THE PROGRESSIVE DEVELOPMENT OF
ILLUSTRATIVE MANUAL ARTS
THROUGH THE ELEMENTARY
GRADES

by

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THE PROBLEM STATED

The problem of this thesis is to show how illustrative manual arts, used as a method of teaching the present accepted curriculum, may be made a means of obtaining certain educative values commonly recognized as desirable by educational authorities, and how it can be developed progressively in harmony with the advance in subject matter.

Posters, sandtables, and illustrative construction are already in use in the teaching of grade subjects but in many cases the value has not been fully recognized and no attempt has been made to organize this material into a progressive outline based upon a careful study of its educative values. To a large extent, each teacher, unaided by the experiences of others, has done the work as occasion suggested. Even under these conditions, illustrative handwork has proved its value. Illustrative handwork can be used to much greater advantage, however, when its value is fully recognized and when an organized outline for the different types of work is placed in the hands of the teachers.

Section I deals with the values of illustrative handwork. An effort is made in each case

(1) to show how a value may be obtained through illustrative handwork,

(2) to illustrate by means of a concrete example how the value may be obtained,

(3) to fortify the argument by means of quotations from recognized educational authorities.

Section II deals with practical projects in which illustrative manual arts may be used with advantage. Only suggestions of a general nature sufficient to show the development of the process are given. Since the method of procedure must change with the development of the children, suggestions are given for different grades, an effort being made to emphasize the progressive steps of development, and to point out the educative values inherent in the process.

SECTION I.

VALUES OF ILLUSTRATIVE MANUAL ARTS

Illustrative Manual Arts as a Medium of Expression.

The most important value of illustrative hand-work lies in its use as a medium of expression for ideas gained in the different subjects. The actual making of the objects, or pictures of the objects, read about or studied has the following values:

1. The expression of the ideas in concrete form helps to clarify them. Often ideas are not clear because some of the words used to convey them have little or no meaning to the person to whom they are to be conveyed. This is especially likely to happen in the case of small children who have had so little of the necessary experience to give words meaning. Such children must have this experience if they are to understand the meaning of words. The actual expressing of the ideas in concrete form helps give this needed experience, and thus helps to clarify ideas. This is one reason why illustrative manual arts is of so much importance in primary education.

Example: The children may be studying about a draw bridge but find difficulty in understanding how it works from the description given because they have never seen one. If, following the description step

by step, they construct a draw-bridge that will work, they can really "see how it is". The actual construction furnishes the needed experience which gives the meaning to the words and tends to clarify the ideas.

Authoritative References: "The primary aim of the teacher in an infants' school is not the acquisition of skill, but the clarifying and vitalizing of ideas. It is true that skill is incidentally acquired, but the important thing is that the child should make his ideas clear, vivid, and usable, by indulging his innate tendency to express them in a variety of media". - Ballard, Philip B., Handwork as an Educational Medium, 1915, page 178.

"Manual training is more valuable for beginners than book work, because a poverty of experience has not enriched the meanings of book symbols sufficiently to make them vital realities in the pupils' situation" - Coursault, Jesse H., The Learning Process, 1907, page 80.

"Too often to pupils, even in secondary schools, do many words of a book signify only certain sounds to be uttered or certain tensions of the vocal organs to be made; and when more than this, they often fall far short of giving the meanings valuable in the type of experience which the book is intended to condition." Same, page 84.

"A child may be able to pronounce words and

sentences, may even put in all the elocutionary twirls and twitches which the teacher demands, and yet have his higher hearing closed because there is no need that it should be used". - Scott, Colin A., Social Education 1908, page 212.

"All ideas, indeed, are but hypotheses, which must be tried out to be understood. Adults, with a wider range of remembered results in life, may not need to experiment so often in order to test the notions with which they are already familiar. It is frequently forgotten that children are without this experimental data, and that education is for the purpose of supplying this deficiency". - Same, page 213.

"Teaching is not a pouring-in process. Facts cannot be hypodermically injected. The teacher may think he has performed such an operation but he may rest assured that no matter what the fact means to him, its meaning to the pupil is determined by the facts which he already possesses, and by the relations which the new facts set up with what he already knows". - Charters, W.W., Methods of Teaching, 1909, page 92.

2. The act of expressing an idea in concrete form helps strengthen it. This is so not only because the idea is clarified, but also because this gives one more repetition. It is generally accepted that the often-er an idea is repeated, everything else being equal, the more likely it is to be remembered. If the idea is talked about, written about, and illustrated in some graphic way, it is more likely to be remembered than if it were only discussed and written about.

Example: If the children read a description of a Dutch house, they gain some idea of how it looks. If, then, they see a picture of it, their ideas become clearer and stronger. The discussion of the description and of the picture strengthens the idea still more. If in addition to reading the description, looking at the picture, and discussing it, they construct a miniature Dutch house, their impressions become still stronger.

Authoritative References: "Any fact thought of will call up that fact, the thought of which has accompanied or followed it or a part of it most frequently, most recently, in the most vivid experience and with the most resultant satisfaction, and which is most clearly connected with the general set of mind at the time".- Thorndike, Edward L., The Elements of Psychology, 1907, page 249.

3. Children naturally being active enjoy picture making and other forms of illustrative work. They like to express their ideas in concrete form. Since the work is done from this viewpoint, the aim is from within the pupils. When work is done because the teacher or society insists that it must be done, the aim is from without. Children have aims that may soon be realized while society's aims take years for realization. Children are not interested in something that may benefit them several years hence. They are interested in something for which they can see some immediate reason. They are interested in learning something they need in order to accomplish their purposes. When they feel a need for information, they go to the teacher and ask for it, or they hunt for it, instead of passively waiting for it to be given them at the teacher's convenience. Information obtained under these circumstances is in closer relation to the children's lives and therefore is more quickly assimilated and more deeply impressed than is information for which they feel no such need.

For Example: If the children are studying about the draw-bridge because they may need to know about it at some future date, the aim is im-

posed upon them from without. They must obtain the information to gain the good will of the teacher, to get a good grade, or to avoid punishment. On the other hand, if they are going to construct the bridge, they need the information at once to accomplish their purpose. They are anxious to have the information, and are ready to work for it. Thus, the aim is from within the pupils.

Authorative References: "What the pupil wants to do can, for the most part, be accomplished soon. The social phase seems remote to him. That which it requires can wait for a long while before it need be accomplished".- Charters, W. W., Methods of Teaching, 1909, page 14.

"Society's aim is for him an arbitrary imposition of aim from external sources, except in so far as it can be appreciated and assimilated by him". - Same, page 15.

"A child's thoughts are thoughts of doing; rarely are they thoughts of being." - Ballard, Philip Boswood, Handwork as an Educational Medium, 1915, page 97.

"An end which is the child's own carries him on to possess the means of its accomplishment. But when material is directly supplied in the form of a lesson to be learned as a lesson, the connecting links of need

and aim are conspicuous for their absence". - Dewey, John.,
The School and the Child, 1906, page 40.

"When we take the life of the child centered and organized in this way, we do not find that he is first of all a listening being; quite the contrary." - Dewey, John, The School and Society, 1900, page 53.

"The boy learns more surely when he realizes the point of learning; this is one of the most fundamental laws of life; it lies as the basis of almost every activity." - Bone, Woutrina A., The Service of the Hand in the School, 1913, page 4.

"The pupil will gain his reading and writing most effectively by using them in a vital way. They must not be set apart from his active life, but must be made the means of his gaining useful knowledge and recording it, and communicating with his friends. I see children as early as the sixth year strive with all their might to write well when they wish to send a letter to some friend. Then they will give attention to chirography and spelling. I see them digging out words, and seeking help from every source, when they wish to get at the story in some interesting book." O'Shea, M.V., -Dynamic Factors in Education, 1908, page 43.

"They [young children] are fortunately, unable to project themselves into the future to anticipate needs; hence, they do not undertake projects with remote ends." - Row, Robert Keable, The Educational Meaning of Manual Arts and Industries, 1909, page 150.

"One real problem, where calculation is applied to get at results that are desired by the pupils, is worth hundreds of this false, wasteful and artificial kind." - Scott, Colin A., Social Education, 1908, page 135.

"Children are more motor-minded than adults, in the sense that they have a more pressing need for the immediate motor realization of their ideas." Same, page 245.

"In cases where the natural social motive has been removed, the prescribed course of study and the ready-made teacher attempt to substitute some other motive. They say practically to the child, 'you must do this work because it will be useful to you in your adult life'. Unless the child is capable of reflecting on his coming duties as a father of a family and a citizen of the community, he does not get the full force of this counsel. In fact, he gets so little of it that no teacher would ever think of such a motive as self-sustaining. It is, after all, the here and now that gives fundamental and self-sustaining motives to the child." - Same, 249.

"Next, perhaps, to the evils of passive absorption and of competition for external standing come, perhaps, those which result from the eternal emphasis upon preparation for a remote future. I do not refer here to the waste of energy and vitality that accrues when children, who live so largely in the immediate present, are appealed to in the name of a dim and uncertain future which means, little or nothing to them. I have in mind rather the habitual procrastination that develops when the motive for work is future, not present; and the false standards of judgment that are created when work is estimated, not on the basis of present need and present responsibility, but by reference to an external result, like passing an examination, getting promoted, entering high school, getting into college, etc." - Dewey, John, Moral Principles in Education, 1909, page 25.

"Children proverbially live in the present; that is not only a fact not to be evaded, but it is an excellence. The future just as future lacks urgency and body." - Dewey, John, Democracy and Education, 1916, page 63.

"To talk about an educational aim when approximately each act of a pupil is dictated by the teacher, when the order in the sequence of his acts is that which comes

from the assignment of lessons and the giving of directions by another, is to talk nonsense." - Same, page 118.

"When information is purveyed in chunks simply as information to be retained for its own sake, it tends to stratify over vital experience. Entering as a factor into an act pursued for its own sake ---- it is informing."- Same, page 244.

4. The expression of the ideas concretely helps pupils to learn how to think. In working out their projects, they must plan and work them out without much help from the teacher; they are forced to do their own thinking to make them successful. When they have difficulty in obtaining the desired result, considerable thought is often required to surmount their difficulty.

For Example: If the children are trying to show how a water-wheel works, they must plan and make the wheel, using any information they may be able to obtain. Thinking is required in planning and making the wheel. Then, if the wheel will not work on first attempt, the children must find out why it will not work. They must see if they have misinterpreted any of the information obtained, have obtained the correct information, have obtained enough information, or if the mistake is in the workmanship. All of this may require considerable thought before the correct judgment is formed so the wheel may be made to work.

Authoritative References: "If the pupil is engaged in the construction of an object which he ardently desires to make, if he clearly has before him the goal he wishes to reach, and if he is allowed to devise his

own means for accomplishing that end, then there is little doubt that his whole mind is brought to bear upon the work. He is learning on the highest level. ----- Indeed all the higher processes of thought are involved in the pursuit. Reflective or logical thought is a necessity. ----- The pupil is, in fact, forming habits of two kinds, bodily habits and mental habits - habits of movement and habits of thought." - Ballard, Philip Boswood, Handwork as an Educational Medium, 1915, page 107.

"There must be a more or less clearly defined end in view in each piece of work undertaken. The process must involve thinking out a plan, and in the execution there will be difficulties to surmount." - Row, Robert Keable, The Educational Meaning of Manual Arts and Industries, 1909, page 136.

"Thought is developed in the activities of life through the process of realizing purposes, and derives its whole significance from the fact that it is an intermediary stage between obstructed or conflicting habits and successful harmonious action." - Coursault, Jesse H., The Learning Process, 1907, page 43.

"It is assumed that concrete illustration is an aid to clear thinking, first to the worker, in that he must think more definitely than is necessary for mere verbal expression, since he must literally 'give

shape to his thought'; and second, to the observer, in that the graphic nature of the illustration brings out relationships more vividly and conveys a greater sense of reality than is possible through printed descriptions only". - Dobbs, Ella V. Illustrative Handwork, 1917, page 8.

5. The making of concrete illustrations

emphasizes natural connections between various phases of subject matter and thus provides a natural basis for correlation. In working out concrete illustrations, different subjects are necessarily involved. Arithmetic is used in getting the desired size, proportions, etc; art is used in making the product as artistic as possible, in getting good spacing, color harmony, etc; English is used in discussing the illustration, in reading for necessary information, and in writing about it; history, geography, nature study, or other subjects, are used according to the idea to be illustrated.

For Example: In making a sand-table showing the landing of the Pilgrims, English and history are used in getting the required facts about the landing, geography in representing the landscape, arithmetic in getting good proportions between the different objects, as the people and the boats, and English in the discussions about it.

Authoritative References: "There is no line of demarkation within facts themselves which classifies them as belonging to science, history, or geography, respectively. The pigeon-hole classification which is so prevalent at present (fostered by introducing the pupil at the outset into a number of different text-books)

gives an utterly erroneous idea of the relations of studies to one another and to the intellectual whole to which all belong. In fact, these subjects have to do with the same ultimate reality, namely, the conscious experience of man".-

Dewey, John, Moral Principles in Education, 1909, page 32.

"Work of this sort [sand-table illustrations] is easily correlated with various phases of subject matter, particularly in history, geography, and literature." Dobbs, Ella V., Illustrative Handwork, 1917, page 59.

"The pupil in the elementary school can gain genuine mastery of number, for example, only by using it in a concrete manner, in the construction of his play-houses or other objects, in buying and selling, in weighing and measuring, and in all the ways necessitated in the carrying forward of the enterprises of daily life."- O'Shea, M. V., Dynamic Factors in Education, 1908, page 41.

"The pupil will gain his reading and writing and spelling most effectively by using them in a vital way. They must be made the means of his gaining useful knowledge and recording it, and communicating with his friends." - Same, page 43.

6. Resourcefulness and economy may be developed through this activity. In most of this work materials may be found going to waste in any home. Illustrative handwork teaches children to look for this material and to plan how it may be used. They soon learn to gather and put away any material not needed at the time but that might be needed in some future work.

For Example: Many excellent posters may be made by pasting pictures cut from old papers or magazines on stiff paper, or cardboard. After the children have made a few of these, they learn to cut out and put away any pictures that might be used on some future poster. If the picture desired cannot be found when needed, the children must make some other picture do, or make the needed pictures themselves. Thus, resourcefulness and economy may be developed.

Authoritative References: " There is a great wealth of material around us, if we look for it outside the educational supply stores". - Bone, Woutrina A., The Service of the Hand in the School, 1913, Introductory note.

"It is assumed that the necessity for giving tangible expression to ideas, combined with interest in making things which appeal to the worker as worth while, develops resourcefulness, both in the use of materials at hand and in the search for other materials. " Dobbs, Ella V., Illustrative Handwork, 1917, page 9.

"Various materials are turned to account and unexpected values are discovered in them which give to the worker an added feeling of power and not only encourage him to explore new fields in search of materials with which to perfect his project but also make him alert to discover the various uses to which materials may be put".-Same, page 10.

"The thing he wants to do, and needs to do at this stage, is to make a translation of the original wagon which he desires to understand. This requires some resourcefulness, some invention, some imagination. He must choose such material as he thinks will do, and he will naturally lighten his task by omitting the features which are not, in his expectation, quite essential."
Scott, Colin A., Social Education, 1908, page 249.

7. Since normal children are naturally active and are constantly busy about something when left to themselves, the use of this kind of work in the school-room helps make a closer connection between life in school, and life out of school . Previously, as soon as the children came into the school, they were supposed to sit with hands folded until the teacher should give them permission to move. They were supposed to stop using their hands to use their brains. We forgot that children learn to do by doing. When the children must express their ideas in concrete form, they cannot sit with hands folded, - they must use their hands. They must be active. Thus, the making of concrete illustrations makes the life in school more like the life outside of school, the chief difference being that the work in the school is directed activity.

Example: When the children are making a three-ply animal, they must use their hands in drawing a picture of the animal, in constructing the patterns, in sawing the parts from wood, in nailing them together, and in coloring the product. Such a process involves activity of both mind and body.

Authoritative References: "Study of mental life has made evident the fundamental worth of native tendencies to explore, to manipulate tools and materials,

to construct, to give expression to joyous emotion, etc. When exercises which are prompted by these instincts are a part of the regular school program, the whole pupil is engaged, the artificial gap between life in school and out is reduced, motives are afforded for attention to a large variety of materials and processes distinctly educative in effect, and cooperative associations which give information a social setting are provided". - Dewey, John, Democracy and Education, 1916, page 228.

"He had always been busy with his hands and his head, until he came to school; then for the first time in his life he was cut off from much material, and had to keep his hands, by which he learnt so much, quietly down below the bench." Bone, Wontrina A., The Service of the Hand in the School, 1913, page 2.

"The physical activity of the normal child is his most obvious characteristic". - Row, Robert Keable, The Educational Meaning of Manual Arts, 1909, page 45.

"The most prominent characteristic of little children is their restless activity and constant desire to be doing something."-Dobbs, Ella V., Illustrative Handwork, 1917, page 14.

"The child's thoughts are thoughts of doing; rarely are they thoughts of being."- Ballard, Philip Boswood, Handwork as an Educational Medium, 1915, page 97.

8. This work helps take the place of activities formally carried on in the home but later moved to the factory. Since people no longer make the cloth for clothes, prepare and make shoes, prepare flour for bread, or do a great many other things in the home that were done in the colonial home, children no longer obtain training in these processes in the home, and so do not appreciate these activities. They know little or nothing about them. While the placing of these activities in the school is not an adequate substitute for the full participation in the actual processes, they supply some experience and help give an insight into industrial processes, thus giving some appreciation for them.

For Example: Children of to-day know nothing of the process involved in the production of the cloth from which their clothes are made. A few posters made by them suggesting the different processes from the seed, or animal, to the finished product would give them a better appreciation of their clothes.

The actual working with the materials themselves will give even greater appreciation. The child may take the wool as it comes from the animal, or the raw cotton, card it, spin it, and weave it into cloth. He may do these things by the simplest processes at

first, see how much time is required, and then learn the methods of shortening the processes. After doing the work in the slow way, he will feel the need of shorter processes and so be ready to learn about them. In this way, he obtains some conception of how much work is involved in the production of cloth, and has a clearer idea and a better appreciation of the weaving industry.

Authoritative References: "The cause, in part, is the change in industrial conditions that have removed the necessity for the children's sharing in the responsibilities of the home life. So many things formerly produced in the home are now made in factories. In a city home there is scarcely anything for a boy to do, and much less than formerly for girls." - Row, Robert Keable, The Educational Meaning of Manual Arts and Industries, 1909, page 152.

"The farmstead in a primitive community is a place where innumerable activities are constantly going on. Each household is almost entirely self-supporting, supplying its own food, making its own clothing, solving its own problems of shelter, warmth and lighting. The children see these practical processes going on. They frequently take an active part in carrying them out. Thus are they brought into vital contact with the essentials of human society - with the experiences that

through countless ages moulded and educated the mind of man". Ballard, Philip Boswood, Handwork as an Educational Medium, 1915, page 132.

9. If the lesson the child has studied is full of words that have no meaning to him so that he has only memorized the lesson, an attempt to express the ideas contained therein will make this evident to both pupil and teacher. This knowledge that the lesson has meant little or nothing to the pupil allows him and the teacher to co-operate in obtaining the meaning.

For Example: To use the illustration of the draw-bridge - if the child is studying about this bridge, he may recite the lesson by using the words of the book without really understanding the bridge. But if he is to make that bridge, the ability to repeat the words of the book will be of little value to him unless he really understands them. He realizes he must know the meaning of these words before he can accomplish his purpose.

Authoritative References: "Handwork is self-revealing - (a) To the worker. (b) To the Spectator."
 Bone, Woutrina A., The Service of the Hand in the School, 1913, page 8.

"The worker's strength and weakness are seen. Idea is made manifest in work, and we may also read character through looking over the models. Directly you 'set a child doing, you individualize'. From the teacher's point of view it is valuable, from the child's also. He tests

himself. He sees that he is untidy, thoughtless, careless".- Same, page 9.

" A selection of literature may be studied thoroughly or in the most superficial way, and the teacher may not discover the difference. Very young children learn the arts of shirking and simulating, and older students become experts in these arts." - Row, Robert Keable, The Educational Meaning of Manual Arts, 1909, page 153.

10. Since there are many people who find it easier to do a thing than to explain the process, illustrative manual arts give them a chance to express themselves more comfortably and successfully. It frequently happens that after having made the illustration it is easier for the motor-minded child to find words to describe and explain his illustration. Previously, the pupil who could not recite well, even though he were capable with his hands, was not considered as good a student and therefore, as valuable a member of society as the one who could recite glibly. This pupil was given the impression that what he could do was comparatively of little value and that the future held little for him. Instead of being encouraged to try to do better, he came to the conclusion that there was no use trying, and so gave up and dropped out of school at the earliest possible date.

Where the illustrative method of teaching is used, such a child has an opportunity of occasionally showing what he can do. Instead of always doing the poorest work of the class, he may sometimes do the best work. Instead of forming the discouraging impression that he is unable to do as well as his class-mates, he is encouraged, is given a feeling, "I can," and so is in a better frame of mind for doing all of his school work. This makes him more ready to stay in school.

Example: In a certain primary school, there was a large boy who was poor in his class work, and consequently was rather pitied by his classmates. The class was given an opportunity of constructing a play-house. This boy came to the teacher and said he knew a good way to make the roof. The teacher told him he might have that as his job, though it was the hardest part of the project. The boy was delighted and constructed a roof of which he and the rest of the class were very proud. This achievement of his won the respect of his classmates and gave him a feeling of respect for himself.

Authoritative References: "Handwork promotes a fine readjustment among the class members, it gives the boy who may be slow and possibly stupid in the more formal activities a chance to rise to a higher level; he has the opportunity of establishing a better record in the practical handwork time, and this reacts most certainly in his general attitude towards his fellows." - Bone, Woutrina A., The Service of the Hand in the School, 1913, page 9.

" In a large proportion of schools a pupil's progress is measured only by what he can say with his tongue or pen, utterly disregarding what he might tell with his hands. ---- There is likely to be a third pupil who finds himself at a loss in using words, either oral or written, but who can 'show you how it was' if given an opportunity to handle tangible material." - Dobbs, Ella V.,

Illustrative Handwork, 1917, page 6.

"It is a good thing for such a pupil sometimes to feel a thrill of pride in having surpassed his classmates instead of always being outstripped by them. Such an experience sometimes helps overcome obstacles in the way of his success in other forms of expression. His interest in the thing he has made overcomes his diffidence, and he tells easily how the work was done and what it implies." - Same, page 7.

"Among the most obvious results of the introduction of manual arts and domestic science into the schools is the fact that many more pupils continue in a school a much longer time than before these lines of work were introduced." Row, Robert Keable, The Educational Meaning of Manual Arts and Industries, 1909, page 133.

MANUAL ARTS AS A MEANS OF IMPRESSION.

Illustrative manual arts is of importance as a means of impression for new subject matter both on the one who makes the illustration and on the observer of the illustration.

1. The search for the subject matter to fulfill a need, and the actual use of the material found for that purpose, helps impress the ideas involved upon the one who does the work so that he is not so likely to forget it as he is to forget information obtained because it may be of use sometime in the distant future. Thus, illustrative manual arts is of value in impressing new subject matter upon the maker.

For Example: If a child learns how a Mexican is dressed because he is going to use that figure in a balancing toy, the Mexican's dress is much more deeply impressed upon the child, and he is much more likely to remember it, than if he studies about it just because that is what comes next in the book.

Authoritative References: 1. "Through illustrations of various sorts, an idea which has its source in the book subject is made clearer or more deeply impressed through the making of an illustra-

tion." - Dobbs, Ella V. and Zeitz, Juliaetta, Handwork in Grades One to Six, 1916, page 6.

"Illustrative handwork has a place not only as a means of expression but also as a means of impression. Often a rough model, a quickly constructed sandtable project, or a striking poster will convey more at a glance and make a more lasting impression than can be gained from pages of reading or lengthy verbal descriptions." Same, page 5.

2. The process of making concrete illustrations adds muscular experience to the worker. This muscular activity gives one more sense through which the material is obtained by the pupil, thus helping impress this material more deeply upon him.

For Example: If the child reads about bears, sees pictures of them, talks about them, and then cuts them freehand from the mental picture, the size, shape, coloring, etc., of the bear will be more deeply impressed on the pupil than if he only reads and talks about them, and sees pictures of them.

Authoritative References: "When the project in hand is an illustration for a geography lesson, its chief purpose is to teach the geography lesson in the most efficient and effective manner. It is desired only to make certain facts and conditions stand out boldly in the pupils' minds and to deepen the impression by adding muscular sensations to those received through eye and ear." Dobbs, Ella V. and Zeitz, Julietta, Handwork in Grades One to Six, 1916, page 7.

3. Also, the struggle to get a desired effect on an illustration impresses the material involved on the worker. The fact that thinking must be done, and judgments must be formed before the illustration may be satisfactorily completed, causes the pupil to concentrate more on the material, which helps impress it upon him.

Example: When the child is trying to cut bears freehand from the mental picture, he must think how bears look. When the cutting has been made, he must compare his cutting with his mental picture, forming judgments as to wherein his cutting is similar to, or different from, his mental picture of the bear. Later on, he may need to compare his cutting with a picture of a bear, and form judgments of wherein his cutting is similar to, or different from, the picture, and of what he needs to do to improve his cutting of the bear. By the time he has cut a satisfactory bear, the material concerning the bear that he has made use of in his cutting will be more deeply impressed on him.

4. A clear, graphic illustration impresses the idea contained therein much more deeply on the observer than does a lengthy description about it. For this reason, the illustrations made by a pupil, or a group of pupils, are of value in helping to impress on the whole class the subject matter thus illustrated. These illustrations are of greater interest to the observer because they are made by his classmates.

Example: If a child makes a good poster of cut-out pictures showing the ill effects of the neglect of the teeth, the class as a whole will probably be more deeply impressed by it, and remember the effects much better than they will if they just hear about the ill effects. The constantly increasing use of graphic illustrations as a means of impression by advertisers is in recognition of this fact.

ILLUSTRATIVE MANUAL ARTS AS A SOCIAL MEDIUM.

1. Illustrative manual arts is important as a social medium. Since people live together, work to-gether, help one another in adult life, children need to be trained to do this to the best advantage. Dr. Dewey, in School and Society says, "The only way to prepare for social life is to engage in social life." In illustrative handwork, the children engage in social life. They work to-gether for a common good; they see the advantages of co-operation, of division of labor; they learn how to "give and take".

Example: A group of children may have the problem of illustrating a Dutch scene on the sandtable. In doing this, they may divide the work among themselves, some preparing the table, some making the Dutch people, some making the houses, and so on, all contributing something to the table. In preparing the scene, there will probably be different ideas about parts of it which will be decided in favor of the one who is able to convince the other members of the group that his idea is the best. The ones whose plans are not accepted must learn to give in to the majority for the good of the group.

Authoritative References: "The school is, above all, an embryonic community which, although simpler

and more generalized, forms the key to the adult community of citizens into which it is to grow. Municipalization and other social aims must be partly worked out in the schools before they can reach any great ethical depth in the community as a whole. To prevent the full realization of the coöperative spirit of the social embryo is to malform and degenerate that which should result from it." Scott, Colin A., Social Education, 1908, page 241.

"To increase the practical understanding of such coöperative work is one of the best services of social education to the adult community as well as to the young, and as it permeates the whole of society, it will slowly mitigate the present crude and tyrannical practice, where too much work is done without joy, without honor, and without responsibility." - Same, page 243.

"They (children of the lower grades) would naturally undertake, if their motives were recognized, to combine with each other and divide their labor, in order to enjoy a larger and more complicated production. When this is done a transition is made from the imagined society of the single player to a real society of his fellows, and this reacts both on his idea and on his expression of it. He must fit in his idea and its expression to the conceptions of others." - Same, page 263.

"Upon the ethical side, the tragic weakness of the present school is that it endeavors to prepare future members of the social order in a medium in which the conditions of the social spirit are eminently wanting." - Dewey, John, The School and Society, 1900, page 28.

"The great thing to keep in mind, then, regarding the introduction into the school of various forms of active occupation, is that through them the entire spirit of the school is renewed. It has a chance to affiliate itself with life, to become the child's habitat, where he learns through directed living; instead of being only a place to learn lessons having an abstract and remote reference to some possible living to be done in the future. It gets to be a minature community, an embryonic society." - Same, page 31.

"The child is one, and he must either live his social life as an integral unified being, or suffer loss and create friction." - Dewey, John, Moral Principles in Education, 1909, page 8.

"Such occupational work in the school enables him to combine freely with his schoolmates in carrying out a scheme which would be difficult to perform by himself, and thus presses upon his notice the advantages of coöperation and the conditions of 'give and take' under which coöperative work can be effectively carried out". - Ballard, Philip Boswood, Handwork as an Educational Medium, 1915, page 134.

2. In a democratic society, the people need to be able to direct themselves, to know what they are doing and why they are doing it. Dr. Dewey, in School and Society says, "Our social problem now, even more urgent than in the time of Plato, is that method, purpose, and understanding shall exist in the consciousness of the one who does the work, that his activities shall have meaning to himself." Illustrative manual arts may help to give this needed understanding. Many materials are worked with and studied, the children learning their uses and their limitations. The use of these materials may give a motive for studying them, tracing their development, seeing why they have developed in a particular way. This study leads back to the industries, the activities in which society is engaged. Many phases in the development of the industries may be illustrated by the children. Or, the phases in the production of the material as it is now carried on may be illustrated. This gives a clearer idea of the activity than is possible in mere reading or discussion and gives a broader horizon to the future worker in the field studied. Later, if these children enter any of these industries, they should have clearer conceptions of what they are doing and why, or have enough interest in it to investigate.

This broader knowledge of various industries serves as an aid in vocational guidance by presenting

graphically many activities and by arousing interest in relation to the capacity and natural tendencies of the pupil.

Authoritative References: "To put the whole workman into the work always leads to the most productive ends. To increase the practical understanding of such coöperative work is one of the best services of social education to the adult community as well as to the young, and as it permeates the whole of society, it will slowly mitigate the present crude and tyrannical practice, where too much work is done without joy, without honor and without responsibility." -Scott, Colin A., Social Education, 1908, page 243.

"No one cares to construct just for the sake of constructing, although it is the curse of uneducated labor to be forced in large measure to do so. Material construction must be felt to be a part of the construction of life in order to give it human value." - Same, page 247.

"We find that this work [sewing and weaving] gives the point of departure from which the child can trace and follow the progress of mankind in history, getting an insight also into the materials used and the mechanical principles involved. In connection with these occupations, the historic development of man is recapitulated." - Dewey, John, School and Society, 1900, page 34.

"The world in which most of us live is a world in which everyone has a calling and occupation, something to do. Some are managers and others are subordinates. But the great thing for one as for the other is that each shall have had the education which enables him to see within his daily work all there is in it of large and human significance." - Same, page 38.

"The ethical responsibility of the school on the social side must be interpreted in the broadest and freest spirit; it is equivalent to that training of the child which will give him such possession of himself that he may take charge of himself; may not only adapt himself to the changes that are going on, but have power to shape and direct them." - Dewey, John, Moral Principles in Education, 1909, page 11.

"The world about us becomes more significant and rich with meaning if we have entered even a little way into the experience of a worker." - Bone, Woutrina A., The Service of the Hand in the School, 1913, page 17.

3. If the greatest advantage is to be gained from coöperative work, we must have leaders. It is important for each person to know what he is doing, but much effort will be wasted if there is no leader to direct the work as a whole. Without this leader, if the members of the group do not work in actual opposition to one another they will probably duplicate much of the work. Thus, a leader is needed for the sake of unity. Illustrative manual arts helps develop these leaders through group work. Since the children do the work themselves, the children must be the leaders. Group work naturally calls forth a leader. If one is not chosen especially for the purpose, the strong member of the group naturally assumes the role. This experience develops the qualities of leadership.

The stronger the group and the greater its capacities for leadership, the more determined its members will be to have their own way. Coöperative work on illustrative projects in which the group is thrown upon its own responsibility, furnishes a field for this struggle for mastery.

Example: In making a coöperative poster, a leader is essential. Without a leader of some sort, the poster would never be made. No one could decide what

should be done or how it should be done. The members of the group may be weak, all doubting their ability to lead, but someone or ones must take the initiative. Thus, if no member of the group is naturally a leader, one will necessarily develop.

Authoritative References: "The child must be educated for leadership as well as for obedience. He must have power of self-direction and power of directing others, power of administration, ability to assume positions of responsibility. The necessity for educating for leadership is as great on the industrial side as on the political side." Dewey, John, Moral Principles in Education, page 10.

ILLUSTRATIVE MANUAL ARTS AS A MEANS OF EMOTIONAL DEVELOPMENT

Illustrative manual art is of importance as a means of emotional development. The reality of experience gained through the use of the material studied allows the emotional side to come forward much more strongly than does the mere storing away of these facts without this experience. The following values may be obtained.

1. It is the object in an illustrative project to make intense, or drive home, one point so the child will not only know what is right but will do what is right. We need the emotional response that will make impossible the case of the small boy who wrote "I have gone" one hundred times on the black-board and then wrote underneath, "I have went home." The material needs to be made a part of the child so he will not only know what is correct but will act accordingly. The actual use of the material in interesting projects helps give this desired result and more satisfactorily than does mere studying without active concrete experience.

Example: If the child uses the information obtained about the locks at the Great Lakes to construct similar locks on the sandtable, this information becomes

a part of the child much more surely than if he makes no use of the information other than to store it away for future reference.

Authoritative References: "Mere intellectual knowledge of civics, customs of voting, etc., will never nourish the soul of youth, unless this knowledge is experimented with and proved to be a power in gaining results actually wished for by the pupils themselves. For this kind of experimenting there is no better opportunity than is afforded in manual training and industrial work. Here results are concrete and objective, even to the dullest mind." - Scott, Colin A., Social Education, 1909, page 241.

"The business of the educator - whether parent or teacher- is to see to it that the greatest possible number of ideas acquired by children and youth are acquired in such a vital way that they become moving ideas, motive-forces in the guidance of conduct." Dewey, John, Moral Principles in Education, 1909, page 2.

"We can imagine a person with most excellent judgment, who yet does not act upon his judgment. There must not only be force to insure effort in execution against obstacles, but there must also be a delicate personal responsiveness - there must be an emotional reaction. Indeed, good judgment is impossible without this susceptibility." - Same, page 52.

"By appreciation is meant both intellectual appreciation, which investigates the values in order to

get the perspective of things, and also that appreciation which may be described as 'emotional! It is not sufficient that pupils know the values of life; they should esteem them, prize them, love them as they do personal friends."- Charters, W. W., Methods of Teaching, 1909, page 18.

2. The working with different materials, learning their characteristics, and learning something about the industries of great importance to the race helps the child to know something about the work of others. Later, instead of knowing only about the industry in which he himself is engaged, he will have some idea of what his friends, neighbors, and acquaintances are doing. Thus, he has deeper sympathy and understanding for others.

Example: If children work with the different yarns, weaving them into cloth or rugs, they will have a better understanding of the weaving industry and so have deeper sympathy and understanding for the people engaged in that industry.

Authoritative References: "It is manifest that without a direct vital acquaintance with some of the more important of the industrial arts it is difficult for the pupil to realize their social importance, and to take a sympathetic interest in the pursuits of the bulk of his fellow-creatures." Ballard, Philip Boswood., Handwork as an Educational Medium, 1915, page 134.

This sympathy and understanding may also be developed through illustrations for literature. The effort to sketch the characters contained in such nursery rhymes as The Lion and the Mouse, or in such stories as

The Boy and the Wolf, or The Vision of Sir Launfal, brings the emotional element to the fore. The success or failure of the illustration depends on the illustrator's ability to put himself in the place of the one he is trying to illustrate. He must be able to feel the way he thinks the character he is trying to sketch feels. This means he must imagine himself in the same circumstance to see how he would feel. Thus, he should have a deeper sympathy and understanding for others.

TEACHER'S ATTITUDE.

The values mentioned above are only suggestions as to what may be obtained from illustrative manual arts. Whether or not these values are obtained depends very largely upon the teacher. The following is essential if the greatest value is to be derived from this work.

1. The teacher must know the values or much will be lost. The actual making of the illustrations will usually be of some value to the pupils whether the teacher knows these values or not. However, since there are many values that depend on the teacher's emphasis, much more should be accomplished if she knows them. She needs to know that art may be taught through a history poster, and that English may be taught through the building of the play-house. The fact that the poster is made gives no assurance that a better knowledge of art will result, nor is the fact that the house is built evidence that a better knowledge of English will result. Both of these things may very well be if the teacher places an emphasis on them, but they may easily be entirely lost if the teacher's interest is centered only in the tangible result, that is, the poster or house, instead of being centered in the child's development and what he is to gain through this work.

2. The teacher must think of the growth of the child rather than of an attractive product. If the

interest is placed on the finished product, the teacher may be tempted to give very definite directions for doing the work, or even do part of it, herself. Under these conditions, there is practically no self-expression on the part of the child and growth is hindered. He may learn to follow directions, but independence and self-direction are not developed.

Authoritative References: "In working out these schemes children are not usually in a position to have adults make models to help them definitely in the construction which they most wish to understand. They must, therefore, make their own." - Scott, Colin A. Social Education, 1908, page 248.

3. Not only is it essential that the teacher know the values, but she must know the best time for realizing them. Trying to realize them at the wrong time is almost as detrimental as not realizing them at all. The effort to teach arithmetic at the time the children's interest is centered on another phase of the work may kill the interest in the work. The children may come to feel they are just building the playhouse in order to study arithmetic. The teacher should know when the children are feeling a need for number and so are ready to be taught. When they feel the need for the control of number values, they are willing and anxious to be taught, even to interrupt the .

building for a definite lesson in arithmetic.

It is important that the teacher not only know how to meet the child's needs as they arise, but she should be able to guide the work in such a way that these vital needs for essential subject matter will grow naturally out of the project in hand. Illustrative handwork by its very nature offers the teacher a fertile field for developing this power.

4. The teacher must know the quality of work to insist upon. In most work that is of temporary character, it would be a waste of time and effort to insist upon a high degree of technical excellence. This insistence upon accuracy when the illustration does not call for it may in many cases cause the interest in the illustration to deteriorate so that, while a very excellent project from a technical point of view may result, the best illustration is not obtained. However, a distinction must be made between careless effort and poor technique. Careless work should not be accepted. But if the work is of sufficient interest to the pupils, they are not likely to do careless work.

Work of a permanent character, as booklets and play-houses, should be as good as the children can make them without much help from the teacher. Illustrative work allows opportunity for free expression and tests real technical knowledge since in free expression the

child draws upon all his resources.

Through free-expression the need for greater technical control becomes evident to both pupil and teacher. This suggests the processes to be emphasized. In the technical lesson the knowledge of technical processes is refined and organized. It is a serious and common mistake to attempt to accomplish both technical and expressional aims at one and the same time. This attempt on the part of the teacher will cause the pupil to become discouraged, or careless, and so will not obtain the best from either type of work.

Authoritative References: "Little children, when they first enter school, are unconscious of any need for skill and are therefore not ready for technical handwork. The desire for skill must be aroused through desire for a thing which requires skill." - Dobbs, Ella V., Illustrative Handwork, 1917, page 15.

"If these free representations are carried on extensively, situations begin to arise in which the pupils feel their lack of control over the tools and materials they use. They begin to wish they knew how to build a better house, or weave a better rug, or make a prettier curtain. They are then ready for suggestions and instruction of a technical sort. Representative problems, therefore, form a very proper preparation for,

and introduction to, technical handwork in various materials, in that they give to the pupil a first-hand experience with many materials and a few simple tools." - Same, page 18.

CHILDREN'S ATTITUDE .

The interest of the children should center in the project itself. If they are really to feel a need for the subject matter involved, they must do the work because they wish to do it, rather than because it is the assigned lesson or because through it they may learn something of value. This desire, if strong enough, will cause them to work hard to obtain any information that is necessary for the completion of the project, whether it is a fact in history, or a problem in arithmetic or physics. When this feeling of need is present, the children often discover and understand facts that are frequently considered too difficult for them. They put forth more effort and therefore gain more development than when their class work is of a more passive type.

For Example: When the children are making a play-house, they should make the play-house for the house itself and not for the knowledge of arithmetic or art that may result from the construction. When some information contained in one of these subjects is needed, the children are in the proper frame of mind for receiving it, and so are better able to remember it.

SECTION II.

Progressive Outlines for Projects in Various Types of Illustrative Manual Arts

In the following outlines, an attempt has been made to show how the projects in illustrative manual arts involve subject matter of increasing difficulty and method of a more complex character verging into technical processes as the work advances in the grades.

These outlines are also intended to show the steps in the processes involved in the different types of illustrative manual arts. Each step should be repeated many times until the children use the form of expression with ease.

It is the further purpose to show that in most projects in illustrative manual arts the child's first effort, after he has learned what is wanted, should be his own expression unaided by the teacher. When he has done his best, the class as a whole passes judgment upon his product, bringing out the good points, and giving suggestions for improvement. No destructive criticism should be given without some suggestion for improvement in order to avoid a discouraging effect upon the child. Following the suggestions from the class, the child should usually be given an opportunity to try again to see how he can improve his work. When he has reached the limit of his resources, the teacher may offer suggestions which will stimulate renewed effort.

PICTURE MAKING

Paper Cutting

Step 1.

Cutting of Familiar Objects - Brooms.

Problem of Teacher - To accustom the children to expressing their ideas through paper-cutting.

Problem of Pupil - To cut brooms.

Method of Procedure - While mother's duties in the home are being studied, the teacher may suggest that it would be fun to cut brooms. Since brooms are very familiar objects to most small people, the children cut them freehand from the mental picture, cutting until results are obtained which satisfy them. Each child selects his best cutting and places it with the other cuttings in front of the room. The best of the cuttings are pointed out by the class. The children may cut and criticise until they produce the best they are capable of unaided, that is, until they are unable to suggest further improvement, and the level of their appreciation and mental pictures has been reached. At this point, if it seems to be desirable, a broom or a picture of a broom may be shown them, and they may be allowed to cut again. The finished cuttings may be taken home.

Correlation - History is used in studying about the use of the broom. Art appears in the form of cuttings. Oral composition is used in the criticisms of the cuttings.

(Note) Whenever possible, the teacher should set the situation so that the pupil will suggest the activity. However, when the desired activity is something entirely new to the pupil, or when it involves a new point, it may be necessary for the teacher to make the suggestion.

Example- Paper cutting may be an entirely unknown process to the pupil, or he may come from a home in which paper cutting is regarded as a form of naughtiness. Under these conditions, the child is not likely to suggest this activity in the school room, and the first suggestion must, therefore, come from the teacher.

Step 2.

Cutting and Mounting of Familiar Figures.

Problem of Teacher - To show the children how to mount their cuttings to form pictures.

Problem of Pupil - To cut dogs.

Method of Procedure - The children cut dogs using the process outlined for the cutting of brooms. The final cuttings are placed in front of the room and the best is selected by the class. The teacher mounts the chosen cutting on paper in picture form so it may be preserved. After the teacher's demonstration, the children may mount the individual cuttings.

Correlation - History, nature study, and English are used in studying about dogs. Art appears in the form of cuttings and finished poster. Oral composition is used in the criticisms of the cuttings and the posters.

Step 3.

Cutting and Mounting of a Single Scene.

Problem of Teacher - 1. To help make clear the ideas contained in The Three Bears . 2. To show the pupils how to group cuttings to form a scene.

Problem of Pupil - To cut the figures described in The Three Bears.

Method of Procedure - After the children have cut objects and animals with which they are very familiar, thus becoming accustomed to expressing their ideas through cuttings, they are ready to illustrate single scenes of familiar stories.

After the story of The Three Bears has been read, all the children cut bears freehand from the mental picture, the method described in the first step being used to obtain good cuttings. When satisfactory bears are produced, other figures or objects of the story are cut, the same method being followed. The teacher may suggest it would be a good idea to choose the best cuttings and group them on a page, illustrating a scene of the story. If a child happens to group his cuttings in a picture form, the teacher may take advantage of that and call the attention of the class to it. If this

does not occur, she may group the pictures so as to show the children how to arrange them. With this help, the children group and mount their cuttings. The finished posters are criticised by the class, the best arranged posters being commented upon.

Correlation - Reading, Nature Study, and English are used in obtaining the necessary information for the cuttings. Art is used in shaping and arranging the cuttings. Oral composition is used in the discussions and criticisms of the cuttings and of the arrangement of the cuttings on the page.

Step 4.

Cutting and Mounting of a Series of Single Scenes.

Problem of Teacher - To clarify the ideas contained in Little Red Riding Hood by emphasizing the close connections between certain features of the story necessary to the organization of groups for a series of scenes.

Problem of Pupil - To illustrate a scene in Little Red Riding Hood.

Method of Procedure - Each child cuts the figures and objects contained in the scene he likes best, and mounts them on stiff paper in picture form. In this way, probably the whole story will be illustrated. The finished posters are placed in front of the room, the one best illustrating the scene being pointed out by the class. When possible, reasons for the choice should be given. After the criticism for clearness of illustration, criticisms may be made of the cuttings, the best being chosen first and constructive criticisms being given next.

If desired, the best posters of each scene may be chosen and grouped on the wall in order corresponding to the story.

Variation - Instead of each child cutting the scene he likes best, the class may choose a special

scene to illustrate, and have a class discussion of the objects and figures needed for that scene. Each child may cut and arrange the scene as well as he can without further help. The finished posters may then be placed in front of the room, the ones best illustrating the scene being pointed out first, and the best cuttings next. The other scenes of the story may be treated in the same way until each child has illustrated all the important scenes.

Correlation - Reading and English are used in studying about Little Red Riding Hood . Art appears in the form and arrangement of cuttings. Oral composition is used in the criticisms and discussions of the story and the illustrations.

Step 5.

Cutting and Mounting of a Series of Scenes.

Problem of Teacher - To help clarify the ideas contained in William Tell by emphasizing the relationship between incidents in the story, grouping them into scenes and arranging them in chronological order.

Problem of Pupil - To illustrate the story of William Tell.

Method of Procedure - After the children have learned to illustrate single scenes, they are ready to illustrate several scenes, showing a whole story.

To illustrate a story, as William Tell, the children decide upon the scenes needed, cut the figures and objects required in proportion to one another, and paste them on stiff paper, grouping the pictures according to scenes. The finished posters are placed in front of the class and criticised by the children, the posters most clearly telling the story being pointed out first with reasons for the choice, and any constructive criticisms, both for clearness of the illustrations and for the improvement of individual cuttings being given later.

Correlation - Reading and English are used in obtaining the necessary information for the cuttings. The organization of the story into scenes cor-

responds to the organization of paragraphs in written composition and helps to develop a sense of order in narrative. Art is used in making the cuttings and in arranging them in poster form. Oral composition is used in the criticisms and discussions. Number is used in the measurements for the cuttings and for the posters.

Step 6.

Coöperative posters.

Problem of Teacher- To help the children to a better understanding of Miles Standish by emphasizing the relationship between incidents in the story, grouping them into scenes and arranging them in chronological order.

Problem of Pupil - To coöperate in making an illustration for Miles Standish by means of paper cutting.

Method of Procedure - After the class has read Miles Standish, a group of children is appointed to make a poster to illustrate the story. The children of the group decide upon the work to be done, divide it among themselves, and do it unaided by the teacher. Especial attention is paid to the proportion of the cuttings. The cuttings are assembled into scenes and pasted on paper of the desired size. The finished poster is fastened on the wall and criticised constructively by the class.

Correlation - Reading and English are used in obtaining the necessary information for the illustration. Art is used in making the cuttings and in arranging them in poster form. Oral composition is used in the discussions of what is to be cut and who is to cut it, and in the criticisms and discussions of the finished poster. Arithmetic is used in obtaining the desired proportions. Social values are stressed in the give and take necessary to successful coöperation.

Colored Cuttings.

Landscapes.

Paper tearing is, also, a valuable means of expression, and may be used almost interchangeably with paper cutting. It may be used to better advantage than paper cutting in illustrating landscapes from colored paper, since the torn edges of the paper give better effects in landscapes than do the cut edges.

Problem of Teacher - To teach the children how to choose and combine colors in landscapes.

Problem of Pupil - To represent a landscape by means of cut or torn paper.

Method of procedure - Since in the landscapes, the effect produced is the important thing, the children may have a picture before them, an attempt being made to reproduce the picture. The children tear the needed parts of the landscape from paper of appropriate color. The parts are arranged and rearranged until the desired effect is secured, then pasted into place. The finished posters are placed in front of the room and criticised constructively by the class, attention being paid to the choice of colors, as well as to the shape and arrangement of the cuttings.

Correlation - History, geography, nature study, reading, or English may be used according to the landscape chosen for the illustration. Art appears in the form of cuttings, choice of colors, and arrangement of posters. Oral com-

position is used in the criticisms and discussions.

Stories that May Be Illustrated by Landscapes

Little Red Riding Hood -----Primary

Selections from Hiawatha -----Intermediate

The Lady of the Lake -----Advanced

Designs.

Paper cutting is valuable as a means of designing. The parts of the design may be cut from the desired color of paper and be pasted on a background of the desired color. This form of design may be used profitably throughout the grades.

1 As a Border for a Playhouse.

Problem of Teacher - To teach the essentials of a good design as applied to borders.

Problem of Pupil - To make borders for the playhouse.

Method of Procedure - A decision is made as to the motive to be used for the border, the size of the motive, and the color of the motive. All the children cut that motive from cheap paper, cutting until satisfactory results are obtained. The best is chosen for a pattern and the units are cut by it from paper of the chosen color, or from white paper and colored as desired with crayola or water-colors. The cuttings are placed on the background in the form of a border, moved about until a satisfactory arrangement is found, and are mounted. The finished border is criticised constructively by the class as to arrangement, size, and suitability.

Correlation - Nature study may be used in obtaining the motive and in observing its form. Art appears in the form of cuttings, selection of colors, and arrangement of the units. Oral composition is

used in the criticisms and discussions. Arithmetic is used in the measurements for the cuttings and for the poster.

2. As a Decoration for Books.

Problem of Teacher - To teach the essentials of a good design as applied to books.

Problem of Pupil - To make a design for a book.

Method of Procedure - The children cut units and fit them to-gether, cutting and arranging until a satisfactory design for the purpose is produced. Lines are drawn, or dots are placed, at the proper places on the book, and the units are pasted on. The finished articles are criticised constructively by the class.

Correlation - Art appears in the form of cuttings, choice of colors, and arrangement of the design. Oral composition is used in the criticisms and discussions. Arithmetic is used in the measurements for the units and for the placement of the units.

3. Still Life.

Colored cuttings may be used to make pictures of still life. Children throughout the grades may make these pictures, the small children making very simple pictures without shade or shadow, these being added as the children grow older and more skilled.

Problem of Teacher - To stimulate observation of nature through paper cutting.

Problem of Pupil - To make a picture of a spray of apple blossoms.

Method of Procedure - The children cut patterns from cheap paper in the shapes of the different parts of the spray of blossoms. The colored papers are cut by these patterns, are placed on the mount, are moved about until a satisfactory arrangement is found, and are pasted into place. The finished posters are criticised constructively by the class as to shapes and arrangement of cuttings, and as to the choice of colors.

Correlation - Nature study is used in observing the flower. Art appears in the form of cuttings, choice of colors, and arrangement of cuttings on the page. Oral composition is used in the criticisms and discussions of the finished pictures.

PICTURE MAKING

Crayon and Water-Color Sketches.

Crayon and water-color sketches offer a variation in form through which many of the values incident to paper cutting may be obtained.

BOOK MAKING.

Steps in Illustration.

1. Pictures only
2. Pictures with the name
3. Pictures with sentences
4. Pictures with paragraphs
5. Story with pictures

Steps in technique.

1. Leaves tied to-gether with a simple tie
2. Leaves overcasted to-gether
3. Leaves tied with the Japanese lace
4. Leaves tied into a stiff cover
5. Leaves sewed to-gether and bound in a stiff

cover.

The steps given under technique do not necessarily correspond with the steps given under the illustrative part, but both develop in about the given order.

BOOK MAKING

Step 1.

Leaves Tied Together With a Simple Tie.

Problem of Teacher - To help dignify the work and give it permanent value.

Problem of Pupil - To keep his work in good condition.

Method of Procedure - The children collect their posters, choose the ones to be made into one booklet, arrange the pictures in the desired order, print, using rubber stamps, the proper name under each picture if they have learned to print, and tie the posters between soft covers by means of a simple tie. The frontcover may be decorated by means of a mounted picture to show what is contained in the book.. The finished books are criticised by the class, the most artistic books being pointed out.

Variations - 1. If the children are learning to write sentences, descriptive sentences may be written under the pictures instead of the names being printed under them.

2. After the children have learned to cut block letters, the front cover may be decorated by means of a title formed from cut-out block letters colored with crayon or cut from colored paper. A single line border may be drawn with colored crayon to harmonize with the cover,

paper, cord, and the letters. When the single line border has been used long enough to establish a good idea of placing, a combination of lines may be used, or stick printing may be substituted.

Correlation - Art is used to obtain color harmony and good proportions. Arithmetic is used in measuring the paper and cord. Grammar is used in making sentences. Oral composition is used in the criticisms and discussions.

Step 2.

Leaves Tied Together in a Stiff Cover.

Problem of Teacher - To help the children clarify their ideas about irrigation.

Problem of Pupil - To write a paper on irrigation, and to make it into an illustrated booklet.

Method of Procedure - While the class is studying some problem, such as irrigation, the children may collect such information as they can from class, other people, and books, and incorporate it in a paper, illustrating points with freehand cuttings, cut-out pictures, crayola drawings, or water-color sketches. The finished paper may be placed in a stiff cover made of cardboard, binding cloth, and cover-paper, and laced in with Japanese lace. The cover design may include a title and a border of lines or spots and may be applied with water-color or crayon.

Correlation - Geography and history are used in obtaining the material for the paper. Art appears in the form of color harmony, proportion, and arrangement of pictures and in the cover design. Arithmetic is used in the measurements for the paper and cord. Oral composition is used in the criticisms and discussions. Written composition is used in writing the paper.

Step 3.

A Paper Bound into Book Form.

Problem of Teacher - To give a motive for the study of Our National Heroes .

Problem of Pupil - To write about Our National Heroes , and to bind the finished material in book form.

Method of Procedure - The children write papers about the heroes they know. These papers are written in the best form of which the children are capable and appropriate illustrations are provided. When this result has been attained, the papers are copied on sections of paper cut to uniform size. The sections are sewed to-gether and bound into a book. The cover may be finished with the title and a design made from a nature motive, applied by stencil or block print.

Correlation - History, English, and reading are used to obtain the necessary information for the paper. Arithmetic is used in the measurements for the book. Art is used in obtaining the proportions for the book, and in the design for the cover.

SANDTABLE ILLUSTRATIONS.

Step 1.

Sandtable Illustration, Using Paper Cuttings.

Subject - The Three Bears.

Problem of Teacher - To add realism to the story of The Three Bears and to accustom the children to use the sandtable as a medium of expression.

Problem of Pupil - To show the story of The Three Bears on the sandtable.

Method of Procedure - After the children have cut the figures contained in The Three Bears, instead of pasting them on stiff paper making posters of them, the best may be selected and be placed on the sandtable, making a sandtable representation of the story.

Correlation - Reading or story telling is used to find the desired information about The Three Bears. Art appears in the form of cuttings and finished sandtable. Oral composition is used in the discussions of the story and the illustration. Story telling is helped by the concrete illustration since the ideas are more vivid.

Step 2.

Sandtable Illustration Carried Out by Group.

Subject: The First Thanksgiving Day.

Problem of Teacher - To help clarify the children's ideas of the early days in America, by means of a sandtable illustration using variety of materials.

Problem of Pupil - To make a sandtable representation of The First Thanksgiving Day.

Method of Procedure - After a study of The First Thanksgiving Day has been made, a group of children may be appointed to show it on the sandtable. This group should be left alone to work out the illustration as the members of the group think it should be. The figures may be made from paper, modeled from clay, or dolls may be used. When the table is ready, the class may observe it to see if a clear and true illustration has been made, suggestions for improvement being given where needed.

Correlation - History and reading are used to obtain the facts about the first Thanksgiving day. Geography is used in arranging the sandtable properly. Art appears in the form of figures, and finished sandtable. Oral composition is used in the criticisms and discussions of the illustration.

Step 3.

Technical Illustration Worked Out on the Sandtable.

Problem of Teacher - To help make clear the children's ideas of the locks used at the Great Lakes.

Problem of Pupil - To construct locks that will raise and lower toy vessels.

Method of Procedure - A group of children is appointed to construct these locks on the sandtable. Since this is a complex problem, the teacher may need to help the group with suggestions, that is, the group and the teacher may work it out to-gether, the teacher staying in the background. The children are at liberty to draw upon any available material for suggestions for the work. They may need to experiment with the project considerably before their purpose is accomplished. The finished locks may be played with, vessels being raised and lowered time after time.

Correlation - History, geography, reading, and English are used in obtaining the facts about the locks. Physics, chemistry and mechanical science enter into the construction of the locks. Arithmetic is used in obtaining the desired dimensions. Oral composition is used in the planning and the discussions of the finished project.

THE STUDY OF HOME LIFE.

1. Our homes
2. Homes of our near neighbors
 - a. For town children, country homes
 - b. For country children, town homes
3. Homes of our distant neighbors
 - a. In other lands
 - Japanese
 - Dutch
 - Irish
 - Eskimo
 - b. In other times
 - Primitive
 - Colonial
4. The house as a problem in House Decoration.

CONSTRUCTION.

Step 1.

A Playhouse Made By the Primary Class.

Problem of Teacher - To help clarify and impress the ideas gained through the study of the home.

Problem of Pupil - To build a playhouse.

Method of Procedure - A decision is made as to the kind of house to be built, and the number of rooms to be used. Boxes of about uniform heights, and about as many as there are to be rooms, are placed before the class. The children arrange and re-arrange the boxes until a satisfactory plan is formed. The size and placement of doors and windows is discussed and decided upon. As soon as the size and placement of the doors and windows for one room is decided upon, a group of two or three children is sent to draw them upon the proper box. Other groups check up the work of the first group to see that they have made correct measurements. This method is repeated until all the doors and windows have been drawn, and until all the children have had some chance at measuring. The doors and windows are sawed out, each child sawing until he becomes tired. The color of the wall paper is discussed by the class, groups being appointed to cut and paste it in the house. After class discussions as to size and color, the furniture is made, and the rugs are woven. Frequently all the children work on the same kind of project at the same time, so that attention may be centered on the same

point. The color of the outside of the house is decided upon and a group is appointed to paint the boxes the desired color or to cover them with paper marked off to represent brick or stone. Another group makes the roof and places it upon the top of the house.

Correlation - History is used in studying about the home. Art appears in the proportions, color harmony, etc., of the house. Oral composition is used in the discussions and criticisms. Arithmetic is used in the measurements for the house. Science enters in the problems of sanitation which must be discussed.

Variation - After the children have made two or three houses, instead of making the plans by moving the boxes around, the boxes may be placed in view of all, and plans be made on paper by each child. When each child knows how he would like the boxes arranged, different children come forward and arrange them according to their individual plans, explaining the good points of their arrangements. This process is continued until a plan is evolved that is satisfactory to the class.

Step 2.

A Dutch House Made By the Middle Grades.

Problem of Teacher - To strengthen ideas of Dutch home life.

Problem of Pupil - To build a Dutch house.

Method of Procedure - The method of making a Dutch house is similar to the method of making a playhouse, a few differences being observed because of the experience of the children and the type of the house. The children will need to see a picture of a Dutch house to see how they are arranged. The boxes are placed according to the picture. The children are divided into groups, each group to be responsible for one phase of the work. Much reading will probably need to be done in order that the necessary information for the construction may be obtained.

Correlation - History, geography, reading, and English are used in studying about Dutch homes. Art appears in the form of arrangement and color harmony. Oral composition is used in the planning, criticisms, and discussions. Arithmetic is used in the measurements.

Step 3.

The House as a Problem in House Decoration by Upper Grades.

Problem of Teacher - To give the children a clearer idea of what makes an attractive house.

Problem of Pupil - To construct an economical, convenient, and attractive house.

Method of Procedure - Each pupil plans the inside of the house in which he would like to live, the house to be economical as well as convenient. These plans are criticised by the class, the good points of each being pointed out. Each child tries again, an effort being made to include as many of the good points as possible. This planning and criticising is continued until a plan is evolved that is satisfactory to the class. Each child draws the chosen plan to scale, placing the doors and windows. When the inside is planned satisfactorily, the outside is treated in the same way. At this point, the class is divided into groups, each group being responsible for one room. Floor plans and wall plans for each room are drawn to scale, showing an arrangement of doors, windows, and furniture, each child making the plans for the room to which he has been assigned. Frequent class conferences are needed throughout the planning so the rooms will make a harmonious whole. After the floor and wall plans are perfected, the rooms are drawn in perspective and painted the desired

colors. The plans being completed, the class begins work on the house, each group working on its own part. The finished house is criticised constructively to see wherein the house might be improved.

Correlation - Art appears in the form of arrangement, proportion, and color harmony. Arithmetic is used in making the necessary measurements. Oral composition is used in the discussions and criticisms. Many problems of household economy enter in a natural way in the progress of the work.

STUDY OF INDUSTRIAL LIFE.

Stores on street

What merchandise is in each, or classification

Source of merchandise

Processes of manufacture

Methods of transportation and communication

Measurement of values

by weight or size

by cost

by use

The stores may be built in all of the lower grades, the method of construction being about the same for all the stores, the change being in the complexity and excellence of the workmanship . However, the emphasis in the different grades may be placed on different phases of commercial life as suggested in the above outline.

The Construction of a Grocery Store.

Problem of Teacher - To help clarify the children's ideas of the merchandise contained in a grocery store.

Problem of Pupil - To construct a grocery store.

Method of Procedure - The class discusses what is contained in a grocery store. The best box obtainable for the purpose is used for the store. The class decides on the size and placement of doors and windows. A group of children are sent to draw them on the box. Other groups check up on the measurements to see that they are correct. The children saw out the doors and windows, each child sawing until he becomes tired. The color of the wall paper and of the floor is decided upon by the class and a group is appointed to put the paper on the box. Counters, shelves, and merchandise are made by the children and placed in the store. A front made of card-board, having the doors and windows cut out, and having a name made from cut-out block letters, is tacked on the box. The finished store is played with, the children buying and selling the merchandise.

Correlation - Art appears in the form of color harmony, proportions, etc. Oral composition is used in the discussions. Arithmetic is used in making the required measurements and in buying and selling the stock, making bills, etc. Sanitation is studied in connection with the store. In the more advanced projects, history, geography,

nature study, reading, and English will be used in obtaining information about the merchandise.

TOY MAKING

Step 1.

Card-Board Animals.

Problem of Teacher - To help clarify the children's ideas by stimulating observation of domestic animals.

Problem of Pupil - To construct from card-board animals that will stand.

Method of Procedure- The children cut a domestic animal free-hand from the mental pictures, following the outline given in the first step of paper-cutting. The children choose their best cuttings, and using them as patterns, cut the animals from card-board, color them with crayon and make them stand by tacking them on to a strip of wood.

Correlation - History and nature study are used in studying about the animals. Art appears in the cuttings and in the coloring. Oral composition is used in the criticisms. "beginning in the study of industry and commerce may be made through the study of these animals.

Step 2.

One-Ply Animals.

Problem of Teacher - To give a motive for the study of geography.

Problem of Pupil - To make a one-ply animal from wood.

Method of Procedure - To make one-ply animals from wood, the children cut patterns as described in step one, transfer them to wood, saw them out with coping-saws, color them with crayola or water-color, and fasten them to a wooden base. The finished animals are criticised constructively by the class.

Correlation - History, nature study, reading, geography, and English are used in studying about the animals. Art appears in the form of coloring. Oral composition is used in the criticisms and discussions. Written composition may be used in accompanying booklet describing the animals.

Step 3.

Three-Ply Animals

Problem of Teacher - To help clarify children's ideas of wild animals.

Problem of Pupil - To make a menagerie.

Method of Procedure - A scale for all animals is decided upon. Each child chooses the animal he wishes to make, constructs a rectangle the size the animal is to be, draws the animal making it fit the rectangle. From the drawing he makes the three parts, saws them from wood, nails them together, and paints them the natural color. The finished animals are criticised constructively as to the likeness to the real animal. Pictures of the chosen animals may be used as guides for the drawings.

Correlation - History, geography, nature study, reading, and English may be used in obtaining the information about the animals. Art appears in the form of drawings, and coloring. Oral composition is used in the criticism and discussions. Written composition may be used in an accompanying booklet describing the animals.

Step 4.

Three-Ply Animals with Movable Parts

Problem of Teacher - To illustrate problems in physics.

Problem of Pupil - To make a three-ply animal with a movable head and tail.

Method of Procedure - This step follows step three until the patterns are made. The two outside pieces are left the same, but the head and tail are separated from the rest of the body. They are adjusted by means of pivots, which are run through the three thicknesses. The remainder of the body is nailed to-gether as described in step three. This arrangement allows the head and tail to move. The class gives constructive criticisms of the finished animals.

Correlation - History, geography, nature study, reading, and English are used in studying about the animal. Art appears in the form of drawings and coloring. Oral composition is used in the criticisms and discussions of the finished animals. Physics is used in making the animal move properly.

Variations - After the children have learned to make animals like the above, they may make pendulum and bent-axle toys. The animals are made as described in step four, the pendulum or bent-axle being added to give the toy motion. These toys introduce various problems in physics and mechanical science in simple form.

EXPLANATORY NOTES.

The following outlines contain suggested topics in English, history, and geography which exemplify the type of subject matter in which the foregoing types of illustrative handwork will be helpful.

These outlines are in no sense a course of study but are typical suggestions to be used in connection with the process outlined above.

ENGLISH.

Grades	Picture Making	Book Making
I.	<u>Little Red Riding Hood</u> <u>Little Black Sambo</u>	The posters made in "Picture Making" are tied into booklet form.
II.	<u>Two Little Indians</u> <u>The Man, the Boy, and the Donkey</u>	The posters made in "Picture Making" are tied into booklet form.
III.	<u>The Children's Hour</u>	<u>Robinson Crusoe</u>
IV.	<u>William Tell</u>	<u>Uncle Remus Stories</u>
V.	<u>King of the Golden River</u>	<u>Heroes and Men</u> <u>Story of Lincoln</u> <u>Greek Gods</u>
VI.	<u>A Dog of Flanders</u>	<u>Franklin's Autobiography</u>
VII.	<u>Miles Standish</u>	<u>Travels at Home</u>
VIII.	<u>Vision of Sir Launfal</u>	<u>Legend of Sleepy Hollow</u>

HISTORY.

Grades	Picture Making	Book Making
I.	Flowers, animals, Eskimo people.	The poster made in "Picture Making," tied into book form.
II.	Indians, wigwams, trees, animals.	The posters made in "Picture Making" tied into book form.
III.	Scenes showing Indian life.	Stories of Indian life.
IV.	Scenes from Missouri. Famous Missourians.	Stories of Missouri history.
V.	Inventions and Inventors.	Stories of American explorers.
VI.	Invention of Printing. Armor and weapons in the fifteenth century.	Story of the Reformation Story of Columbus.
VII.	Weapons and uniforms of Revolutionary soldiers. Scenes showing famous events, as Washington crossing the Delaware, or Army at Valley Forge.	Events leading up to the Revolutionary war; to the Civil war. Home conditions at the close of the Revolution- ary war, - of the civil war.
VIII.	Heroes of American industry.	Stories of famous men of America.

GEOGRAPHY.

Grades	Picture Making	Book Making
I.	Occupations of the members of the family.	The posters made in "Picture Making", tied into booklet form.
II.	Study of plants. Industrial occupations.	Origin of cotton cloth.
III.	Study of animals. Study of plants and their uses.	Observations of nature.
IV.	Products and by-products of the United States.	Study of industry as wheat growing, or sheep raising.
V.	Products and by-products of foreign countries.	Stories of rubber. Plants of North America. Animals of North America.
VI.	Illustrations of foreign homes and industries, as fishing industry. People of Holland.	Stories of dairying, manufacturing, or agriculture. Government of France.
VII.	People of Asia. Illustrations of manufacturing processes, as lumbering with elephants. Comparative posters showing world industries.	Stories of the leading industries of Asia. Animals of Asia. Commerce. Transportation.

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