamental principle involved in the working out of the new course of study for which our schools are prepared.

This proposed reorganization of subject matter about situations is only an evolutionary step for which the schools of the past have been preparing. It has been shown that

proper study has been made of education from the standpoint of content, that for the last quarter of a century similar important studies have been made from the standpoint of the child, that recent participation in war activities by the children has accelerated the movement looking toward the elimination of useless material and the introduction of useful material, that the interests of the children were in real situations and problems and not in the various subjects as subjects. As the next progressive step the suggestion is strong that the long-recognized division among subjects should fade away, and that the worth-while material should be organized about situations and problems.

Drills and mechanical accomplishments will not be eliminated. While subjects as now organized would disappear from the school curriculum, the worth-while material of the various subjects would be retained. Arithmetical operations would enter into the situations, and insofar as is necessary would be succeeded or attended with the necessary drill work. The viewpoint of subjects might be retained by the teacher, as this would be one way of enabling her to determine whether through the situations she was realizing the minimum essentials or not. There would be no necessary conflict between the aims of education to be realized through subjects and through situations, but the situation organization, it is believed, would secure the realization of the aims more economically, more quickly, and more assuredly.

The working out of a course of study on the basis of situations is difficult because the work, from time immemorial, has not been organized on this basis. There is no tradition to guide, and present methods are bringing good results. The experimental introduction of such a course in all schools would be unpardonable. It is necessary, first of all, that the

situation course of study should be studied in all of its phases in an experimental training school, and that the course conclusively shall be demonstrated as being superior to the present organization before its general adoption shall be urged. It is desirable, then, that the reorganized course shall be introduced rapidly in the schools.

Situations should be grouped systematically and graded. The material of the various subjects has been organized with the intention of giving the child topics of increasing difficulty from grade to grade, in accordance with the increasing ability of the child, and with the intention of giving him worthwhile material, at whatever age his school training may be discontinued. A similar grading of situations would be necessary under the new plan. It is probable that situations could be classified and standardized in such a way that a certain freedom in the selection of situations could be made for each grade.

The organization of subject matter in situations ultimately will lessen the burden of the teacher. Under the old plan of one teacher to the grade, the teacher soon learned her pupils, but found herself handicapped because of lack of time to put on the subject matter. Under the departmental plan this handicap has been in large part overcome. The proposed reorganization by situations would make a teacher again responsible for the varied activities of a room. The teacher, however, would not be burdened with a large number of distinct subjects. She would have her set or types of situations for which she would be responsible. If her training were with situations, the work would be just as easy as according to the present arrangement. The transition period will involve special effort on the part of the teachers, but the joy of accomplishment should more than offset any inconveniences. The departmental work, at first,

seems to be in the direction of discouraging the proposed plan, but in reality it is preparing the teaching force to make the transition with the least possible friction. The present plan of numerous subjects, if one teacher to a group is used, imposes too great a burden upon the teacher, while the departmental plan permits the thorough organization of subject matter, within limits, on the basis of situations and problems.

If the school work is reorganized on the basis of situations, without a formal recognition of the various subjects, the development of the child will come naturally and without artificial restraints, the school will establish easy relations with other life activities, informal, discussional work with the real life of the child represented will be encouraged, and opportunities for individuals to assert and develop their native ability will be presented as never before. While no precipitate change is urged, leaders in education should make a thoroughgoing study of this viewpoint and as soon as results are assured, the change should be effected as easily as possible. The economical utilization of the project method in education favors the situation reorganization of school work.

Prof. Hosic suggests numerous difficulties in the way of an effective readjustment of the school curriculum. Professor Hosic, in discussing the relation of the problem-project method to present school practice, has outlined the subject in the following way:

"A. Serious difficulties lie in the way of an attempt to introduce in a thoroughgoing way the problem-project method into our school as now organized and conducted.

1. A different tradition prevails.
2. More knowledge of learning processes, more technical

skill, and more scholarship are required than for the use of 'logical' or 'formal' methods—the teacher must play various rôles.

3. It is difficult to organize a system of projects so as to provide for the entire body of attitudes, skills, and knowledges which at present we wish children to gain in school.
4. Time is easily wasted by over-emphasis on some phase of the process—even on 'teaching children to think.'
5. The ordinary course of study must be largely reorganized and rewritten.
6. School equipment must be adapted.
7. New measures of results must be applied.

"B. But the method employed by the nation is the method to be used in the schools." (Hosic, James Fleming. An Outline of the Problem-Project Method. The English Journal, Nov. 1918, p. 60.)

The project method, efficiently used, requires a proper organization of subject matter. A capable teacher, by adapting, can accomplish much, irrespective of the course of study, in applying the principles that involve an efficient use of the project method. The type of organization of material that prevails, however, places a severe limitation upon a maximally efficient use. The organization of the course of study should be as nearly as possible adapted to the purposes for which it is created, and the skill of the teacher can be employed to make the course of study function in the most efficient manner. That radical changes are imminent, both in the selection and organization of material, clearly is evident. Any change that is effected should be made in such a manner that a minimum of confusion will be caused to the school system as a whole.

CHAPTER XVI

THE PREPARATION OF THE TEACHER

The teacher's preparation should be thorough. Irrespective of the type of organization of material for the grades, the teacher's preparation should be thorough. This preparation should include a comprehensive study of subject matter, of child psychology, and of her own personal nature. These aspects of educational life should be studied separately but also relationally. The day is past when anybody can teach school. The requirements of a teacher under present conditions are as exacting as in any vocation that can be selected. There still are too many teachers who are self-made in the sense that they have had no particular training for their work. As long as the public will countenance such teaching this evil may be expected to continue. It is encouraging that the standards which teachers must meet are being raised, that school boards are insisting on adequately trained teachers, and that well-trained teachers are securing compensation more nearly commensurate with the preparation demanded. The World War has brought vividly before the people the value of the public schools not only to teach the pupils those racial inheritances which society has found valuable, but also constructively to aid in accelerating progress. In other words, it has dawned upon the people that the schools not only should follow, but also should lead. People in general have what they sincerely desire. The teaching profession offers an attractive future for all

naturally gifted young people, who are willing to put forth the effort required.

The reorganization of subject matter about situations and problems increases the necessity of a teacher's being well informed. The fact that problems are not arbitrarily determined, but arise with the children leading, requires the ability on the part of the teacher to rearrange and relate the subject matter according to the particular form that the topic takes with the class. This adaptation is much more difficult than the objective organization of material which is imposed on the child. It is much easier to master one particular type of organization of material, utilizing this organization year after year, than it is constantly to rearrange and relate.

The breadth of view should be greater than that expected of the pupils. According to the modern viewpoint, the particular details grasped by successive classes of the same grade may vary, but there are certain conclusions and generalizations that every child should grasp. This freedom of selection of details increases the need of breadth of view on the part of the teacher. The teacher who believes that she needs merely to be a transmitter of certain staple information will be satisfied with a very limited preparation. The teacher who would meet the modern requirements, however, must have a much broader grasp of subject matter than she possibly can expect her pupils to secure, in order that she intelligently can direct the work of the children in relation to world knowledge, in order that she may help them with their problems, in order that her broad grasp may be a stimulation to the children to continue their studies, because of the feeling developed that they have not "finished" their education, when they have secured the school diploma.

The teacher need not be trained only in the same way that

she will train the pupil. If the teacher is to teach by means of projects specially organized to secure a rapid desirable development, is it necessary for her to be trained according to the way that she will train? Is it desirable that our normal schools, colleges, and universities shall rearrange the material with this in mind? If the teacher were to be a mere transmitter of knowledge, or desired to secure barely enough information so that she could "carry on," for a few years, the answer is in the affirmative. It is impossible, however, systematically to cover the field of knowledge on which the teacher must depend as comprehensively and as quickly as by an objective, logical, outline organization. The working out of a type set of situations will not be satisfactory from the subject-matter standpoint, because the teacher will not be given a method of attack that will enable her to use the great store of objectively organized world knowledge at a moment's notice. So far as experience has indicated, it seems preferable to give our student teachers systematic training in content, with a sufficient training in types of lessons to be used in the teaching of children, so that they can recast the material according to the particular situations that arise.

An understanding of children is indispensable. A broad scholarship with reference to subject matter is necessary, but this is only part of the preparation required of the modern teacher. She also must understand the nature of the child. A special study of child psychology, therefore, should be made in order that the known laws governing child development may be utilized. What are the instinctive interests of the child, and how may desirable instincts be aroused and undesirable instincts inhibited? How may the child be induced to acquire an interest in desirable situations in which he has little or no instinctive interest? At what state of de-

velopment is each instinct strongest? To what extent is the small child a reasoning being? What is the significance of the doctrine of interest and of the doctrine of effort in relation to child development? What is the truth concerning the doctrine of formal discipline? Is the culture-epoch theory tenable? The preceding questions, and many more of a similar nature, an earnest person in training to become a teacher should seek to answer. The teacher is not dealing with an inanimate mass of clay, but with a child "made in the image of God," and with a certain amount of independent freedom of action. If her work were a "pouring-in" process, her training could be confined to subject matter, but her primary task is to prepare the material for "mental assimilation" by the child. If intelligent rather than haphazard training of the child is to be effected, if the child is to be educated scientifically, and not accidentally, the subject matter must be properly related to the special nature of the child.

An understanding of children is indispensable. A theoretical study of the nature of the child is desirable, but this is insufficient. A teacher in training should have actual contact with children. Contact with children in the home, on the playground, and in the churches is valuable. The teacher has been a child and has associated with other children. She has had a valuable experience with children, therefore, before beginning training for her vocation. This experience, however, has been haphazardly and not systematically acquired. No special study of the child has been made from the teacher's standpoint. It is desirable that subject matter in relation to child needs shall be studied in the school room. Ample opportunity for observing the work of capable, experienced teachers should be given, and in addition a certain amount of actual teaching under adequate

supervision should constitute a part of the teacher's training.

The viewpoint of the adult is necessary. Unfortunate is the teacher who forgets that "she was once a child." The successful teacher must seek to look at the world from the standpoint of the child, but she must be more than a child. A child leading a child is like the "blind leading the blind." The teacher must have in addition the point of view of the adult, so that she can keep her perspective with respect to the direction toward which she is directing the child. During the training period of the teacher, therefore, it is desirable that she should secure or retain the viewpoint of the child, but she also should become mature and dependable. In faculty meetings, in a discussion of various students, a student who exerts a useful influence among the other students, a student who conducts herself in a seemly manner, and who practices the customs of refined people, is the one who is generally admired. Some students are mentioned as maturing very rapidly, while other students, although doing very satisfactory content work, mature very slowly. Faculties occasionally hesitate to graduate girls because, although the formal requirements have been met, the girl has not shown the proper qualifications for leadership.

In various ways, the necessary moral fibre can be secured. There is no general rule to be applied to all cases, but each case must be handled according to its particular requirements. Girls can be forced to conform to certain requirements of the school. This situation generally does not represent real growth, but merely conformity through necessity, and the moment the pressure is removed, the girl reverts to her original attitude. It is better, therefore, to proceed slowly and to attempt to develop a class morale that will help the girl to shape her own course according to indi-

vidual and social welfare. The development of this morale is dependent upon the way the teacher handles the work with the class. The placing of responsibility upon the pupils, in many instances, will bring about remarkable results. General exercises can be utilized by asking certain girls to attend worth-while conventions and public gatherings, reporting back to the school the results. If reliance is to be placed upon the girls' adopting desirable attitudes willingly on the basis of need, rather than unwillingly on the basis of policy, considerable patience must be exercised by the normal school teacher. Inward growth requires time. There may be many heartaches because some student does not seem to be developing rapidly enough, but results must be measured by actual rather than by seeming accomplishment. Not the least important aim in the teacher's preparation should be to give her desirable attitudes toward the numerous social situations in which her leadership among the pupils will mean so much.

A teacher should be directed by a worthy purpose. During the period that a teacher is in training she should constantly search her own heart. What are her motives for choosing the teaching profession? Is she in the normal school because she wants to be there, or has some relative or friend arbitrarily selected her vocation for her? Does she have any handicaps that permanently disqualify her from becoming a successful teacher? Has she selected teaching because of the reasonably quick and certain compensation involved, while her heart is tied up with some other line of work? Is she taking her work seriously or is she drifting through school as easily as possible, placing the responsibility of converting her into a good teacher, upon the faculty? Is she a Dr. Jekyll and a Mr. Hyde, leading one type of life at school and another type of life during out-of-school

hours? Does she have any real interest in children? If her motives are unworthy, she honorably can do one of two things, (a) either get out of the teaching profession, or (b) change her attitudes and actions so as to conform to the professional requirements.

Self-improvement should be a constant aim. A teacher should seek to understand herself. It is too much to expect that perfection can be attained, but introspection and an earnest endeavor to improve will be of invaluable assistance. It is well to visit other teachers to note their strong and weak points, not with the idea of criticising, but with the view of securing help in improving one's own teaching. A teacher's ideal of what she would like to become will always be far ahead of her actual accomplishment. It is worth while to have an ideal toward which to move, "to hitch your wagon to a star," but working ideals which can be reached within a reasonable length of time should also be established. There is no occasion to be discouraged as long as one is making a serious effort to improve, and is meeting with a reasonable amount of success.

Graduation from a normal school should not leave a girl with the impression that she has finished the training necessary to become a first-class teacher. In the dynamic teaching field the training of teachers never is completed. During her training period the student should have made progress in mastering subject matter, child-psychology, and herself, but she should get a vision of her teachers as students, who presumably are only a little farther along than the students. She should see that her teachers are growing, and that she also should continue to grow as long as she is a teacher. Constant vigilance and adaptation are the price of remaining a good teacher and of becoming a better teacher.

Ample contact with out-of-school activities is desirable.

The teacher's preparation should involve ample contact with out-of-school activities. Too frequently in the past the student has been trained along bookish lines, and on becoming a teacher has proceeded to teach as he was taught, not daring to get away from the book, because of unfamiliarity with other than book material. A teacher should be an intelligent reader of a daily newspaper, and should keep in touch with a number of good magazines, not attempting to read every article, but reading those articles which, according to her discriminating taste, seem worth while. She should attend various public gatherings to hear famous men, and to hear important public questions discussed. She should attend moving picture shows, dances, or other types of recreation in which the community engages. She should avoid all appearance of evil, but should be acquainted with the activities both good and evil of the community. She should not merely be a sponge attempting to absorb all that she can, but should seek to uplift the community in which she is placed. Her opportunities for social service in addressing various meetings, teaching Sunday School classes, engaging in conversation, etc., will be greater than she can take advantage of. She carefully should evaluate the various ways of serving the community, and make her plans accordingly. By keeping acquainted with current events, and by participating in the life of the times, the teacher will be able to bridge the gap between school and other social agencies more effectively.

The danger of inbreeding, which comes from too narrow an experience, can be avoided, to a considerable extent, by out-of-school activities during the school year, and by a certain amount of professional work, by keeping in touch with others engaged in school work, and by a wise use of vacations and an occasional leave of absence. Many

teachers have an opportunity of taking correspondence work, or of taking extension work under some capable leader. Teachers, more and more, are enrolling in summer-school courses, securing a diversion of work and a certain amount of relaxation at the same time. Travel broadens a teacher's views very rapidly, and contributes materially in making her work a success. Several educational institutions offer travel courses, particularly in history and geography. The work systematically is outlined, and purposely done.

Teaching is a desirable profession for young women. Women, in general, are excellent teachers. There is no vocation that offers superior advantages to women, who wish to engage in remunerative, inspirational work, in an uplifting environment. An instinctive yearning in every normal woman is to have a home of her own. No woman should be deterred from entering the teaching profession because she hopes to get married within a few years, and believes that she would not be fair to herself or the profession, unless she should choose the teaching profession for life. It would be unfortunate indeed if a woman school teacher could never look forward toward married life, and it would be still more unfortunate if every woman who looks forward to a married life should refuse to teach school. In most normal schools this situation is squarely faced, and girls are not asked to teach for a longer period than they attend school, and if it seems to the best interest of the girl's future she is not required to teach at all. If a girl can devote a few years to the teaching profession, she not only may serve society in an honorable capacity, but her work is training her also to become a successful housewife and mother. People in other vocations change their work when more suitable positions are available, and it is to be expected that teachers, without discredit to themselves, will act similarly.

Respect for school teachers is increasing. Although it may be expected that many people will follow the teaching profession for a few years only, it is a pleasure to note the increasing number of men and women who have decided to consecrate their lives to school work. Such teachers are sparing no expense nor effort to equip themselves in the best possible manner. The attitude of the public toward teachers has changed. At one time the school board considered it desirable to change teachers every year or two, under the supposition that this was the average length of time required for a teacher to tell all that he knew. Now teachers are being encouraged to stay in the service by being given increased compensation from year to year. Better and more varied equipment is being secured for the schoolroom. The public is turning to the schools for aid in the solution of many of its problems. As the public comes more and more to demand a distinctive service from the school teachers, it may be expected that the requirements for entering the profession will be raised, and the teacher may expect the requirements for remaining in the profession to be more exacting, but those "who are working for the social welfare in the schools, not for a salary, but while supported by a salary, will welcome this attitude."

A teacher should not perform the pupils' duties in connection with a project. Professor Hosic has submitted the following outline as an indication of the teacher's part in enabling the child to participate in a full experience through a problem project:

A. Preparation.

1. Study the subject-matter generically, that is, from the standpoint of control of actual life-problems, past, present, and prospective.

2. Plan for managing and carrying through the project about to be launched.

B. Classroom procedure—the rôles of the teacher.

1. Make a tactful approach; create, if need be, the appropriate situation.
2. Stimulate the pupils to define the problem, and to set up the end.
3. Help and guide in the planning.
4. Supervise, coach, inspire, lead the pupils in the execution of the project, including all necessary practice, that is, drill.
5. Direct the organization of results in the form of systematic knowledge and thoroughly coordinated habits.
6. Encourage expression by the pupils of judgment and appreciation of values.

C. Cautions.

1. The problem-project unit is a new type of unit calling for a new method of organization.
2. The project is not a mere formal procedure.
3. The project is not an end in itself.
4. Avoid waste of time through dwelling too long on some phase of the process.
5. Do not expect the impossible; let pupils do all that they reasonably can; the teacher should supply the rest.
6. Avoid an exaggerated emphasis upon liberty.
   (a) Habits of obedience should be in reserve.
   (b) Skilful stimulation is required.
   (c) A wise selection among the responses of the children must be made.
7. Follow through, that is, make sure of sufficient practice and organization always with adequate motive.

8. Keep the outcomes in mind and be sure that the pupils do so.
9. Devise adequate tests of results so that mere superficiality is avoided. (Hosic, J. Fleming. An Outline of the Problem-Project Method, English Journal, 601-602.)

The teacher's work is a complex project. The good teacher in a significant degree "is not born but is made." Native ability must be present, but the social viewpoint requires a long period of careful training, while the problem of proper adaptation of material to each child is ever present. After a student teacher has undergone a certain amount of training, her project becomes greatly intensified when she takes charge of a group of pupils. She continues to make a study of herself, of the children, of society in general, and of materials, but a larger responsibility has been given her. As long as she is a teacher, her project-complex is never solved, but situations demanding the best reactions of which she is capable constantly are arising. The capable, energetic person, stirred by an aspiration to serve others, will find a large field of opportunity in teaching.

REFERENCES

Chapter Two. Evolution of the Project as an Educational Concept.

1. Bobbitt, Franklin. The Curriculum, 30-33. (Houghton Mifflin Co., '18.)
2. Charters, W. W. The Project in Home Economics Teaching. Journal of Home Economics, X, 114-119, March, '18.
3. Dennis, S. H. The Home Project in Secondary School Agriculture, National Educational Association, 1916, 622-626.
4. Holfe, D. Giving the Project Method a Trial. School Science and Mathematics, XVI, 763-767, Dec., '16.
5. Higgins, Henry. Carrying the School Into the Home. The House Beautiful, XLI, 310-312, April, '17.
6. Kilpatrick, William H. The Project Method. Teachers' College Record, XIX, 319-325, Sept., '18.
7. Randall, J. A. Project Teaching. National Educational Association, 1915, pp. 1009-1012.
8. Snedden, David. The Project as a Teaching Unit. School and Society, IV, 419-423, Sept. 16, '16.
9. Stimson, N. W. Massachusetts Home Project Plan of Vocational Agricultural Education, United States Bureau of Education Bulletin, No. 8, Whole Series No. 579, '14.
10. Woodhull, John F. The Project Method in the Teach-

ing of Science. School and Society, VIII, 41-44, July 13, '18.

Chapter Three. The Relation of the Project Method to Instincts.

1. Betts, George Herbert. Social Principles of Education, 192-231. (Charles Scribner's Sons, '13.)
2. Colvin, S. S. & Bagley, W. C. Human Behavior, 106-189. (Macmillan Co., '15.)
3. Gesell, Arnold, L. & B. C. The Normal Child and Primary Education, 29-125. (Ginn & Co., '12.)
4. Halleck, Reuben P. The Education of the Central Nervous System, 1-171. (Macmillan Co., '06.)
5. Herrick, C. Judson. An Introduction to Neurology. (W. B. Saunders Co., '18.)
6. Holmes, S. J. Studies in Animal Behavior. (Richard G. Badger, '16.)
7. Kirkpatrick, Edwin A. Genetic Psychology, 16-169. (Macmillan Co., '11.)
8. Miller, I. E. Education for the Needs of Life, 1-48. (Macmillan Co., '18.)
9. Minot, C. S. Problem of Consciousness in Its Biological Aspects. Science, XVI, 1-12.
10. Morgan, C. Lloyd. Instinct and Experience, 28-54. (Macmillan Co., '12.)
11. Rusk, Robert R. Introduction to Experimental Education, 24-38. (Longmans Green & Co., '15.)
12. Smith, E. M. The Investigation of Mind in Animals. (Cambridge at the University Press, '15.)
13. Strayer, George D., and Norsworthy, Naomi. How to Teach, 13-34. (Macmillan Co., '17.)
14. Thorndike, Edward L. Animal Intelligence, 172-240, 282-294. (Macmillan Co., '11.)

15. Wilson, H. B. & G. M. The Motivation of School Work, 43-57. (Houghton Mifflin Co., '16.)

Chapter Four. The Social Basis for the Project Method.

1. Baldwin, James M. The Individual and Society, 118-145. (Richard G. Badger, '11.)
2. Bloomfield, Meyer. Youth, School, and Vocation, 1-9. (Houghton Mifflin Co., '15.)
3. Burch, Henry Reed, & Patterson, S. Howard. American Social Problems, 333-353. (Macmillan Co., '18.)
4. Dealey, James Quayle. The Family in Its Sociological Aspects, 1-47. (Houghton Mifflin Co., '12.)
5. Dewey, John and Dewey, Evelyn. Schools of To-morrow, 164-229. (E. P. Dutton & Co.)
6. Dewey, John. Democracy and Education, 12-28. (Macmillan Co., '16.)
7. Ellwood, Charles A. Reconstruction of Education upon a Social Basis. Educational Review, LVII, 110-120, Feb., '19.
8. Ellwood, Charles A. An Introduction to Social Psychology, 25-51, 188-224, 224-245. (D. Appleton & Co., '17.)
9. Freeman, Frank N. How Children Learn, 95-112. (Houghton Mifflin Co., '17.)
10. Hart, Joseph K. Democracy in Education, 336-347. (Century Co., '18.)
11. King, Irving. Education for Social Efficiency, 1-11. (D. Appleton & Co., '13.)
12. Kirkpatrick, Edwin A. Fundamentals of Sociology, 92-101. (Houghton Mifflin Co., '15.)
13. Robbins, Charles L. The School as a Social Institution, 59-99. (Allyn & Bacon, '18.)

14. Rowe, Henry K. Society, Its Origin and Development, 91-169. (Charles Scribner's Sons, '16.)
15. Todd, Arthur James. Theories of Social Progress, 3-83, 505-535. (Macmillan Co., '18.)
16. Ward, Edward J. The Social Center. (D. Appleton & Co., '15.)
17. Woodley, O. I. & M. V. The Profession of Teaching, 84-102 (Houghton Mifflin Co., '17.)

Chapter Five. The Significance of Motivation.

1. Bagley, William Chandler. School Discipline, 238-252. (Macmillan Co., 1914.)
2. Charters, W. W. Teaching the Common Branches, 328-334. (Houghton Mifflin Co.)
3. Charters, W. W. Methods of Teaching, 100-127, 145-153, 194-213. (Rowe, Peterson & Co., '09.)
4. Dewey, John. Democracy and Education, 146-163. (Macmillan Co., '16.)
5. Freeman, Franklin N. How Children Learn, 240-260. (Houghton Mifflin Co., '17.)
6. Horne, Herman Harrell. The Philosophy of Education, 169-257. (Macmillan Co., '07.)
7. Marot, Helen. The Creative Impulse in Industry, 1-29. (E. P. Dutton & Co., '18.)
8. Maxwell, C. R. The Observation of Teaching, 73-78. (Houghton Mifflin Co., '17.)
9. McMurry, Charles A. Elements of General Method, 94-162. (Macmillan Co., '03.)
10. Pearson, Frances B. The Vitalized School. (Macmillan Co., '14.)
11. Putnam, James J. Human Motives. (Little, Brown & Co., '17.)

12. Rowe, Stuart H. Habit Formation, 120-59. (Longmans Green & Co., '10.)
13. Wilson, H. B. & G. M. The Motivation of School Work, 3-57. (Houghton Mifflin Co., '16.)

Chapter Six. Teaching by Projects.

1. Betts, George Herbert. Social Principles of Education, 95-133. (Charles Scribner's Sons, '13.)
2. Charters, W. W. Teaching the Common Branches, 335-345. (Houghton Mifflin Co.)
3. Davis, Jesse B. Vocational and Moral Guidance, 62-75. (Ginn & Co., '14.)
4. Emerson, Mabel I. The Evolution of the Educational Ideal, 154-165. (Houghton Mifflin Co., '14.)
5. Gowin, Enoch B. Occupations, 301-349. (Ginn & Co., '16.)
6. Johnson, George E. Education Through Recreation. (Survey Committee of Cleveland Foundation, Cleveland, '16.)
7. Maxwell, C. R. The Observation of Teaching, 84-91. (Houghton Mifflin Co., '17.)
8. Wilson, H. B. & G. M. The Motivation of School Work, 220-241 (Houghton Mifflin Co., '16.)

Chapter Eight. The Project-Question.

1. Alderman, L. R. School Credit for Home Work. (Houghton Mifflin Co., '15.)
2. Charters, W. W. Methods of Teaching, 296-313. (Row, Peterson & Co.)
3. Colvin, S. S. An Introduction to High School Teaching, 310-334. (Macmillan Co., '17.)

4. De Garmo, C. Interest in Education, 179-204. (Macmillan Co., '02.)
5. Dewey, John. Democracy and Education, 163-193. (Macmillan Co., '16.)
6. Earhart, Lida B. Teaching Children to Study. (Houghton Mifflin Co., '09.)
7. Earhart, Lida B. Types of Teaching. (Houghton Mifflin Co., '15.)
8. Hall, John W. & Alice C. The Question as a Factor in Teaching. (Houghton Mifflin Co., '16.)
9. Maxwell, C. R. The Observation of Teaching, 91-102. (Houghton Mifflin Co., '17.)
10. McMurry, F. M. How to Study. (Houghton Mifflin Co., '09.)
11. Moore, E. C. What is Education? (Ginn & Co., '15.)
12. Parker, Samuel Chester. Methods of Teaching in High Schools, 465-475. (Ginn & Co., '15.)
13. Stevens, Romiett. The Question as a Measure of Efficiency in Instruction. (Teachers College, '12.)
14. Strayer, G. D. The Teaching Process, 114-128. (Macmillan Co., '11.)

Chapter Ten. The Project-Problem.

1. Branom, Mendel E. The Value of the Project-Problem Method in Elementary Education. Elementary School Journal, XVIII, 618-622, April, '18.
2. Charters, W. W. Methods of Teaching, 153-170. (Row, Peterson & Co.)
3. Clark, A. Bess. An Experiment in Problem Teaching, VI, 535-38, Oct., '17.
4. Freeman, Frank N. How Children Learn, 212-240. (Houghton Mifflin Co., '17.)

5. Fritz, Julia A. How a Project was Worked Out in a 1B Room. Kindergarten and First Grade, 20-21, Jan., '19.
6. Henry, T. S. The Problem Method in Teaching. School and Home Education, XXXVI, 162-168, Feb., '17.
7. Hosick, Prof. An Outline of the Problem Project Method. The English Journal, Nov., '18.
8. King, Irving. Social Aspects of Education, 357-398. (Macmillan Co., '12.)
9. Lull, Herbert G. Problem Method of Instruction and Its Probable Correlations in Library Service and Administration. Nat. Ed. Ass., 1917, 562-572.
10. Mayberry, L. W. Individualizing Problems for Pupils, Elem. School Teacher, XVIII, 133-137, Oct., '17.
11. McIntyre, Helen I. Giving a Purpose to Students of High-School English, English Journal, V, 538-541.
12. O'Neil, W. Jarold. The Problem Idea in the Teaching of History. Normal Instructor and Primary Plans, XXVI, 50-68, March, '17.
13. O'Shea, M. V. Everyday Problems in Teaching, 104-165. (Bobbs-Merrill Co., '12.)
14. Parker, Samuel Chester. Methods of teaching in High Schools, 169-232. (Ginn & Co., '15.)
15. Whitney, William T. The Socialized Recitation. (A. S. Barnes Co., '15.)
16. Wilson, H. B. & G. M. The Motivation of School Work, 127-132, 138-140, 163-179. (Houghton Mifflin Co., '16.)

Chapter Eleven. Manual Projects.

1. Abbott, Lyman. The New Education, Making Farmers. Outlook, 116, 473-5, J1 25, '17.

2. Blackburn, Samuel A. Boy Activity Projects. (Manual Arts Press, '18.)
3. Dopp, Katherine, E. The Place of Industries in Ele mentary Education, 60-97. (University of Chicago Press, '02.)
4. Freeman, Frank N. How Children Learn, 127-157. Houghton Mifflin Co., '17.)
5. Funkhouser, E. A. Projects in Farm Mechanics. (John Tarleton Agricultural College, Stephenville, Texas.)
6. Giese, W. Agriculture Correlated with Manual Training. Industrial Arts Mag., VI, 477-9, D '17.
7. Groszmann, Maximilian P. E. Some Fundamental Verities in Education, 19-50. (Richard G. Badger, '11.)
8. Home Project Work in Vocational Home Economics in Secondary Schools, Journal of Home Economics X, 358-362, Ag., '18.
9. Home Project as a Phase of Vocational Education, Bulletin No. 21. (Federal Board for Vocational Education.)
10. Jackson, L. L. Project Sinning and Sinned Against. Industrial Arts Mag., VII, 138-9, Ap., '18.
11. Lane, C. H. Aims and Methods of Project Work in Secondary Agriculture. School Science and Mathematics, XVII, 805-10, D., '17.
12. Moore, J. C. Progressive Project Science. School Science and Mathematics, XVI, 686-690, M., '16.
13. O'Shea, M. V. Everyday Problems in Teaching, 166-235. (Bobbs-Merrill Co., '12.)
14. Stimson, N. W. The Massachussetts Home Project Plan of Vocational Agricultural Education, Supt. of Documents, Bull. 579, '14.
15. Twiss, Geo. R. Principles of Science Teaching. (Macmillan Co., '17.)

16. Wilson, H. B. & G. M. The Motivation of School Work, 185-220. (Houghton Mifflin Co., '16.)

Chapter Thirteen. The Project Method in History.

1. Branom, M. E. The Project Problem Method in the Teaching of the History of Missouri. Mo. School Jour., XXXV, Feb., '18.
2. Brown, H. G. Dramatization in History Teaching. Elem. School Teacher, XIII, 425-433.
3. Charters, W. W. Teaching the Common Branches, 241-265. (Houghton Mifflin Co., '13.)
4. Freeman, Frank Nugent. The Psychology of the Common Branches, 133-161. Houghton Mifflin Co., '16.)
5. Hinsdale, B. A. How to Study and Teach History, 18-27, 53-67, 67-75, 101-110. (D. Appleton & Co., '02.)
6. Jaeger, Dr. Oskar. The Teaching of History, 1-14. (A. C. McClurg & Co., '15.)
7. Johnson, Henry. Teaching of History, 28-84, 202-225. (Macmillan Co., '16.)
8. Mace, William H. Method in History, 1-21, 27-42, 255-269, 269-309. (Ginn & Co., 1897.)
9. Robinson, James Harvey. The New History, 1-26, 236-266. (Macmillan Co., '12.)
10. Wayland, John W. How to Teach American History, 10-17, 32-45, 152-161. (Macmillan Co., '08.)
11. McMurry, Charles A. Special Method in History, 1-34. (Macmillan Co., '08.)
12. Wilson, H. B. & G. M. The Motivation of School Work, 101-133 (Houghton Mifflin Co., '16.)

Chapter Fourteen. The Project Method in Geography.

1. Branom, M. E. The Project-Problem Method in Geography. Journ. of Geogr., XVI, 333-8, May, '18.

2. Chamberlain, J. F. Geography in the Life of the Pupil. Nat. Ed. Ass., 1907, 497-504.
3. Charters, W. W. Teaching the Common Branches, 216-240. (Houghton Mifflin Co., '13.)
4. Dodge, R. E. & Kirchwey, C. B. The Teaching of Geography in Elementary Schools, 1-60, 193-217. (Rand McNally & Co., '13.)
5. Freeman, Frank Nugent. The Psychology of the Common Branches, 132-161. (Houghton Mifflin Co., '16.)
6. Holtz, Frederick L. Principles and Methods of the Teaching of Geography, 1-20, 30-60. (Macmillan Co., '14.)
7. Kendall, Calvin N. & Mirick, George A. How to Teach the Fundamental Subjects, 224-252. (Houghton Mifflin Co., '15.)
8. Stockton, J. L. Principle of Revision of a Course of Study Applied to Geography, Elem. Sch. Teacher, XIII, 219-223.
9. Sutherland, Wm. J. The Teaching of Geography, 17-27, 80-95, 137-160. (Scott Foresman & Co.)
10. Wilson, H. B. & G. M. The Motivation of School Work, 133-158. (Houghton Mifflin Co., '16.)

Chapter Fifteen. The Reorganization of the Course of Study.

1. Barnett, P. A. Common Sense in Education, 94-114. (Longmans Green & Co., '02.)
2. Bobbitt, Franklin. What the Schools Teach and Might Teach. (Cleveland Education Survey, '15.)
3. Bobbitt, Franklin. The Curriculum, 41-55, 177-199. (Houghton Mifflin Co., '18.)

4. Betts, George Herbert. Social Principles of Education, 231-291. (Charles Scribner's Sons, '13.)
5. Cubberley, Ellwood P. Changing Conceptions of Education. (Houghton Mifflin Co., '09.)
6. Davis, Jesse B. Vocational and Moral Guidance, 112-119. (D. Appleton & Co., '16.)
7. Dewey, John & Dewey, Evelyn. Schools of To-morrow, 60-103. (E. P. Dutton & Co., '15.)
8. Dewey, John. Democracy and Education, 212-243, 271-291. (Macmillan Co., '16.)
9. Earhart, Lida B. Types of Teaching, 1-16. (Houghton Mifflin Co., '15.)
10. Gilbert, C. B. What Children Study and Why, 1-13, 247-291. (Silver, Burdett & Co., '13.)
11. Hollingworth, H. L. Vocational Psychology, 174-208. (Macmillan Co., '16.)
12. King, Irving. Education for Social Efficiency. (D. Appleton & Co., '13.)
13. Marot, Helen. The Creative Impulse in Industry, 108-146. (E. P. Dutton & Co., '18.)
14. Miller, I. E. Education for the Needs of Life, 155-199 (Macmillan Co., '18.)
15. Rapeer, Louis W. Prospective Elementary Education, 552-71. (Charles Scribner's Sons, '17.)
16. Robbins, Charles L. The School as a Social Institution, 308-383. (Allyn & Bacon, '18.)
17. Rice, Dr. J. M. Scientific Management in Education, 37-53, 220-250. (Hinds, Noble & Eldredge, '13.)
18. Sleight, W. G. Educational Values and Methods, 194-256. (Clarendon Press, '15.)
19. Snedden, David. Problems of Educational Readjustment, 1-33. (Houghton Mifflin Co., '13.)

20. Yocum, A. Duncan. Culture, Discipline and Democracy, 179-191. (Christopher Sower Co., '13.)

Chapter Sixteen. The Preparation of the Teacher.

1. Bagley, William C. Craftsmanship in Teaching, 229-247. (Macmillan Co., '11.)
2. Barnett, P. A. Common Sense in Education, 289-310. (Longmans Green & Co., '02.)
3. Dutton, Samuel T. School Management, 16-49. (Charles Scribner's Sons, '04.)
4. Hyde, William DeWitt. The Teacher's Philosophy in and out of School. (Houghton Mifflin Co., '10.)
5. Ladd, G. T. The Teacher's Practical Philosophy, 267-331. (Funk & Wagnalls Co., '11.)
6. Maxwell, C. R. The Observation of Teaching, 33-44. (Houghton Mifflin Co., '17.)
7. Miller, I. E. Education for the Needs of Life, 296-347. (Macmillan Co., '18.)
8. Palmer, George H. The Ideal Teacher. (Houghton Mifflin Co., '10.)
9. Robbins, Charles L. The School as a Social Institution, 419-457. (Allyn & Bacon, '18.)
10. Rowe, Stuart L. Habit Formation, 1-10. (Longmans Green & Co., '11.)
11. Ruediger, William Carl. The Principles of Education, 1-20. (Houghton Mifflin Co., '10.)
12. Thorndike, Edward L. Education, 245-261. (Macmillan, '12.)

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