


AN ABSTRACT OF THE THESIS OF

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(Name) (Degree) (Major)

Date Thesis presented--August 29,--1941

Title-----DEVELOPMENT OF EXPRESSIONAL HANDCRAFT-----
-----IN THE LONG BEACH ELEMENTARY SCHOOLS-----

Abstract Approved: 
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Since modern education is the foundation of social progress and reform, the function of the school is to select and present to the learner the problems and experiences which are an outgrowth of his social activities. By this means, the learner is encouraged to develop his abilities to their fullest extent by not being hampered by traditional inhibitions. He is allowed free expression of his thoughts and actions, in so far as they are not detrimental to the welfare of the community. The unit of work is the means by which this is made possible, for it is here that he learns how to work with others for the good of the group as well as for himself.

How to teach the use of the more common hand-tools presents the most serious problem at the present time. Not having had enough previous experience in the proper handling of tools and materials, the average classroom teacher has had to rely upon the special teacher to assume this part of the activity.

With the decrease in the number of special teachers, there necessarily has been a corresponding increase in the duties of the classroom teacher to include this phase of the work. The duties of the special teacher are increased by their instructing the classroom teacher in work-shops conducted for the purpose of presenting to them the various materials used in the activity part of the unit and the actual use of the tools used in construction.

The term, unit of work, is used to designate a center of interest, or project, around which is built the complete study program. The unit is generally developed according to a certain flexible pattern, such as:

- a. Arrange environment to stimulate interest.
- b. Responses to environmental arrangement; planning.
- c. Investigations; experiences involved.
- d. Construction.
- e. Culmination
- f. Evaluation

Handcraft includes all of the activities of the pupil in which any manual work is undertaken, while the activity-hour expresses the period in which this is done. The type of activity is governed to a certain extent by the various trades and occupations represented in the district.

In the present program, emphasis is placed upon the unit of work. Photographs of projects and a detailed outline of a unit on Trains are accorded the major portion.

The proposed program suggests an increase in the number of hand-tools in the classroom; establishment of work-shops; making of work-books; and a more intensive study of the evaluation of the unit of work for the purpose of finding a suitable battery of objective tests for measuring the attitudes and behavior of the pupil more accurately than they have been up to the present time.

The problems confronting the schools may be summed up as follows:

- a. The rapid increase in enrollment in the schools that will follow the influx of war-workers.
- b. School construction still inadequate because of heavy expenditures following the earthquake.
- c. Organization of the supply service to cope with the greater demands made by the accelerated unit of work program.
- d. How to economically distribute the time of the special teacher, with their added duties, among the various schools.
- e. How to conduct work-shops.
- f. Adequate training of the classroom teacher to enable her to assume a greater proportion of the activity part of the program.
- g. The necessity for the further increase in the number of common hand-tools for use in the classroom.
- h. The need for the increased use of visual-aids in the field of handcraft.

DEVELOPMENT OF EXPRESSIONAL HANDCRAFT
IN THE
LONG BEACH ELEMENTARY SCHOOLS

by

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A THESIS

submitted to the
OREGON STATE COLLEGE

in partial fulfillment of
the requirements for the
degree of

MASTER OF SCIENCE


August 1941

APPROVED:



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ACKNOWLEDGEMENTS

The writer hereby acknowledges his indebtedness to Dr. R. J. Clinton, Professor of Education, Oregon State College, for his encouragement and guidance in the preparation of this study. To Kenneth E. Oberholtzer, Superintendent of the Long Beach Schools; Elga M. Shearer, and Gladys L. Potter, Supervisors of Elementary Education, and the various classroom teachers, especially Jean L. Christiansen, who aided in the collection of the material, the writer also expresses his appreciation.

F.M.B.

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DEVELOPMENT OF EXPRESSIVE HANDCRAFT
IN THE
LONG BEACH ELEMENTARY SCHOOLS

CHAPTER I

INTRODUCTION

The Function of the School

The function of the school is to so organize the materials found to be valuable in carrying on life activities that it will be in harmony with the immediate needs and capacities of pupils in various stages of growth. This is accomplished by presenting only material in a certain grade that is suitable to the maturation level of the child in that grade.

Lee says:

Changes in the purposes of education have had more effect on the social studies than in any other area. From a concept of mastery of certain facts as the aim, social studies have moved toward a consideration of "the child's more effectively meeting situations involving social relations" as the goal.¹

This includes the actual finding out what people do and also the careful weighing of each activity to find its worth in serving some life purpose. These purposes, in turn, must be weighed to find their value in contributing to a richer and more worthy life.

¹

Lee, J. Murray and Dorris May Lee, The Child and His Curriculum, pp.538-540.

Concerning the value of creative living, Lee says:

The value to the child of creative learning has been the key-stone of modern education. It is the spark which vitalizes learning and develops the child. . . . There are many personal values which may be derived from creative activity. Some of them are: Self-discovery, self-reliance, persistence, enthusiasm, intellectual adventurousness, constructive use of leisure, appreciation, and means of expression. The excellence of the final product is not the criterion of evaluation for these means of expression. Rather they should be judged as to the extent to which they express the child's own ideas in his own way.¹

Some children, more than others, need an outlet for their creative expressions and should be provided with all available equipment. In this way, many of those who have for some reason been repressed will become interested in the way the others are working and will soon show a desire to assume their share of the task.

A word of caution is here expressed by Mead, who says:

There is, however, one sense in which freedom in education is important. Once granted that the child is bound to follow a road which an adult has at least surveyed and perhaps already paved, the way in which the child follows that road will be determined by the educational methods in vogue... and the creation of an extension of freedom in which the child follows the road upon which his feet have been planted since birth under the pleasant impression that he has chosen it is undoubtedly a valuable aspect of modern educational movements.

It is valuable only, however, if the teacher does not lose sight of the road, if the child is not encouraged to wander aimlessly about in bypaths from which he will only have to be yanked

1.

Ibid., p. 196.

rudely back when he is grown or else scrapped altogether as a mal-adjusted person whose growth has been distorted beyond repair.¹

With emphasis on the social studies, the Unit of Work provides for a large amount of related work with varying degrees of difficulty wherein individual differences are more easily taken care of and the segregation of certain pupils, who might benefit more by the change from a grade standpoint, will become unnecessary, and therefore they will not be thrown out of social adjustment. In regard to this, Lee says:

The utilization of a variety of type of activities furnishes the opportunity to develop various abilities. More children have an opportunity for successful achievement... Well selected activities in a series of units are not sufficient. The teacher must be sure that each child participates in a variety of activities. It is too easy to let each child do the thing that he does best all of the time... Good teaching thus requires that children have the opportunity for success in the activities in which they can make a special contribution and at the same time be participating in a balanced variety of experiences.²

The Function of Industrial Arts

The function of Industrial Arts, or Handcraft, as it should be expressed in the elementary school, is so closely interwoven with all of the work of the school that it is impossible to define its bounds.

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1. Mead, Margaret, "The Meaning of Freedom", Progressive Education, vol. 8, pp. 107-111.
 2. Lee, J. Murray and Dorris May Lee, The Child and His Curriculum, p. 196.

To illustrate the limits of industrial arts as against the broader field of handcraft with all of its present implications, Bonser defines industrial arts, in that some reasonable limit be made in the use of the term, as;

Including those occupations only which have to do with the changes in the form of materials, and exclude those occupations having to do with procuring raw materials and transporting them and their products...

As a subject for educative purposes, industrial arts is a study of the changes made by man in the forms of materials to increase their values, and of the problems of life related to these changes.¹

From the foregoing statement, it is apparent that the limits, as applied to this program, cannot be applied to the teaching of the unit of work which encompasses all of the above, including the procurement and transportation of the raw materials and finished products. In fact, the entire program is built around handwork as the medium of expression, with all of the traditional subjects being incidentally taught. The fact that these subjects are actually taught as well or better than they are in the traditional program is emphasized by Wrightstone, who says:

1.

Bonser, Frederick G. and Mossman, Lois Coffey, Industrial Arts for Elementary Schools, pp. 4-5.

The comparative measurement of pupil achievement in attaining the major objectives of elementary education in selected experimental and conventional schools indicates equal or superior achievement for the experimental practices. Such evidence may be interpreted as tentative proof of the validity of the educational theory and principles upon which the newer-type practices in the selected schools are selected.

The Scope of the Study

This study concerns the third, fourth, fifth, and sixth grades since it is in these grades that handwork of a more intensive nature is undertaken. Up to the third grade the activities are of a type that bring into play the large muscles, but beginning with the third grade, the accessory-muscles are brought into greater use, with the result that the projects are constructed on a smaller scale and more detail is used in the construction. Bonzer says:

During the period when children "act first and think afterward," much learning by trial and result will occur. It is probably worth while to allow children to find out things by this kind of experimentation when it does not involve the waste of much material or the spoiling of a cooperative piece of work to which a number are contributing. Failure through impulsive action will tend to bring about an attitude favorable to a closer observation of others who succeed, and to the accepting of advice. Gradually the advantages of planning first and acting in accordance with plans will

2.

Wrightstone, J. Wayne, Appraisal of Newer Elementary School Practices, p. 220.

become appreciated. As early as possible, children should be led to see the values of planning or thinking through their constructive and investigative problems before they begin to construct or investigate.¹

In the designing of objects to be made, Bonser says:

Children should design, or have a large part in designing, every object which they make. This is one means of developing judgment and taste. In working out the designs for the products made in each respective industrial field, the detailed principles of design as these are called for may be taken up with increasing degrees of complexity as ability develops. Beginnings will have to be simple, but through them knowledge and judgment will grow. Provision for choice will have to be extensive, and the opportunities for making mistakes will furnish the necessary basis for constructive criticism and help. There can be no growth of judgment except by participation in judging... This work in designing should give opportunity for the freest kind of self-expression within the limits of definite purposes. For this, the use of finished products for reference will be of great help... Excellent pieces of similar work bring to the children standards with which to compare their own work.²

The Problem

The problem in the field of Handcraft at the present time is not necessarily what to teach, but how to teach. This implies that the materials - pupils and physical equipment - are available, but the manner of presentation offers opportunity for further study. This is emphasized by the fact that the greater percentage of classroom

1. Bonser, Frederick G. and Mossman, Lois Coffey, Industrial Arts for Elementary Schools, p. 46.

2. Ibid., pp. 59-60.

teachers are not familiar with the ordinary hand-tool processes and lack a working knowledge of the more common materials of construction in wood, plastic, and metal.

How to inform this group of teachers in these activities has fallen, heretofore, to a great extent, to the lot of the special teacher in this field, the balance of the group selecting work in summer school or extension classes. However, none of these measures are entirely satisfactory. Too little time has been devoted, at the present writing, to in-service training to be of any material benefit, while the other suggested classes suffer from a lack of "coverage of the field". Even though a more thorough training in each individual subject is obtained in the regular university classes, not enough different subjects are presented at any one time to enable the classroom teachers to grasp the fundamental techniques of a large group of activities in a comparatively short length of time.

The classroom teacher cannot, and is not expected to, master these techniques, but it is essential that she understand enough of the work represented in the different fields to enable her to demonstrate the correct tool-techniques to the child and thus prevent him from acquiring wrong methods and practices or to correct those which have been already incorrectly acquired.

Definition of Terms

The Unit of Work has been defined as consisting of "Purposeful (to the learner), related activities so developed as to give insight into, and increased control of some significant aspects of the environment; and to provide opportunities for the socialization of pupils."¹

Units of Work may be classified as to the extent they vary from an organized body of subject matter to child experiences, or according to the problem or problems around which the units are organized. Desirable units as set forth by Lee:

Should provide continuity in the development of the child.

Should contribute to the total development of the child.

Should provide for a variety of activities or experiences for the class and for individual children.

Should deal with some phase or problem of living sufficiently significant to merit careful study.

Should deal with material within the comprehension of the child.

It must be challenging to the child.

The data gathered and the activities including construction should be as authentic as possible.²

1. Lee, J. Murray and Dorris May Lee, The Child and His Curriculum, p. 192

2. Ibid., pp. 194-201.

The entire elementary school program in Long Beach for the school year 1941-42, as shown on page 79a in the appendix, is based on social living with the Unit of Work being used as a medium through which the various activities are presented.

On page 77 in the appendix there will be found the first compilation toward an official list (1937) of the Units of Work used at that time, together with suggestions for use by Maud Wilson Dunn, Coordinator, Curriculum and Child Welfare Department. A comparison of the two lists will show the changes in grade placement which have been found necessary in the intervening four years as well as the addition and elimination of some units which have been determined by actual practice to be found desirable.

The Activity Hour

The Activity Hour is a carry-over from the former so-called Activity Program and is a term still used to signify the period in which the manual or hand-work is carried on, though the work is not confined to any particular amount of time or to the time of day since some units require that much more time be devoted to the activity than others.

Industrial Arts

Industrial Arts in the strict sense of the term, from

the standpoint of the elementary segment no longer includes the scope of the activities as they are now taught in the modern school.

Expressional Handwork

Expressional Handwork, or Handwork, as the work will hereafter be termed, better expresses the wide variety of the experiences of the child in the elementary school, and includes all of the means by which the child expresses himself in his own manner, whether it be in music, art, woodwork or any other subject.

The Special Teacher

The greater role of the special teacher in the general education of the child is perhaps best explained by the increased scope of the former industrial arts field to include all of the child's experiences instead of only the contacts brought about by his hand manipulation in woodwork. As a result, many school systems absorbed those teachers who were capable of assuming the duties of the regular classroom, placed some in other segments, and the balance were released by means of the simple expedient of discontinuing the work in the elementary field.

In the case of the Long Beach schools, the special

teachers of art, music, library, home economics, and industrial arts, have been urged, for the past several years, to work toward a General Elementary Credential if they did not already possess one, to qualify themselves for classroom teaching. For the school year 1941-42 there will be but four teachers remaining in home economics and industrial arts work, two in each division. Their work will consist chiefly in acting in an advisory capacity to aid the classroom teacher in correlating the handwork of the various activities and to conduct special classes for teachers where the classroom teacher will be given an opportunity to actually handle the more elementary tools used in constructing the real projects they are using in their classrooms. By this means they will become better acquainted with the difficulties the children encounter and gain an appreciation of the time required to do the various operations.

CHAPTER II

THE DISTRICT

Located on the coast of the Pacific Ocean but eighteen miles south of Los Angeles, Long Beach, which was formerly a seaside resort, has grown in population from about 55,000 in 1921 to approximately 180,000 in 1941 with a total school enrollment of 25,399. These later figures are expected to be greatly increased before 1942 because of the tremendous industrial expansion now taking place in the aircraft industry, where Douglas' new plant is to employ 18,000 workers; ship-building, with many cargo vessels contracted for; and the oil production and refining industry which is very important from a defense standpoint.

Oil was first discovered on Signal Hill, north of the city proper, in Shell Discovery Well #1 in 1920, and, partly because of this, Long Beach had such a phenomenal growth in the early 1920's that the schools were soon taxed to capacity and it became increasingly difficult to keep pace with the influx by means of new construction.

Long Beach has long been known as the Capital of Iowa because of the large number of conservative retired Iowa farmers. However, these people believed in education, even though most of their children were beyond school age,

and bond issues for new construction were easily passed with many large, fine looking buildings being constructed, mostly of brick, especially after the advent of the junior high school in 1921. It required only eleven seconds on the evening of March 10, 1933 to thoroughly demonstrate that brick is a poor building material to use in a district subject to earthquakes, for at this time every school building in the city, as well as others in the surrounding territory, was either leveled or severely damaged by an earthquake. With an intermission of only two weeks, outdoor classes were held where tents were not available, and the educational processes continued, not as before, of course, but in a manner new to both teacher and pupil. One of the difficulties encountered in the elementary school was the teaching of woodwork out-of-doors where it was often necessary to leave the benches continuously exposed to the weather with only a piece of canvas or oilcloth for a cover when not in use. Temporary bungalows of wood construction furnished much of the housing until the new, safe buildings, provided for by additional bond issues, in spite of the depression, were ready for occupancy. Many of these bungalows are still being used; some for regular classes, some for special classes, and others for auditoriums. This allows for the shift in population now taking place,

the districts with static or decreasing enrollment giving up their bungalows to some outlying district where the enrollment is rapidly increasing.

The proximity of the Navy based in the Long Beach-Los Angeles Harbor provides additional problems to the school. This population is, to a great extent, shifting in character, it being not uncommon for a pupil from this group to attend four or five schools from coast to coast in the course of one school year and who is thereby faced with the difficulties resulting from the different curricula encountered in various parts of the country.

The Long Beach Harbor offers increasing facilities for handling cargo to and from all parts of the world, especially oil, lumber, and citrus fruits. Since the restrictions on oil and metals by the government has resulted in the virtual stopping of the flow of these materials, lumber has become the chief product now handled. The revival of shipbuilding will have a marked effect on the schools, for the outlying districts will again experience the largest gain from this source.

North of the city a large dairy district has been established, from which are chiefly supplied the needs for fluid milk for the large population of Southern California. Few children from this district attend the Long Beach schools but it furnishes an admirable

opportunity for excursions to study the milk industry. This is now being done by the second grade children from the Long Beach District.

Likewise, the Citrus Belt, to the east, in Orange County, offers the chance for the children to see the citrus industry from beginning to end, but up to the present time very little has been done in this direction. Here is an opportunity that warrants further study.

CHAPTER III
THE PRESENT PROGRAM
Historical Development

The present curriculum has been evolved from the necessity to meet the social education needs of the child. As early as 1921, when the first junior high school was established in the city, it became increasingly apparent that greater changes in the curriculum must be made, with the result that Dr. L. Thomas Hopkins, of Columbia University, was employed by the board of education to assist in curriculum revision. A department of Curriculum and Research was formed to evaluate and coordinate the available information and present the revised procedures in a manner that could be universally understood and used by the teaching staff. This department is now known as the Educational Research Department.

The need for curriculum revision is shown by Harap who says:

The problems of curriculum development are being systematically attacked throughout the country, especially in the larger communities, with over half of the cities reporting that 1935-36 represent the time when the present program was begun and only 10 per cent starting before 1929. Over 70 per cent of cities reporting have employed a director of curriculum since 1931, with only a very small percentage reporting as discontinuing the office. Only a few held that "the chief emphasis of the curriculum should be on life as it is being

lived, the great majority holding that it should also emphasize life as it is becoming and life as it should be lived under conditions of potential abundance to the end that such problems may be anticipated as the generation now growing up will probably encounter.

Another claim that has for some time been expressed with considerable force from lecture platforms and in the educational prints is that the school has allowed an unjustifiable emphasis upon mental development to the detriment of the social education of the pupil. If the findings of the present study may be indicative it would appear that a great many teachers are not yet convinced of the validity of this indictment. No more than three-fourths of the total number of faculty groups on any school level typically incline to the view that the major emphasis of the curriculum should be on the social education of the pupil rather than on his mental development.

Curriculum revision is a continuous process. On this, practically all of the teacher groups on all school levels, save that of the junior college, were in essential agreement that the curriculum must be continuously revised.¹

Prior to 1930, the Activity Program, which was the immediate forerunner of the present Unit of Work Program, was principally carried on in one school on an experimental basis. Here, having been found substantially sound, these newer practices were gradually extended to all of the schools where they have been put into use more or less extensively, according to the beliefs and dictates of the principal and teachers.

1.

Harap, Henry, editor, The Changing Curriculum pp. 3-7

The Limitations of the Present Program

The limitations of the program may be conveniently placed in two divisions, namely, instructional and financial. Of the instructional limitations, the lack of training of a considerable number of teachers for this new type of program may be said to constitute the most serious difficulty.

While the younger, more recently trained teachers have become thoroughly imbued with the modern practices and trained to put them into use, some of the older, traditionally trained teachers, having enjoyed the benefits of tenure and maximum salary for several years, have not attempted to keep abreast of the more recent trends, at least in their attempts to carry on the work in more than a half-hearted manner. They do not make use of the available materials for allowing the child to give free expression to his natural desires for handwork, and from this activity, to incidentally teach the subject matter she has been traditionally trying to teach. She has not realized that any handwork which is done to educate the child must be done by the child himself.

A third group of teachers are those who dislike this type of work, either because of their own inability to do any kind of handcraft themselves, or entertain the notion that it is messy work and do not like to have of

noise and confusion -to them- of an activity carried on in their rooms. In either case, they are willing to have the pupils do the work if it can be done in a separate workroom, preferably under the direction of the special teacher. True, no particular provision has been made to store the projects when not being worked on and in some cases this array of materials occupies a considerable portion of an already well filled classroom.

The problem of instructional supplies and equipment has been most difficult to handle. To effectively teach some of the Units of Work, considerable quantities of small pieces of lumber are required which, to date, have been cut by the special teacher in his own home workshop or he took the lumber to a junior or senior high school workshop, since no power machines are allowed in an elementary school. Wheels for the various projects are either wood button-molds or are cut from one-fourth or three-eighths inch soft pine by using a regular gasket cutter with one cutter removed. The cutter should be ground to about one half the thickness of the original cutter to provide easier cutting. Beginning with the fall term, 1941, there will be an ample supply of soft pine on requisition from one-fourth inch square to one-fourth by 4 inches, also one-half and three-fourths inch pine cut in proportionate sizes.

The work-benches, for the most part, have been handed down from the time of 8th grade woodwork and are not suitable for the present type of work. They are too high for but a few of the tallest pupils so many have been cut down to 24, 26 and 28 inches high. They are too large and heavy to be conveniently moved from room to room, a task that must be done in some cases since there are not enough benches to furnish one to each room. A small, easily transported, combination tool-cabinet and work-bench has been suggested but the excessive cost of these will prevent their universal use for some time.

Long, narrow boxes, equipped with a handle across the top for carrying, and fitted with the following list of tools, is used in some schools to provide the means for the pupils to work in the classroom.

TOOL LIST:

- 1 Plane, Smooth
- 2 Planes, Block
- 2 Saws, Cross-cut
- 4 Saws, Coping
- 4 Hammers, 8 to 12 oz.
- 2 Clasps, "C", 4" or 6"
- 2 Files, Half Round, 10". Bastard Cut
- 1 File Cleaner
- 1 Screw Driver, 4"
- 1 Pliers, Slip-Joint, 6"
- 1 Bench Hook

One box of tools is generally furnished jointly to two rooms, the two teachers therein being held responsible

for their care.

Any other tools required for a particular job are obtained from the centrally located main tool-cabinet.

All edge tools are sharpened, but not honed, by a tool maintenance department operated for the benefit of all of the schools in the city.

Instructional supplies for woodworking are now requisitioned once each semester while the other supplies may be obtained twice each semester.

Supplies may be ordered at any time on a Special Requisition Form.

Items not carried in stock are obtained by means of a "Buy-Out" order.

The financial limitations of the present program have been principally caused by the earthquake of 1933 which placed a severe strain on the finances of the schools. Coming, as it did, in the midst of the depression, considerable concern was expressed as to the rehabilitation of the school plant. Bond issues were voted, however, and the immediate construction of double bungalows and tent frames soon provided housing for a large majority of classes. Salvage of the demolished buildings furnished usable material for later permanent construction which is plain in appearance and of earthquake resistant type. The needs of construction over-

shadowed instructional needs to such an extent that it became necessary for the latter to be limited to only the most essential items.

The Special Teacher

Perhaps the most versatile instructors in a school system are the special teachers of the Practical Arts, which includes the Industrial Arts and the Home Economics teachers. In addition to being a craftsman in one or more lines of endeavor, they should possess the added qualities of having:

1. A broad general background in education in addition to being a craftsman in one or more fields and having a working knowledge of many crafts. They may be called upon to teach any or all of the various hand-crafts that are now taught in the modern school. In addition they are subject to call into the classroom where they assume the duties of the regular classroom teacher. This possibility, however, is becoming remote since the number of practical arts teachers has been reduced for the coming year to two in industrial arts and two in home economics.

Regarding the special teacher, Bonser says:

Because of its very extensive relationships, industrial arts, of all subjects, should not be taught by a special teacher. It is not a special

subject in the sense of being unrelated to other subjects, but, quite the contrary, it is rather the most general subject of all in its far-reaching relationships.¹

It will thus be seen that the scope of Industrial Arts, as defined by Bonser, does not take into account the educational training of the present special teacher.

2. An understanding of the needs and limitations of the pupil. The question of individual differences looms large in the problems of handcraft. It is very essential that the pupil entertain the feeling of success in his work; this is emphasized when he understands both why and how he does an operation in a certain way to make it a better finished product.

3. A systematic procedure in his planning. With the multitudinous duties he must assume in keeping in touch with more than 150 classroom teachers, to each special teacher in the Long Beach schools, nearly all of whom require some assistance in starting their unit and many needing aid in some form throughout the year, it can readily be seen that he must follow some definite course in making out his program.

4. A sympathetic understanding of the problems confronting the classroom teacher. He will thus be able,

1. Bonser, Frederick G. and Mossman, Lois Coffey, Industrial Arts for Elementary Schools, p. 74.

in the capacity of adviser, to assist in planning the necessary procedures required to complete a unit of work by aiding in the selection of projects to be constructed that are suitable for that particular unit; the type and availability of materials to be used; the selection of work to be done in the shop and the amount of time allotted thereto; the selection of work to be done in the classroom; and the collecting of the necessary materials to carry on the project. The revised program for the practical arts teachers for the months of January and February, 1941, as shown in the following Superintendent's Bulletin, will show how these teachers assist in this program.

Long Beach City Schools
OFFICE OF THE SUPERINTENDENT

January 7, 1941

Special Bulletin #19, Vol. III

To: Elementary School Principals and Special Teachers of
the Practical Arts in Elementary Schools

Subject: School Activities in the Practical Arts during
January and February

This bulletin follows our initial meetings on the subject of our practical arts program in the elementary schools. I have given you verbally on these occasions some principles which will serve as a basis for our developments in the different schools. The following is a brief statement of these principles which should be incorporated into the developing program:

1. "It is a study of the experiences of people in changing materials into products to meet their needs and the needs of others, and of the influences of these experiences upon the lives of people."
2. It is an integral part of a unit being taught.
3. It involves a variety of activities and materials.
4. It requires a similarity of activities for boys and girls rather than a dissimilarity.
5. It is not simply Woodworking, sewing, cooking, etc., nor the development of skills per se.

In order to give further consideration to these principles, we are setting up a new schedule for special teachers which will be in effect as of January 13, 1941, and for a period of six weeks following. This schedule makes provision for the presence of both the industrial arts and the home arts teachers in a school at the same time. The schedule follows:

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Lowell 1 and 5	Edison 1 and 7	Willard* 1 and Fremont** 6	Horace Mann 1 and 5	Starr K* 1 and Bryant** 8
Burbank 2 and 8	Stevenson 2 and 5	Burnett 2 and 5	Lee 2 and 8	Lafayette 2 and 6
Longfellow 3 and 6	Roosevelt 3 and 6	Whittier 3 and 8	Los Cerritos 3 and 7	Garfield 3 and 5
Grant 4 and 7	Addams 4 and 8	McKinley 4 and 7	Naples* Sig. Hill** 6	4 Lincoln and 4 and 7

*These schools will have the services of special teachers during January (three weeks)

**These schools will have the services of special teachers during February (three weeks)

The numbers in the schedule above refer to the teachers concerned in accordance with the following designation:

- | | |
|---------------------|-----------------------|
| 1. Dorothy Antonsen | 5. Francis M. Bernard |
| 2. Marion Hogue | 6. Robert Mitchell |
| 3. Evelyn Pearson | 7. Clair W. Shelley |
| 4. Edna C. Taylor | 8. C. B. Story |

Suggestions for principal-teacher activities during this six weeks period are offered here:

1. During January
 - a. Before and after class hours
 - (1) Participate in principal-teacher conferences for the purpose of planning units of work with all teachers whose second semester assignments are relatively certain.
 - b. During class hours (Note: special teachers)
 - (1) Assist teachers and pupils in completing the first semester units
 - (a) By helping pupils and teachers in the workroom with especially difficult problems
 - (b) By working in the classroom, helping pupils finish work or projects

- (c) By participating in the evaluation of work done; that is, joining with the pupils and the teacher.
 - (2) Advise with principal re budgetary items for 1941-1942; make plans re the preparation of materials for pupil use (such as wood).
 - (3) List the supplies which should be ordered for projects contemplated during the second semester. (Industrial arts and home arts supplies may be ordered at two periods during the year.)
 - (4) Observe classroom work to see the relation between work there and in the special room; also study ways in which the teacher's work might be simplified or made more effective, such as the procurement and use of sawhorses, workbenches, clamps, materials, etc.
 - (5) Prepare suggestions (including sketches) helpful to teachers in carrying forward the activities planned under a.
2. During February
- a. Before and after class hours
 - (1) Repeat a as under 1. for teachers who were unable to foresee assignments for the second semester or who were delayed in planning units. Some of the schools will be undertaking the items under 1. throughout because they will receive these services under the revised schedule for the first time in February.
 - b. During class hours
 - (1) Assist teachers and pupils in launching upon the second semester units.
 - (a) Participate in pupil and teacher discussions leading to the initiation of work related to the units.
 - (b) Help teachers in the planning of relatively simple rather than complex, initial activities.
 - (c) Suggest materials to be used.

- (d) Supplement the teachers' guidance of pupils' work during the work period.
 - (e) Assume responsibility for aspects of the work too difficult for teachers to undertake, but leave as much responsibility as possible for them.
- (2) See (3) above
 - (3) See (4) above
 - (4) See (5) above
 - (5) Join with the classroom groups during the times when they are planning work for the units.

I am appointing a special committee for the purpose of developing suggestions regarding a tool truck or other equipment adapted to the revised program. It is anticipated that we shall maintain either one or two special rooms in the larger elementary schools and not to exceed one in the smaller schools. An increasing proportion of the activities would be developed in the regular classroom.

If there should be unforeseen difficulties in the execution of these suggestions, please convey them to the General Supervisors (Mrs. Potter or Miss Shearer) and I shall advise with them. It is suggested that you call upon the Supervisors for assistance in details which may need further explanation.

KENNETH E. OBERHOLTZER
Superintendent of Schools

RM

5. The ability to do a superior quality of handwork and to impart the necessary procedures to the pupil in an understandable manner. Care should be exercised, however, that speed and quality on the part of the instructor does not discourage the learner. While the pupil appreciates good workmanship, he disapproves of being continually shown how much better someone else does it.

In addition to the above, the special teacher must keep a tool inventory and order necessary supplies and equipment. He will also conduct an Adult-Education Program for the classroom teacher under In-Service Training, with emphasis on a few basic principles involving learning difficulties, elementary construction and the use of hand tools.

The Unit of Work

Since all handicrafts are represented in the unit of work and the special teacher's duties are chiefly concerned with this work a description of one complete unit that has been developed by a third grade teacher, Miss Jean L. Christiansen, in the Horace Mann School, is presented in this chapter for detailed study, together with reference material pertinent to the program.

The scope and sequence of the various units, which are based on social living, is shown on page 79a of the appendix. The sequence of study of the units is not fixed but retains a flexibility that permits a readjustment whenever need for the same becomes apparent.

Of interest to the teachers of the sixth grade will be the list of Audio-Visual Materials for Units on page 99 of the appendix. These materials are kept by the Audio-Visual Department for use at any time. For the same grade, a complete bibliography is presented beginning on page 81 of the appendix. This is of value for no regular textbooks are used in the elementary schools. Instead, many references are used.

Worthwhile areas of experience in Fields other than those which relate to the sequence. Page 80 Appendix. These areas, being outside of the social studies group are merely suggestive, thus leaving their study up to the teacher or principal.

On page 31 are shown the grade assignments of the teachers in the Lowell Elementary School, with their respective unit of work for the second semester of the school year 1940-1941.

The chart on page 31a shows the method generally used to assign certain hours of work to the special teacher. In some cases, when the demand for time is great, the day is divided into half-hour periods.

Representative projects constructed during the school year 1940-1941 are shown in the following photographs.

Figure 1, page 32 shows a wild animal series made of cardboard, painted with showcard colors, and placed in a sand-tray to obtain perspective.

LOWELL SCHOOL
February 1941

UNITS OF WORK

Teacher	Grade	Unit
Middleton	6A	Starland
Metcalf	6A	Architecture and Furnishings leading to unit on <u>Lighting</u>
Moore	6B	Contributions of our Ancestors
Neifing	5A	America's Pioneers
Good	5A	How our Country has Grown-leading to growth of Communities and Study of Long Beach
Jones	5B	American Indians
Gray	4A	Treasures of the Sea
Fluegel	4B-4A	Wild Animals
McAfee	3A	Mexico, China
Otis	3A	Mexico, South America
Morgan	3B-3A	Trains related to Commerce with neighboring countries
Short	2A	Post Office-Emphasis: Trans- portation routes
Howell	2A	Post Office-Use of postoffice building, etc.
Land	2B	The Public Market and related transportation
Campbell	1A	Retail - Market and Creamery
Smith	1A	Farm - Leading to Cafeteria or wholesale market and service station
Johnston	1B	City House, Country House, Harbor
Kindergarten		Transportation - Large Boat

Table I

TIME SCHEDULE
Two Week Period

SPECIAL TEACHERS
Industrial Arts & Home Economics

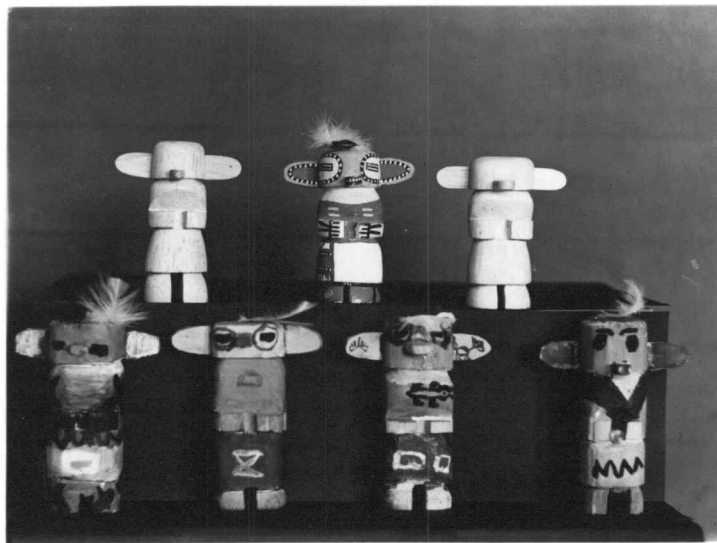
Teacher	Type of Work	*	9-10	10-11	11-12	1-2	2-3	*	9-10	10-11	11-12	1-2	2-3
Burtis													
Coburn													
Fisher													
Galletley													
Henderson													
Marvin													
Melvin													
Perry					HIBBARD						HIBBARD		
Shotwell													
Stahlnecker													
VonGardenheir													
Wageley													
Wilkey													
Willis													

* Conference period. 8:30 - 9:00 or 3:00 - 3:30

Teachers desiring the assistance of the special teacher should fill in the above blank with the type of work to be undertaken and the approximate length of time to do the same. Please fill out the schedule one week in advance.



Desert Fox

Beaver
Fig. 1Mountain
Lion

Kachina Dolls

Fig. 2

Third Grade Projects

In Figure 2, another third grade project, the central figure, top row, is a commercial product, the figures on each side were carved by the author while the four on the bottom were made and decorated by the pupils.

The study of South America and Mexico suggested large type construction which is illustrated in figures 3 and 4, page 34. They are quite self-explanatory.

Miniature construction is again depicted in figures 5 and 6, page 35. Both were made in one room, the work extending throughout the semester. The background of each is a large mural drawn on wrapping paper and fastened over the blackboard with cellophane tape. They were made in the third grade.

Fourth grade work is represented in both miniature and large construction as shown on page 36.

Figure 7 shows the large type which was made of large packing cases covered with butcher-paper, while the miniature shown in Figure 8 was made of sticks and adobe.

The trains on page 36a figures 9 and 10, are from another third grade series in different schools. The illustrations show how closely a certain type of construction is adhered to in some instances, though this is not often true.

Figure 10 shows the train, signal towers, water tank, etc., as made in Miss Christiansen's third grade, the complete unit being presented in the following pages:



Smoking Rubber

Fig. 3

South America



Fig. 4

Mexico

Third Grade
Projects

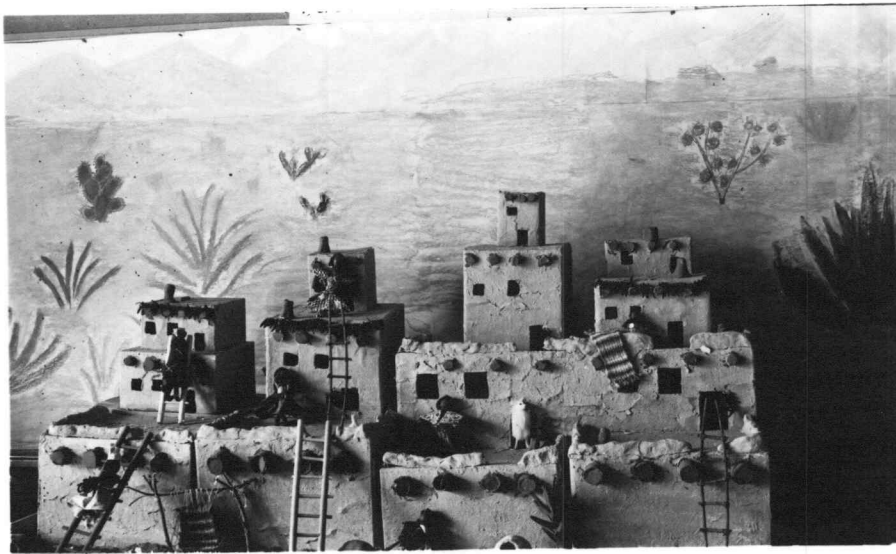


Fig. 5

Indian Pueblo - Miniature

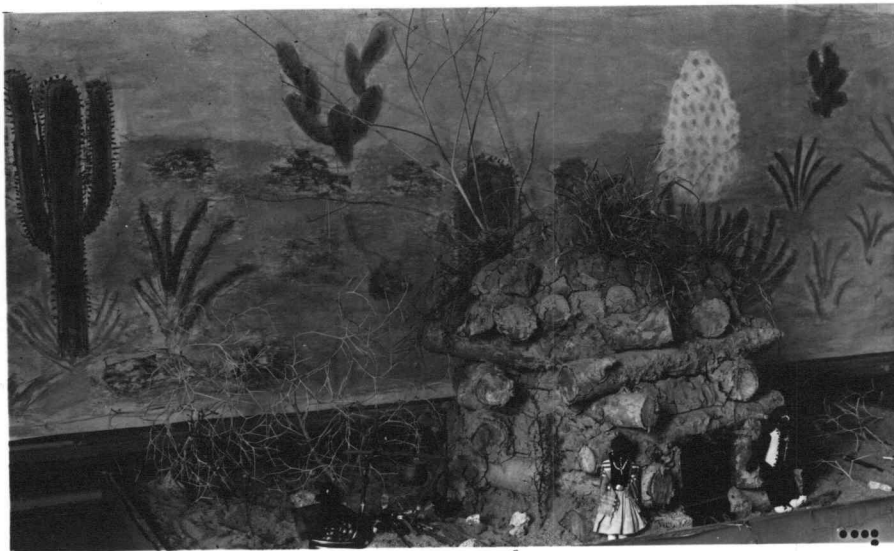


Fig. 6

Arizona Indians - Miniature

Third Grade
Projects



Fig. 7

Indian Pueblo - Large



Fig. 8

Indian Pueblo - Miniature

Fourth Grade
Projects



Fig. 9

Train

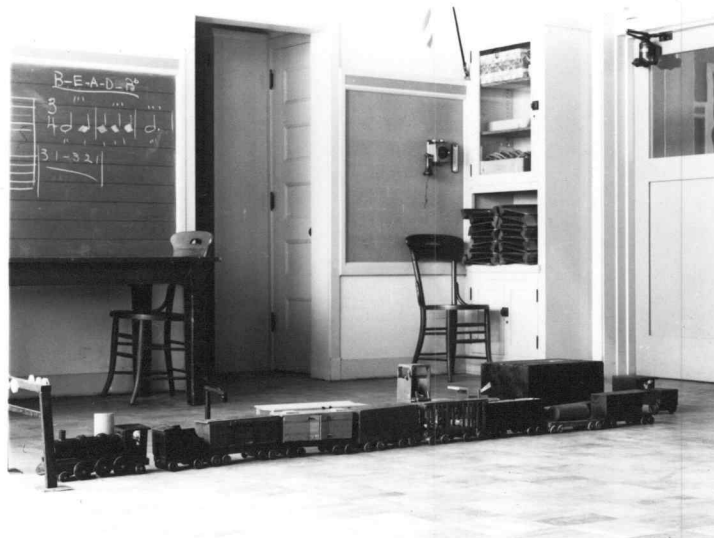


Fig. 10

Train

Third Grade
Projects

INITIATION:

FREIGHT TRAINS AND THE FREIGHT THEY CARRY
IN AND OUT OF LONG BEACH

For Third Grade

Jean L. Christianson

Arrange Environment

- A. Pictures
 - 1. All steamed up - Mattern
 - 2. North Coast Limited in Montana
 - 3. Two large U. P. pictures
 - 4. Smaller mounted pictures
- B. Books
 - 1. Burton - Choo Choo
 - 2. Florerty - Picture - Story of Trains
 - 3. Follett - Picture - Story of Trains
 - 4. Hader - Picture Book of Travel
 - 5. Kuh - A Train, A Boat and an Island
 - 6. Kuh - The Engineer
 - 7. Petersham - The Story book of Trains
 - 8. Pryor - The Train Book
 - 9. Donaldson - Smoky, the Lively Little Locomotive
 - 10. Picture books from the Ten-Cent Store
- C. Floor Toys
 - 1. A complete train
 - 2. A locomotive
 - 3. A truck
 - 4. Pipe-stem-cleaner dolls
- D. Building blocks
- E. Work bench
- F. Saw horses
- G. Clamps
- H. Tool rack with all tools arranged thereon
- I. Building material
 - 1. Apple boxes
 - 2. Orange boxes
 - 3. Cheese boxes
 - 4. $1\frac{1}{2}$ " button molds
 - 5. $2\frac{1}{2}$ " button molds

6. Spools
7. Wood (Soft, s4s.)
 - a. 3" Awning pole
 - b. $\frac{3}{4}$ " x $3\frac{1}{2}$ "
 - c. $\frac{1}{2}$ " x $3\frac{1}{2}$ "
 - d. $\frac{1}{2}$ " x $1\frac{1}{2}$ "
 - e. $\frac{1}{2}$ " x $1\frac{1}{2}$ "
 - f. $\frac{1}{4}$ " x $\frac{1}{2}$ "

RESPONSES TO ENVIRONMENTAL ARRANGEMENT

We are required to wait a few days before starting our Area of Experience as some children may have to be shifted. During this time I would like to read "The Wonderful Locomotive", by Meigs, to the children just for the joy of sharing.

Some afternoon I would arrange the above stated environment. Sharing time would probably have to be postponed because of curiosity. The following might take place:

Teacher: What do you see about the room that looks interesting?

Pupil: Train pictures.

Teacher: Would you like to look about the room?
(Allow a short time for the children to handle the train and look at the pictures and books.)

Teacher: Who would like to tell us about something they saw?
(As they talk let them point it out to the class or bring it to the rug.)

At this discussion express any knowledge they may have about trains.

Pupil: I came from Bremerton on the train.
(Tells about his trip.)

Pupil: I went with my father to get a box of freight. I saw an engine and some box cars.

Pupil: When we went to the Navy Landing to get my father I saw an engine with a lot of different cars.

Teacher: Did some of you have a good time on the train?

Pupil: Yes.

Teacher: This train was just loaned to us and I will have to return it after awhile.

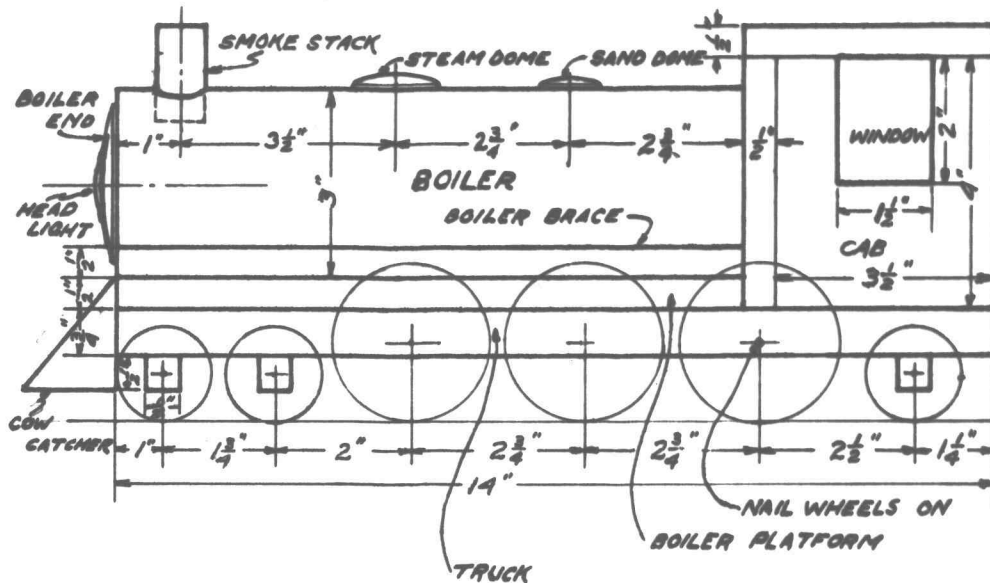
Pupil: Couldn't we make some cars of our own to play with? (And the trains are rolling).

SEQUENCE OF ACTIVITIES

Needs and Desires	Experiences Involved
1. Making a Train <ul style="list-style-type: none"> a. Locomotive b. Freight cars <ul style="list-style-type: none"> 1. Box cars 2. Tank cars 3. Flat cars 4. Stock cars 5. Refrigerator cars 6. Gondola cars 7. Caboose cars 	<ul style="list-style-type: none"> A. Looking at pictures and models of locomotives. B. Discussing locomotives. <ul style="list-style-type: none"> 1. Appearance 2. How they run 3. What they need to make them run 4. Work of the engineer and fireman 5. Size and strength of locomotives 6. Numbers and initials painted on to identify company owning locomotive 7. Some locomotives are built for speed and some for great pulling power. 8. Some freight locomotives have two truck wheels and six driving wheels, while another has two truck wheels and eight driving wheels C. Looking at pictures and models of freight cars. D. Discussing: <ul style="list-style-type: none"> 1. Kinds of freight cars 2. What each kind carries E. Choosing what kind they wish to make. F. Planning it. G. Constructing it <ul style="list-style-type: none"> 1. Selecting lumber 2. Selecting tools 3. Sawing, hammering, etc. H. Evaluating work as it progresses I. Making a short trip to Eighth and Pico to see the different kinds of cars. A little longer trip might be taken to Pier A for the same purpose.
2. Expressing what they saw on the trip with cal-somine paint.	<ul style="list-style-type: none"> A. Discussion B. Looking at pictures C. Expressing their ideas of what they saw

3. Needing more information about the car they are building.
 1. Locomotives
 2. Different cars
4. Desiring to express what they saw on trip in rhythms
 - D. Evaluating
 - A. Reading the information under the pictures.
 - B. Class may read together and discuss what they have read.
 - C. May look material up in the simple books found on the reference shelf.
 - A. At this stage the rhythms would be very simple as they do not have much with which to build.
 1. Piston rods
 2. Wheels
 3. Piston rods and wheels together, to make an engine
 4. Add some cars
5. Enjoying a story about Smoky, the Lively Little Engine.
(This is the story of a little engine that started out on a trip with an axle that needed oiling. After a wreck his axle was oiled and he finished the trip.)
 - A. Listening to the story
 1. Enjoying the pictures
 2. Enjoying the suspense the story
 3. Expressing their apprehension of parts of the story
6. Wishing to use finished parts of the trains.
 - A. Taking part in dramatic play.
7. Expressing themselves through music.
 - A. Singing some of the songs about trains.

(A train time-table and a series of train poems were introduced at this time.)



PLAN FOR AN ENGINE

ALL WOOD - SOFT PINE - s4s
 TRUCK BASE - $\frac{3}{4}$ " x $3\frac{1}{2}$ " x 14" (1)
 AXLES - $\frac{1}{8}$ " x $\frac{1}{8}$ " x $3\frac{1}{2}$ " (3)
 BOILER PLATFORM - $\frac{1}{8}$ " x $3\frac{1}{2}$ " x 10" (1)
 BOILER BRACES - $\frac{1}{8}$ " x $\frac{1}{8}$ " x 10" (2)
 BOILER - 3" x 10" - AWNING POLE (1)
 CAB - $\frac{1}{8}$ " x $3\frac{1}{2}$ " x 4" (4)
 DRIVE WHEELS - $2\frac{1}{8}$ " BUTTON MOLDS (6)
 TRUCK WHEELS - $1\frac{1}{8}$ " BUTTON MOLDS (6)
 BOILER END, FRONT - $2\frac{1}{8}$ " BUTTON MOLD (1)
 HEADLIGHT - 1" ROOFING WASHER (1)
 SMOKE STACK - $\frac{3}{4}$ " DOWEL. 1" TO 2" LONG (1)
 SAND DOME - $1\frac{1}{8}$ " BUTTON MOLD (1)
 STEAM DOME - 1" BUTTON MOLD (1)
 COW CATCHER - TIN, SHAPED FROM A TIN CAN (1)
 NAIL BOILER PLATFORM TO TRUCK
 NAIL BOILER BRACES ON EACH SIDE OF PLATFORM
 NAIL AXLES TO TRUCK
 BORE $\frac{3}{4}$ " HOLE FOR SMOKESTACK - GLUE IN STACK
 SAW OUT A PIECE 2" x $1\frac{1}{2}$ " FROM CAB PIECES FOR WINDOWS
 NAIL CAB TO TRUCK
 NAIL 6 LARGE BUTTON MOLDS TO TRUCK FOR DRIVERS
 NAIL 6 SMALL BUTTON MOLDS TO AXLES FOR TRUCK WHEELS
 USE SMALL WASHERS ON EACH SIDE OF THE BUTTON MOLDS SO
 THEY WILL TURN EASILY

WAYS IN WHICH THIS AREA OF EXPERIENCE
MIGHT BE INITIATED

Through an arranged environment.

I used this one to initiate my area of experience on Trains and it is with my sequence.

From an on-going activity.

Last semester the children had a Farm as an area of experience. In their play they took milk to the depot. To start off the trains I would borrow as much of last year's set-up as the teacher would let me have.

One day when the children had taken milk to the depot, I asked where the milk was taken from the depot? How was it carried? I would have pictures showing milk tanks on trains and milk cans being loaded on trains. Besides this there should be many other train pictures at hand to lead to other kinds of cars.

Through child suggestion.

Many times last year a member of my on-coming class would stop at my door and look with longing eyes at the trains on the floor and say "Can we make trains next year when we get into your room?" The first day of school they came in asking when they could start. All the teacher needed to do was supply the needed lumber and information through pictures and books.

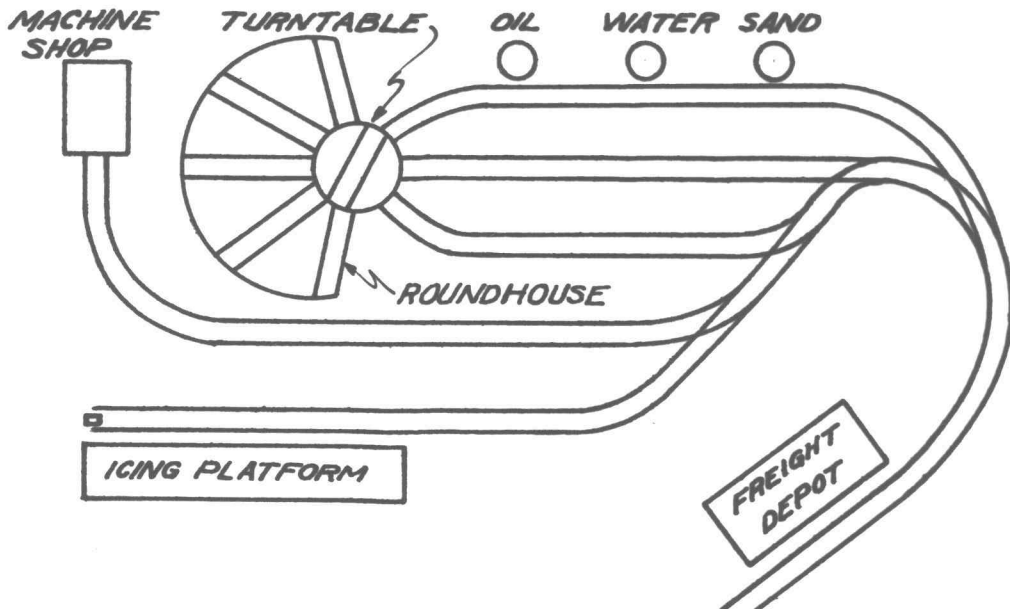
Through teacher suggestion.

Because trains have wheels and go places any time, a teacher felt that trains were a suitable experience for a class. All she would have to do would be to say, "We are going to make trains" and she would be sure to get an enthusiastic response from the class.

RHYTHMS

- A. Experiences that would lend themselves to rhythms
1. Locomotive and train movement
 2. Signals, semaphore, wig-wag
 3. Turntable and roundhouse activities
 4. Freight yard
 - a. Servicing (oil tower, icing, etc.)
 - b. Switching
 - c. Loading
 - d. Breaking up trains
 - e. Making up trains
 - f. Classifying cars
- B. One of the first rhythmic expressions might be to show the movements of a train. It could be expressed as follows:
1. Eight children in two rows with hands up for a tunnel.
 2. Four children in two groups for gates. Arms would be the gates to raise and lower as train passes.
 3. Two children for wig-wags at the gates.
 4. Two children for semaphores.
 5. Six children for a train
 - a. Piston rods -- arms held straight at the elbow
 - b. Wheels -- make circles with arms
 - c. Cars -- hold arms behind and keep in step
 6. Pass through the tunnel
 7. Pass by the gates -- wig-wags go
 8. Two semaphores
- C. We do not have a piano in the room so I thought I could work it out with the toy orchestra.
1. Drums for time -- assisted by sand blocks
 2. Woodblocks for the dropping of the gate
 3. Whistles for the train whistle
 4. Triangle for the wig-wag

DRAMATIC PLAY



The children have planned a play set-up like the one above, occupying the floor space at the end of the room.

1. Two children running the switch engines making up a train.
2. Children servicing at the oil tower, water column, sand tower, and icing platform.
3. Working at the machine shop, roundhouse, and turntable.
4. Taking a train on a run after it was made up.
5. Children working at the depot loading and unloading freight.

SECOND SEQUENCE

At first, during dramatic play, the children will be content to just push their trains about with some boxes for tunnels. After a time they will want to service their locomotives and the second sequence is started.

Needs and Desires	Experiences Involved
To service their locomotives and take them places	<ul style="list-style-type: none"> A. Looking at pictures B. Reading C. Going on a trip to a round house <ul style="list-style-type: none"> 1. Planning the trip 2. Discussing the things to look for 3. Making a list of questions they wish answered 4. Seeing useful activities pertaining to the unit <ul style="list-style-type: none"> a. Engine over pits b. Steel being welded c. Boilers being cleaned d. Smoke going out of smoke-stacks e. Turntable moved and engines put on the right track so they got in the right stall f. Tender filled with sand, water, and oil g. Watching repair work done in the shop h. Refrigerator cars being cleaned
Building the roundhouse	<ul style="list-style-type: none"> A. Discussing and Planning <ul style="list-style-type: none"> 1. Uprights between the stalls 2. Windows around back of roundhouse 3. The pits 4. The tracks 5. How many stalls 6. Materials

Building the
machine shop

Building the sand
tower, water column
and oil tower

Expressing creatively

Enjoying stores or
poems
(Clear Track Ahead
is a good one.)

Finding out why
trains have whistles

B. Constructing

- A. Discussing and planning
 - 1. Inside of the machine shop
 - 2. The electric crane
- B. Constructing
- C. Evaluating

- A. Experiences the same as for above

- A. Painting
 - 1. After the trip to the roundhouse they would wish to express with paints
 - 2. Pictures should contain more background as they now have more to tell
- B. Rhythms
 - 1. After playing in the roundhouse they may wish to put this play to music

- A. Listening
- B. Enjoying
- C. Appreciating
- D. Wish to express themselves in some creative writing

- A. Reading to learn
 - 1. Uses of whistles
 - a. Warning to other trains
 - b. Sending messages between the engineer and the conductor
 - 2. Meaning of different whistles
 - a. One long, coming to a station or junction
 - b. Two long - one short - one very long; public crossing
 - c. Three short; stop at the next station

- d. Three short when standing still; back up
- e. Two short - one long; the engineer's answer

3. Whistle by means of steam

Constructing yards for play

- A. Recalling what they saw on the trip
- B. Reading for further information
- C. Looking at pictures
- D. Sharing information that an individual child may have
- E. Learning about:
 - 1. The work of the train crew
 - 2. Two sets of tracks - one for trains going in each direction
 - 3. Receiving yards
 - 4. Classifying yards
 - 5. Departure yards
 - 6. Caboose track
 - 7. The "hump"
 - 8. Car retarder
 - 9. Breaking up a train
 - 10. Making up a train
 - 11. Yardmaster
- F. Drawing tracks on the floor

Playing in this yard

- A. Dramatic play
 - 1. Making up trains
 - 2. Breaking up trains
 - 3. Taking locomotives to the roundhouse for servicing
 - 4. Taking locomotives to the machine shop for repairs
 - 5. Taking trains over the "Hump"
 - 6. Being the yard master

Expressing some of the freight

- A. Recalling what they played yesterday
- B. Activities seen at roundhouse

- C. Looking at pictures
- D. Discussing what they could paint
 - 1. Locomotive on turn-table
 - 2. Switch engine at work
 - 3. Locomotive going on a trip
 - 4. Part of a train

Doing some of the dramatic play to music or rhythms

- A. Depicting to music:
 - 1. Switches
 - 2. Locomotives
 - 3. Switching
 - 4. Making up a train
 - 5. Breaking up a train
 - 6. The Hump
- B. These things would be recalled from dramatic play and be worked out, a small part at a time to music

Learning about Railroad tracks

- A. Reading to learn about:
 - 1. Roadbed
 - 2. Ties
 - 3. Shape of the rails
 - 4. Space between for expansion
 - 5. Spikes

Wish to create a story of their own

- A. Enjoy listening to any one of the following stories:
 - 1. Meigs, The Wonderful Locomotive
 - 2. Wadsworth, Sad Little Switch Engine
 - 3. Swift, Little Black-nose
- B. Look at the pictures
- C. Tell the parts of the story that they liked
- D. Writing a story of their own

There were wrecks in play so a need to know about running trains safely

- A. Reading and learning about:
 - 1. Divisions
 - 2. Interlocking tower
 - 3. Block signals
 - 4. Semaphores
 - 5. Color light signals
 - 6. Signal tower
 - 7. Signal bridge

- 8. Yardmaster
- 9. Train dispatcher
- B. Building a semaphore or light signal
- C. Deciding to have a yardmaster and dispatcher in play

SOURCES OF INFORMATION

Excursions

A. Taylor Roundhouse

The Taylor Roundhouse and yards are on San Fernando Road. The yards begin where Figueroa Street crosses San Fernando Road. You can see the signal tower on the corner. Follow north on San Fernando until you come to the first road to the left going into the yards. Enter on this road, turn to the left and go down through the tunnel to the parking grounds.

Permission to take a class through may be obtained by telephoning the Chief Mechanic's Office. I would advise any teacher wishing to look over the grounds in advance, to go on Sunday. The machine shop is not active then. The foreman on duty took me all over the place, worked and explained the machinery. Then he took me to the roundhouse and told me about the different types of engines and their operation.

At this place are machine shops, roundhouse, places for servicing cars, signal tower, signal bridge, every type of car, and freight yards.

B. Trip to a Freight Depot

This depot is at Eighth and Pico, not far from our school. There is not much traffic here but they can see locomotives and different types of cars.

C. Trip to Pier A in Long Beach

Much of the freight going in and out of Long Beach is in connection with the harbor. It is brought in on a Belt Line. At Pier A are the warehouses where the trains are loaded and unloaded.

D. Trip to Pier A in Wilmington

On this trip after leaving Anaheim Street you follow along the freight yards of the

Southern Pacific. You can see engines, types of cars, cars being classified. At Pier A are the warehouses of the President Steamship Lines. This trip also gives an opportunity to observe industrial sidings.

Because of some very unfortunate law suits the Long Beach School Board has curtailed many excursions. Now parents are taking their children on these trips which were formerly covered in the school bus.

CULMINATION

Needs and Desires	Experiences Involved
Sharing with their parents	<ul style="list-style-type: none"> A. Writing invitation to the program B. Discussion and planning C. Giving the program that might involve: <ul style="list-style-type: none"> 1. Playing a scene from a train yard <ul style="list-style-type: none"> a. Activities in the round house b. Servicing an engine with water, oil, and sand 2. Reading a story that some child had written 3. Singing: <ul style="list-style-type: none"> a. An original song b. Other songs that they have learned 4. Reciting: <ul style="list-style-type: none"> a. An original poem b. Train songs done as a verse choir 5. Rhythms to music <ul style="list-style-type: none"> a. Use toy orchestra b. Depict: <ul style="list-style-type: none"> b₁. Engine (piston and wheels.), tender, and cars. Pass by signals, switches, and gates. b₂. Making up a train in the yards. 6. Receiving the parents 7. Handing them the programs that they have made and decorated

OUTCOMES IN TERMS OF GROWTH

A. Physical

1. Handling of tools would develop much better muscular control and increase in muscular strength.
2. Dramatic play gives a chance for increased activity instead of being tied to a seat and this brings about a healthier body.
3. Rhythms develop muscular coordination, gracefulness, better posture, and a greater freedom of muscular control.

B. Intellectual

1. Knowledge
 - a. A more complete understanding of trains
 - b. How they are operated
 - c. The men who operate them
 - d. How they serve us
 - e. Freight carried on trains
 - f. Freight brought in and out of Long Beach
 - g. Industrial plants
2. Ability to choose wisely
3. Make correct judgments
4. Evaluate the result of his work
5. Increased power of observation
6. Carry out instructions after reading

C. Social

1. Increased ability to live with other people in a spirit of give and take.
2. Sharing.
3. Better appreciation of what other people are contributing to our comfort and happiness, and vice versa.
4. Better understanding of how other people live and work.
5. Taking a turn at doing the things that are not so pleasant.
6. Carrying our share of the load.
7. More tolerance of others.
8. Greater control of themselves for the good of the group.

D. Emotional

1. Increased ability in
 - a. Keeping temper
 - b. Taking criticism in the spirit in which it is meant
 - c. Taking responsibility
 - d. Not being so easily annoyed
 - e. Carrying on a discussion without it becoming personal

CULMINATION (Same as on page 53)

OUTCOMES IN TERMS OF GROWTH (Same as on page 54)

REST OF SEQUENCES

AND

OTHER MATERIALS REQUIRED

Further Needs and Desires that Will Come Out of the Unit

As they played in the freight yard the question of what to unload and load came up. Also where should they take their cars when a train was broken up. (The first need and desire to build a train is very likely to come first as planned but from there on experience, reading, and looking at pictures may develop the rest of the needs in a very different order than I did in this paper and it will be just as desirable.)

Needs and Desires

Experiences Involved

As the unit moves along into new sequences I will make provision for the following experiences in each sequence without stating them each time.

- A. Dramatic play
- B. Rhythms
- C. Painting
- D. Singing
- E. Reading poems and stories to the children
- F. Creative writing by the children
- G. Reading
- H. Planning
- I. Evaluating
- J. Choosing

Taking their cars
trains from the freight
yards

- A. Recalling from the trip
- B. Reading
- C. Looking at pictures
- D. Finding out about:
 - 1. Train tracks
 - 2. Industrial sidings
 - 3. Spur tracks
 - 4. Freight tracks

- 5. Carload lots
 - 6. Less than carload shipments
 - 7. Auto docks
 - 8. Poultry docks
 - 9. Loading stock
 - 10. Icing platform
- Painting on the floor for play
- Building an icing platform and playing with it
- Needing to know about plants on the sidings for play
- Need for a depot
- Needing trucks to haul from the depot
- In play comes the question what shall we haul in our trucks and where shall we take it
- A. Team tracks
 - B. Industrial sidings
 - C. Spur tracks
- A. Finding out about
 - 1. How you ice refrigerator cars
 - 2. How ice is made
 - a. Make a trip to an ice plant
- A. Finding that there are
 - 1. Lumber
 - 2. Meat packing
 - 3. Oil
 - 4. Large warehouses
 - 5. Stock yards
 - 6. Ford plant
- A. Visit a depot
 - B. Reading
 - C. Learning
 - 1. The kind of building
 - 2. Outbound freight
 - 3. Inbound freight
 - 4. Loading and unloading equipment
 - 5. Spotting cars
 - 6. Loading platforms
 - a. Trains
 - b. Trucks
 - D. Building the depot
 - E. Fixing the office
 - 1. The window
 - a. Business there
 - a₁. Bills of lading
 - a₂. Way Bills
- A. Building the trucks
- A. Finding out about Long Beach industries
 - B. What is shipped into Long Beach

- C. Visiting
1. Celery packing plant
 2. Citrus packing
 3. A large warehouse

A large part of the freight in and out of Long Beach is tied up with our harbor and so we might complete this unit in that location.

(The part about cargoes and freight will take some more trips on my part. The trains and their operation left me no time for the latter.)

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The Culminating Activity

As will be noted in the previous outline the culminating activity emphasizes those aspects of the work which contribute most to the realization of its specific purposes and values. Since nearly all activity in the unit of work is carried on by committees, with each pupil working only on his particular assignment, and as it is necessary for all of the class to receive the benefits of the individual's experiences, the class must be assembled to hear the committee reports. This gives the pupil an opportunity for free expression and for the evaluation of the progress made in the work by the class as a whole. Occasionally a culminating activity is provided for as a class activity, in which dramatic play, as distinguished from dramatization, takes place. This is generally accomplished by the writing of a playlet with each member of the class taking an active part. The essential points **covered** in the recent study are acted out in an informal manner and show their interpretation of the outcomes of the unit.

Little children will naturally indulge in imaginative play if they are not forbidden or ridiculed. At all ages an essential factor is the security of knowing that what they do and say will be taken in all sincerity by the teacher and their classmates.

The teacher must be one of them if she is not to be an inhibiting influence. She

must herself thoroughly believe in the value of play. Here particularly she must give assistance rather than direct or command.

The desire, if not the suggestion, must come from the children. They must have something which they have a real eagerness to express.¹

Points to Observe for Culmination

There must be no criticism during the play.

There must be plenty of space available.

A free situation in the room must be maintained.

A rich background must be obtained before dramatic play can be started.

Give opportunity for pupils to read for background. Much reading material must be available.

Stay out while play progresses.

Plan carefully. Throw responsibility on the children.

Careful evaluation is absolutely necessary.

Points to Observe in Teaching a Unit of Work

1. Appreciative activities may be stated as those in which one tries to price the thing and trying also to increase the price.

I.

Lee, J. Murray and Morris May Lee, The Child and His Curriculum, p. 582.

2. The material in a unit of work must be:
 - a. On a child's experience level
 - b. On a child's maturity level
 - c. On a child's appreciation level
3. Material should generally be presented as a whole. Don't overanalyze.
4. The teacher should have at least some enthusiasm for the subject.
5. Let children express their reaction. (It may be necessary to give leading questions.)
6. Remember that in 99 cases out of 100, one can do a thing.
7. Remember that the chief purpose in the elementary school is appreciation, not perfection.
8. On a college level it takes as long as three months to correct some mistakes.
9. Children can find 80% of their mistakes.
10. The unit of work requires the study of the curricular requirements of the community.
11. Allow for repetition but do not place too much reliance on routine repetition.
12. Time of drill is greatly reduced if an understanding of the concept of the problem is had.
13. Reduce pressure for speed in abstract problems.
14. Understanding first, and a reasonable amount of speed later.
15. Strike a balance between speed and accuracy.

16. Dull children need much more explanation but the principle of learning is the same.

17. Some processes have been taught at too early an age.

18. Some teachers apparently make work by having unnecessary work done.

19. The unit may have one major objective with several minor objectives.

20. A controlled vocabulary is necessary to keep down the number of new words.

21. It is best to place the children in groups (committees) to make each one, as an individual, understand the difficulties one has in not disturbing their neighbors.

22. Quiet activities.

Evaluation of the Unit

Without some means for measuring the results of our teaching and its effect on the lives of the pupils, we are at a loss in not knowing the effectiveness and efficiency of our teaching. Standardized tests to measure the outcomes of the subjects taught in the traditional type of school have been used in the newer type of school, where they have shown in nearly all cases, equal or better results than if the former method had been used.

However, no account of the difference in the achievement of the pupil in his social understandings were taken into consideration. New tests had to be developed that would show the progress of the pupil in his life experience.

The makers of tests have not been slow in recognizing the need and a large number of tests have been recently developed to show to what extent the pupil has attained the objectives of elementary education. A few of these tests are:

Haggerty - Wickman - Olson, Behavior Rating Scale, which is one of the best known tests for rating behavior.

The Winnetka Scale for Rating School Behavior and attitudes.

The California Test of Mental Maturity by Sullivan, Clark and Tiegs, is one of the few intelligence tests that provides for measurement at all levels. It is noted chiefly for providing for language and reading difficulties.

The California Test of Personality, by Thorpe, Clark, and Tiegs, is used to show the extent to which the pupil is responding to his environment and as to how he is developing a normal, happy, and socially effective personality.

Other good tests have been made and as more study is given to the problem, new and better tests will be formulated.

A means of evaluation being used a present is the new-type report card,¹ wherein the teacher tries to mark the pupil on his progress in his work. This marking is almost entirely subjective; nevertheless, it shows that some advance has been made in the attempt to mark the pupil in more than just his traditional studies.

¹

See appendix F, p. 104

CHAPTER IV

THE PROPOSED PROGRAM

The program for the school year 1941-1942 will be essentially the same as in the past, with social living forming the nucleus, around which is built the unit of work.

As experience is gained in working with the various units, more extended use of handcraft will be in evidence. To provide for this increased activity, there should be more tools made available to enable each teacher to have a coping saw, small cross-cut saw, hammer, and a "C" clamp in her room; this to be in addition to the portable tool kits that are in use at present when several groups work at the same time. Special saw-horses with a wide top for use as a bench, and of a height suitable to the requirements of the pupils, have been made use of to a limited extent in a few of the schools. Since they are easy to stack and thus do not occupy much space, each room should have three or four of different heights and widths of tops. A small clamp-on type of vise is also very desirable. Each teacher should be provided with a divided tray for a stock of the more commonly used nails and other fastenings. With this limited equipment, it would be possible for all of the rooms to carry on simultaneously the construction part of a unit.

A still greater change concerning the special teacher and their relation to the classroom teacher is contemplated in the future. This is illustrated by the following excerpt of a letter, as of July 7, 1941, to the writer from the Superintendent of Schools,¹ Long Beach; regarding the assignment of special teachers for the ensuing year, to wit:

In line with this assignment I think that I should indicate our desire to stress certain points in the development of the industrial arts during the coming year; namely:

1. We want to make the work as integrated as possible with the regular elementary school program, particularly with the units that are in progress.
2. We desire the special teachers to work with the regular elementary teachers as much as possible, helping them to undertake the work rather than undertaking the work independently.
3. We contemplate the assignment of a portion of your time for development as indicated above in the several schools and a portion of your time in workshops where you will assist regular elementary teachers in learning the skills that are necessary when carrying on the practical arts activities in the classroom.

From the foregoing, the most significant point is that part of the third, regarding the diversion of time from regular duties to conducting workshops for the purpose of giving in-service training to the regular

I.

Kenneth E. Oberholtzer, Superintendent of Schools,
Long Beach, California.

classroom teacher. This has been explained in detail in that part dealing with the duties of the special teacher.¹

One of the obligations of this work will be very difficult to accomplish, i.e., to change the attitude of some teachers with regard to their antipathy toward this type of program. This is doubly difficult because of the fact that these are the teachers who practically refuse to have anything to do with the unit of work as it is generally being taught. Although they are teaching a unit, it is very much in the traditional manner, and allows for no more activity and initiative on the part of the pupil than that which she is compelled to give him. Attendance at these workshops will be necessary if these teachers are to gain some insight into the principles of the newer trends, what they stand for, and how much more real enjoyment can be theirs if they would only share with the child, those activities which he so spontaneously expresses if allowed to do so.

Work-books for each unit, made somewhat along the lines of the unit of work outline,² should materially aid the teacher unaccustomed to the necessary procedures in

1.

Cf. ante, p. 22.

2.

Cf. ante, p. 37.

carrying on a unit. These should be flexible to allow for the variables (school, class, teacher, etc.) found in any educational unit. They should be illustrated profusely with sketches and photographs to make them more readily understood. This would provide a means for showing the teacher the necessity of having the pupils make understandable drawings and sketches of the project to be made by them before they start the actual construction.

These work-books may be made by the teacher; by fully outlining the actual progress of a unit being studied; during the period of in-service training; or in study in university extension classes established especially for this purpose.

With the widespread use of the slide projector as a teaching aid, there is no reason for limiting its use to commercial slides. Lantern slides as well as the construction of some of the equipment can be made by the pupils either as a group or class project. In this manner, much valuable illustrative material could be made available to all. The classroom teacher will again assume the burden of instruction, with the assistance of the special teacher.

The thesis of the future program is, "more individual help for the classroom teacher by the special teacher,

until all of the elementary teachers are fully informed concerning the necessary procedures in construction in the carrying on of a unit of work."

CHAPTER V

SUMMARY

The function of the school is primarily to present to the child the problems of everyday life in such a manner that he will feel the need of learning to such an extent that his interests and abilities are developed to a degree commensurate with his learning ability. These problems or experiences evolve from his social activities, which are grouped around a central theme and expanded as time and interest will permit.

In this process of learning, the industrial arts, or handicrafts, forms the basis for nearly all of the activity as it is carried on in the modern school. By this means the child is able to give expression to his consuming desire to do something with his hands, to shape and mold some raw product into a useful article.

The scope of this study includes only the third, fourth, fifth, and sixth grades because it is in these grades that more detail is demanded and the special teacher assumes a greater proportion of the teaching load.

The problem, as here presented, is to determine how to teach the child the fundamental processes concerning the handling of the more common hand-tools that are necessarily used to successfully complete a unit of work. That this teaching is to be accomplished by the classroom

teacher to a greater degree, instead of the special teacher, is shown by the trend taking place relative to the duties of the special teacher, who may now be regarded as more of an adviser to aid the classroom teacher in assuming these new duties.

The unit of work forms the basis for study, around which the child's experiences and related activities are grouped, in that he may develop those desirable characteristics of a good citizen.

The activity-hour is the term used for expressing the period during which any manual work is accomplished.

Industrial arts should not be confused with handcraft inasmuch as the former is too limited in its scope, while the term handcraft is designed to include all of the activities of the child in the elementary school curriculum.

The district is mentioned to show the wide diversity of occupation and trades contiguous to the schools and of their influence on the type of pupil enrolled in the Long Beach schools.

The present program shows the development, limitations (both instructional and financial), the role of the special teacher and the unit of work. The unit of work is shown by an outline of the units taught in a representative elementary school; numerous photographs

illustrating completed projects; a complete unit outline on Trains, and the evaluation of a unit.

In the proposed program, the necessity for an increased number of tools is emphasized, to allow for all of the activities taking place in the expanded program.

The establishment of work-shops will enable the classroom teacher to actually use the tools in constructing projects similar to those made in the regular units.

The importance of work-books on the order of the complete unit of work outline cannot be underestimated. The making of these books by the teachers will give them an understanding of the correct order of presentation and of the necessity for fully outlining their work before attempting to present it to their pupils. As previously stated, the outlines cannot be made inflexible. They must allow for the unforeseen circumstances which invariably occur.

The rapid changes that are occurring in curriculum making have largely the result of a careful study and analysis of the basic philosophy of education; to minister to the needs of the child in his daily contact with reality, with its continually changing social and individual demands.

The traditional school held that the pupil became educated in the formal classroom, whereas the curriculum

at the present time has been expanded to the extent of including all of the experiences of the child, no matter where they may occur, and to use these experiences to improve his ability to react favorably when confronted with future, more involved and serious problems.

Evaluation of these life-experiences is difficult because of the lack of knowledge of how to measure the intangible traits of behavior that we are attempting to teach. In comparison to this, the evaluation of the traditional subject-matter course of study is indeed simple.

The new-type report cards¹ provide for most of these traits, but the checking of the items is chiefly the result of the teachers subjective judgment, which has proved, in many cases, to be far from correct. Many new-type tests are constantly being made and tried in an effort to objectively measure all of the results of our teaching. No doubt, there will eventually be found a satisfactory answer to this pressing need.

The more tangible results of the teaching of industrial arts or handcraft are adequately measured with present-day objective tests, but here also, we find unmeasurable those unseen, but not unheard, qualities that

I.

See appendix F.

the pupil incidentally acquires in our effort to teach him the necessary procedures to pursue in the building of some project in which he has manifested an active interest. The eventual satisfactorily-found means of evaluation will be broad enough to include any additional traits developed in this type of work.

Importance of handcraft is manifested in the amount of this kind of work now being pursued in the various schools as a basis for self-expression.

The duties of the special teachers of the practical arts have been increased by the addition of the new program of in-service training being instituted into the school system. The extent of this training is due to the fact that experienced teachers feel a real desire for more satisfactory outcomes in their classroom work, and also of their belief that in undertaking this additional work, they are becoming a discoverer and learner along with their pupils.

The problems confronting the schools may be summed up as follows:

- a. The rapid increase in enrollment in the schools that will follow the influx of war-workers.
- b. School construction still inadequate because of heavy expenditures following the earthquake.
- c. Organization of the supply service to cope with the greater demands made by the accelerated unit of work program.
- d. How to distribute economically the time of the special teacher, with their added duties, among the various schools.

- e. How to conduct work-shops.
- f. Adequate training of the classroom teacher to enable her to assume a greater proportion of the activity part of the program.
- g. The necessity for the further increase in the number of common hand-tools for use in the classroom.
- h. The need for the increased use of visual-aids in the field of handcraft.

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APPENDIX A

Long Beach City Schools
DEPARTMENT OF CURRICULUM AND CHILD WELFARE

October 1, 1937

ELEMENTARY UNITS OF WORK
(First Compilation Toward an Official List)

Teachers who have not yet selected their units should be guided by this list. Those who have already selected units differing from this classification need not change this semester.

Maud Wilson Dunn
Coordinator

Approved: KENNETH E. OBERHOLTZER
Superintendent of Schools

<u>Grade</u>	<u>Theme</u>	<u>Units</u>
Kgn.	Home Life	
1	Neighborhood Activities	Auto Camp, The Cafeteria, The Drive-In Market, The Little Shops, The Neighborhood Drug Store, The Pets
2	Community Services to the Home and Its Members	Fire Protection Municipal Band, The Parks, The Police Protection Post Office, The Public Library, The
3	Child Life In Other Lands	Favorite Stories of Other Lands Homes in Other Lands Play Days in Other Lands Playtime Around the World Toys Around the World Travel Around the World Travel in Other Lands

<u>Grade</u>	<u>Theme</u>	<u>Units</u>
4	Discovering the Material World and Its Life	Animals as Man's Helpers Cleanliness--How the World Keeps Clean Dogs Earth--What Earth, Air, Fire, and Water Mean to Us Fairy Tales and Folklore Food--Eating Breakfast Around the World Long-Beach-Los Angeles Harbor Paper and Paper Making Sea Life Shoes Story of Air Story of Water Weather, The Wild Animals
5	Problems of Living on the North American Continent	*America's Pioneers Birds of North America Clothing Fruits of North America Great Rivers and River Valleys of North America Home Life in Different Parts of North America House in Which I Live, The How Plants Live and Grow and Are Used Indians--North American Indians and What They Have Contributed to Civilization Mountains and Mountain Regions of North America Music of the North American Continent Our Common Insects Playgrounds of North America Story of Food, The Trails--Famous Trails Through North America Trees and Their Products

*Formerly in fifth grade

<u>Grade</u>	<u>Theme</u>	<u>Units</u>
6	How People Have Changed Their Ways of Living and Thinking	Age of Chivalry Art Through the Ages *Bells, The Contributions of our Ancestors Craftsmanship Through the Ages Dishes on Our Table, The From Nomadic to Urban Life How Electricity has Served Man How Man has Improved his Means of Communication How Man Has Improved His Means of Travel How Man Has Learned to Control Temperature How Man Has Obtained His Water Supply How Man Has Provided for Greater Safety Influence of the Myths and Legends of the World Inventors and Inventions Making of Dyes, The Man and His Records Means of Telling Time Our Ever Changing Physical World *Ships and Ship Building **Star Land Story of Lighting, The Story of Man the Builder, The Story of Money, The Story of National Festivals, The Story of Our Calendar, The Story of Sound, The

*Formerly in fifth grade
 **Formerly called "Other Worlds
 Than This"

MAJOR UNIT OF WORK PROGRAM 1941 - 1942

SCOPE	SOCIAL LIVING IN HOME, SCHOOL, AND COMMUNITY									
	Immediate Community			Extended Community	Important Phase	SOCIAL LIFE IN CONTRASTED CULTURES				SOCIAL LIVING AS AFFECTED BY MAN'S PROGRESS
	Kindergarten	Grades 1B and 1A	Grades 2B and 2A	Grade 3B	Grade 3A	Grade 4B	Grade 4A	Grade 5B	Grade 5A	Grades 6B and 6A
1. Conserving human resources	The home and family relationships (play house)	General community life study	Dairy, creamery	Boats, cargo, distribution, harbor activities	Pueblo Indians	Simple life in Mexico or China	Ranchos of the Spanish Dons in California	Colonial Life	Growth of American Communities (including Long Beach)	Communication, How Man Has Improved Means of
2. Conserving material and natural resources		May start with transportation as it affects general living in the community and include such phases as:	Farm, rural life, distribution of products	Trains, cargo, distribution, railroad center activities	Navajo Indians	Farming in Egypt	Life about the Missions	Early Pioneer Life in Middle West		Travel, How Man Has Improved
3. Securing raw material	Brief experiences with: Phases of community life as, Gas station		Airport, carrying passengers and mail, other services	Post Office, carrying the mail	Plains Indians	Rubber gatherers of South America	The Gold Rush	Covered Wagon Days		(a) On Land
4. Producing commodities	Post Office	Grocery store or others	Life in the harbor	Oil fields, distribution and other activities	Nomadic Peoples					(b) On Water
5. Transporting and exchanging goods	Market	Market	Bakery, obtaining and distributing of materials							(c) On Air
6. Consuming goods	Grocery store	Fire station								Records, Man and His
7. Rendering and utilizing services		Theater								Invention and Scientific Discoveries That Have
8. Communicating		Filling station								(a) Changed Home Life
9. Cooperating in social and civic action		Beach								(b) Increased Our Safety
10. Securing an education	Transportation facilities	Park								(c) Improved Means of Sanitation
11. Expressing and satisfying aesthetic needs	Truck	Harbor								(d) Changed Life on the Farm
12. Expressing and satisfying spiritual needs	Boats	Police station								(e) Displaced Man
13. Discovering and developing new knowledge	Airplanes	Homes								(f) Made the World Seem Smaller
14. Enjoying recreation	Trains									(g) Controlled Temperature
15. Living in the home	Busses									Electricity Has Served Man, How
16. Getting a living	Animals on the farm									Lighting, The Story of Time, Means of Telling
										Water Supply, How Man Has Obtained His

APPENDIX C

WORTHWHILE AREAS OF EXPERIENCE IN FIELDS
OTHER THAN THOSE WHICH RELATE TO THE SEQUENCE

Two plans are suggested for using this list:

1. Short intensive study may be carried on in one (or more) of these areas at some appropriate time during the school year.
2. A study in one area may continue during an entire semester or a year and so parallel the social studies unit.

The teacher should not feel obligated to choose from this list. The decision should depend upon the needs, interests and previous experiences of the group of children with whom she is working. All of these areas of experience are worthwhile but they do not deal primarily with man's relationship to man (social studies). There are no grade lines indicated. The work in any area will be adapted to the maturity of the children.

Pets
 Band
 Rocks
 Garden
 Safety
 Fairy Tales and Folk Tales
 Sea Life
 Wild Animals
 (a) Animals of the Circus
 (b) Animals of the Zoo
 (c) Animals of the Jungle
 Animals as Man's Helpers
 (a) Farm Animals
 (b) Animals as Beasts of Burden
 The Weather
 Life Cycle in Plants
 Trees and Their Products
 (a) Trees in the Neighborhood
 (b) Trees in the Local Parks
 (c) Noted Trees in California
 (d) Tree Products in Mother's Kitchen
 (e) Tree Products in Our School
Earth, Air, Fire, Water
 Birds
 (a) Winter Visitants
 (b) Summer Visitants
 (c) Bird Residents
 Music of Our Country
 Common Insects
 (a) In the Garden
 (b) In the Home
 Story of Bells
 Man the Builder
 Story of Music
 Starland
 The School Newspaper
 Contribution of Our Ancestors (Specific phases)

APPENDIX D

BIBLIOGRAPHY

How Man Has Obtained His Water Supply

Sixth Grade

- a - Easy (Fourth grade reading level)
- b - Average (Fifth grade reading level)
- c - Difficult (Sixth grade reading level)
- T - Teacher's Reference
- * - Available some time after Jan. 1

Available in the Textbook Room:

- c Atkinson--The European Beginnings of American History Roman aqueduct (pp. 49-50 or 2 pages)
- a *Carpenter--The Houses We Live In General (pp. 133-142 or 10 pages)
- a *Charters--Wise Health Choice General (pp. 62-171 or 110 pages)
- c Cloud--On the Trails of Yesterday In San Francisco (pp. 120-127 or 8 pages)
- c Dougan--Stories of Outdoor Science From Mississippi (pp. 78-81 or 4 pages)
- c Floercky--Visual Geography of California In Los Angeles (pp. 24-25 or 2 pages)
- b Mohr--Egyptians of Long Ago In Egypt (pp. 32-33 or 2 pages)
- c *Payne--Elementary Science Readers, Book III (pp. 91-98 or 8 pages)
- c Payne--Elementary Science Readers, Book IV General (pp. 163-170 or 8 pages)
- c Powers--World Around Us General (pp. 123-139 or 17 pages)
- c *Reh--Water, Air, and Sound, Book I General (pp. 19-34 or 16 pages)
- c Craig--Our Earth and Its Story General (pp. 397-402 or 6 pages)

Available in the Teachers' Library (single copies only):

- c Andress--Health School on Wheels General (pp. 73-86; 304-305; or 16 pages)
- c Boumphrey--The Story of the Wheel Means of raising water (pp. 40-41)
- c Charters--Adventures in Health Safe water supply (pp. 160-168 or 9 pages)
- c Holway--The Story of Water Supply General (pp. 1-123 or 123 pages)
- T Rexford--Beyond the School General (In industry) (pp. 39-53 or 15 pages)

Available in the Teachers' Library: (cont.)

- b Turner--Cleanliness and Health
Rules for safety; Pasteur (pp. 43-46;
72-78; 146-153; 154-167; or 33 pages)
- b Turner--Health
General (pp. 215-221 or 7 pages)
- b Walters--Our Health Foundation
Avoiding accidents (pp. 210-280 or 71
pages)
- c Webster--Travel by Air, Land, and Sea
Safety provided by railroads
(pp. 169-176 or 8 pages)
- a Whitcomb--My Health Habits
Against accidents (pp. 122-142 or 21 pages)

BIBLIOGRAPHY

Ships and Ship Building

Sixth Grade

- a - Easy (Fourth grade reading level)
- b - Average (Fifth grade reading level)
- c - Difficulty (Sixth grade reading level)
- T - Teacher's Reference

Available in the Textbook Room:

- b Dukelow--Ship Book
General (pp. 1-274 or 274 pages)
- b Aitchison--Across Seven Seas to Seven Continents
An ocean liner (pp. 287-296 or 10 pages)

Available in the Teachers' Library (single copies only):

- b Atwood--Neighborhood Stories
General (pp. 195-202 or 8 pages)
- c Edholm--Ship Ahoy
Ships of Long Ago (pp. 13-78 or 66 pages)
- c Nida--Man Conquers the World with Science
From Ancient to Modern Times
(pp. 113-159 or 47 pages)
- c Starbuck--Down the Ship's Ways
Ship building (pp. 7-78 or 72 pages)
- c Starbuck--Liners and Freighters
General (pp. 9-75 or 67 pages)
- b Stone--Joyful Adventures
Evolution of boats
(pp. 291-364 or 74 pages)
- c Webster--Travel by Air, Land, and Sea
General (pp. 390-432 or 43 pages)

BIBLIOGRAPHY

Means of Telling Time

Sixth Grade

- a - Easy (Fourth grade reading level)
- b - Average (Fifth grade reading level)
- c - Difficulty (Sixth grade reading level)
- T - Teacher's Reference

Available in the Textbook Room:

- c Aker--Yesterday the Foundation of Today
General (pp. 244-256 or 13 pages)
- c Halleck--Our Nations Heritage
Babylonians (p. 41)
- b Howard--Time (Unit Study Book #407)
General (pp. 1-35 or 35 pages)
- a Persing--Elementary Science by Grades, Book Four
General (pp. 151-158 or 8 pages)

BIBLIOGRAPHY

How Man Has Learned to Control Temperature

Sixth Grade

- a - Easy (Fourth grade reading level)
- b - Average (Fifth grade reading level)
- c - Difficult (Sixth grade reading level)
- T - Teacher's Reference

Available in the Textbook Room:

- b Patch--Science at Home
Thermometer; Heating a Home; Body
temperature (pp. 178-208 or 31 pages)
- b Persing--Elementary Science by Grades, Book
Five
General (pp 168-178 or 11 pages)
- c Powers--World Around Us
General (pp. 371-381 or 11 pages)

Available in the Teachers' Library (Single copies only):

- c Tappan--Travelers and Traveling
Refrigerator cars
(pp. 26-35 or 10 pages)

BIBLIOGRAPHY

How Man Has Provided for Greater Safety

Sixth Grade

- a - Easy (Fourth grade reading level)
- b - Average (Fifth grade reading level)
- c - Difficult (Sixth grade reading level)
- T - Teacher's Reference
- * - Available some time after Jan. 1

Available in the Textbook Room:

- a *Charters--Good Habits
Against disease (pp. 142-154 or 13 pages)
- c *Gordon--Prove It Yourself (May be used as
Teacher's Ref.)
Railroad signals (pp. 246-249 or 4 pages)
- c *Payne--Elementary Science Readers, Book III
Conquering germ diseases; Surgery
(pp. 109-133; 143-163; 135-142; or 287 pages)
- c Payne--Elementary Science Readers, Book IV
Community health; Water; Milk
(pp. 156-185 or 30 pages)
- b Pitkin--Seeing America, Mill and Factory
Vaccines (pp. 182-198 or 17 pages)
- b Shirling--Outdoor Adventures
Weeds and how they travel
(pp. 75-85 or 11 pages)
- c Sparks--Worthwhile Europeans
Louis Pasteur (pp. 317-339 or 23 pages)
- c Craig--Our Earth and Its Story
Safeguarding health (pp. 391-420 or 30 pages)

Available in the Teachers' Library (single copies only):

- c Andress--Health School on Wheels
Milk; Inspecting markets; Restaurants;
Against disease and accidents; Fires;
Contagion from immigrants (pp. 59-71; 90-
104; 120-129; 175-227; 264-271;
312-344; or 133 pages)
- c Charters--Adventures in Health
Against disease and accidents
(pp. 123-151; 190-192; or 32 pages)
- b Charters--Health Problems
Against disease; From accidents
(pp. 81-151; 152-164; or 84 pages)
- c Powers--This Changing World
In changing seasons (pp. 292-311 or 20 pages)

BIBLIOGRAPHY

The Story of Lighting

Sixth Grade

- a - Easy (Fourth grade reading level)
- b - Average (Fifth grade reading level)
- c - Difficulty (Sixth grade reading level)
- T - Teacher's Reference
- * - Available some time after Jan. 1

Available in the Textbook Room:

- b Amburgh--Light (Unit Study Book #408)
General (pp. 1-36 or 36 pages)
- b *Branom--Home Land and Other Lands
General (pp. 80-81 or 2 pages)
- a *Carpenter--The Houses We Live In
General (pp. 143-157 or 15 pages)
- b Chamberlain--How We Are Sheltered
General (pp. 139-148 or 10 pages)
- b DuPuy--Odd Jobs of Uncle Sam
Lighthouses (pp. 58-70 or 13 pages)
- b *Eaton--The Story of Light
General (pp. 1-73 or 73 pages)
- b Halleck--Makers of Our Nation
(pp. 290-294 or 5 pages)
- b Keelor--Working with Electricity
By electricity; general (pp. 1-23 or 23 pages)
- T Meadowcroft--Boys' Life of Edison (9th grade level)
Electric lights (pp. 135-144; 153-160; or 19 pages)
- c Payne--Elementary Science Readers, Book IV
General (pp. 147-154 or 18 pages)
- b Phelan--Candlelight
Candles, Matches, Kerosene lamps
(pp. 9-16 or 8 pages)

Available in the Teachers' Library (Single copies only):

- b Kelty--The Growth of the American People and Nation
Electric (pp. 440-442 or 3 pages)
- b Klaussen--Heat (Unit Study Book #305)
General (pp. 25-29 or 5 pages)
- b McGuire--Building Our Country
Lighting in the 50's (pp. 36-38 or 3 pages)
- b Tillinghast--Colonial Life in America
In colonial times (pp. 77-85 or 9 pages)

Available in the Textbook Room:

- a Uncle Ben in India and Egypt
 Pyramids; Sphinx (pp. 31-33; 34-35;
 or 5 pages)
- c Wade--The New Pioneers
 Goethals (pp. 83-112 or 30 pages)
- b Mohr--Days before Houses
 Cavedwellers (pp. 9-90 or 82 pages)
- c McMurry--Elementary Geography
 Pyramids, Sphinx, Temples
 (pp. 291-296 or 6 pages)
- c Barrows and Parker--United States and Canada
 In New York (pp. 14-15 or 2 pages)
- c Carpenter--North America
 New York (pp. 72-81 or 10 pages)

Available in the Teachers' Library (single copies only):

- b. McGuire--Building Our Country
 Homes in the fifties; Modern
 (pp. 27-38; 149-175; or 39 pages)

BIBLIOGRAPHY

How Electricity Has Served Man

Sixth Grade

- a - Easy (Fourth grade reading level)
- b - Average (Fifth grade reading level)
- c - Difficult (Sixth grade reading level)
- T - Teacher's Reference
- * - Available some time after Jan. 1

Available in the Textbook Room:

- a Craig--The Earth and Living Things, Book IV
Simple uses (pp. 277-289 or 13 pages)
- b Craig--Learning about Our World, Book V
Magnets and Electricity (pp. 113-140 or 28 pages)
- c Darrow--Thinkers and Doers (7th grade level)
or Early work with; Later (pp. 25-41;
T 253-270; or 35 pages)
- b Follett--Social Science Readers, Book 7
Batteries and dynamos (pp. 91-104 or 14 pages)
- c *Gordon--Prove It Yourself
Principles of (pp. 41-67 or 27 pages)
- c *Haynes--Our Electric World
In home; Hospital; Industry; Farm;
Electric eye; White coal (pp. 11-67 or 57 pages)
- b Keelor--Working with Electricity
General (pp. 1-99 or 99 pages)
- a Knowlton--First Lessons in Geography
As power (pp. 184-187 or 4 pages)
- Meadowcroft--Boys' Life of Edison (9th grade level)
Early days; Inventions (pp. 1-4; 117-134; 135-144; 153-160; 169-176; or 48 pages)
- b Patch--Science at Home
Uses in home (pp. 157-177 or 21 pages)
- a *Patch--Surprises
Magnet and compass (pp. 285-299 or 15 pages)
- b *Pollak--This Physical World
General (pp. 99-112 or 14 pages)
- a Shepherd--Geography for Beginners
What it does; Discovery (pp. 56-57; 58-59; or 4 pages)
- Carpenter--North America
Generating electricity (pp. 220-223; 278-282; or 9 pages)

BIBLIOGRAPHY

Inventors and Inventions

Sixth Grade

- a - Easy (Fourth grade reading level)
 b - Average (Fifth grade reading level)
 c - Difficult (Sixth grade reading level)
 T - Teacher's Reference

Available in the Textbook Room:

- c Barker--The Story of Our Nation
 General (pp. 288-303; 350-366; or 33 pages)
 b Carpenter--How the World is Clothed
 Cotton gin (pp. 31-34 or 4 pages)
 c Coe--Makers of the Nation
 Cotton gin; Steamboat; Steam; Railroad;
 Telegraph; Airplane (pp. 190-197; 225-240;
 246-252; 336-346; or 44 pages)
 T Darrow--Thinkers and Doers (7th grade level)
 Watt; Fulton; Stephenson; Spinning and
 weaving; Printing; Telescope; Telegraph;
 Sewing machine; Reaper; Camera; Goodyear;
 Bessemer; Air brakes; Typewriter;
 Telephone; Phonograph; Motion Pictures;
 Submarine (pp. 60-82; 83-103; 104-116;
 117-132; 133-147; 148-159; 160-170;
 171-182; 185-195; 196-212; 213-223;
 224-236; 237-252; 293-304; 323-325; or
 162 pages)
 b Follett--Social Science Readers, Book 7
 Plows; Sewing machine; Wheel and sail;
 Printing press and gunpowder; Steam engine;
 Battery and dynamo (pp. 35-38; 48-49;
 60-71; 72-80; 81-90; or 37 pages)
 b Halleck--Makers of Our Nation
 Whitney; Watt; Fulton; McCormick; Goodyear;
 Morse; Bell; Wrights; Edison (pp. 123-131;
 168-173; 181-183; 233-236; 256-276;
 283-299; or 60 pages)
 c Halleck--Our Nation's Heritage
 General (pp. 400-413 or 14 pages)
 b Introductory History of the United States
 Early (pp. 253-264 or 12 pages)
 b Kinscella--Around the World in Story
 Pupin (pp. 69-77 or 9 pages)
 c Mace--The Story of Old Europe and Young America
 Of 15th Century (pp. 247-251 or 5 pages)

Available in the Textbook Room: (cont.)

- Meadowcroft--Boys' Life of Edison (9th grade level)
Edison (pp. 1-264 or 264 pages)
- c Turpin--Cotton
Cotton gin (pp. 75-86 or 12 pages)
- c Wade--The New Pioneers
Edison; Ford (pp. 3-29; 162-206; or 72 pages)
- c Sparks--Worthwhile Europeans
Marconi (pp. 143-165 or 23 pages)
- T Packard--Nations as Neighbors
General (pp. 12-15 or 4 pages)

Available in the Teachers' Library (single copies only):

- c Boumphrey--The Story of the Wheel
Wheels (pp. 7-93 or 87 pages)
- b Kelty--The Growth of the American People and Nation
Travel and farm machinery; General; Patents (pp. 111-136; 205-232; 438-442; 467-470; or 63 pages)
- b McGuire--Building Our Country
Concerned with food; Affecting clothing; Communication; Travel (pp. 45-49; 54-62; 124-134; 272-302; 305-339; or 91 pages)
- b Stone--Famous Days in the Century of Invention
General (pp. 1-151 or 151 pages)
- c Webster--Travel by Air, Land, and Sea
Wheels (pp. 271-279 or 9 pages)

BIBLIOGRAPHY

How Man Has Improved His
Means of Communication

Sixth Grade

- a - Easy (Fourth grade reading level)
- b - Average (Fifth grade reading level)
- c - Difficult (Sixth grade reading level)
- T - Teacher's Reference
- * - Available some time after Jan. 1

Available in the Textbook Room:

- c Barker--The Story of Our Nation
Telegraph; Telephone; Radio (pp. 297-299;
350-359; or 13 pages)
- b Beebe--How the World Grows Smaller
Telephone; Mail; Telegraph; Newspaper
(pp. 157-284 or 128 pages)
- b *Branom--Home Land and Other Lands
General (p. 86)
- b *Carpenter--Ways We Travel
General (pp. 251-291 or 41 pages)
- b Chamberlain--How We Travel
General (Modern) (pp. 145-182 or 38 pages)
- c Cloud--On the Trails of Yesterday
Early mails (pp. 62-65 or 4 pages)
- c Coe--Makers of the Nation
Telegraph (pp. 246-252 or 7 pages)
- c or T Darrow--Thinkers and Doers
Telegraph; Telephone; Phonograph; Motion
pictures; Wireless (pp. 33-147; 237-252;
292-304; 341-354; or 158 pages)
- b DuPuy--Odd Jobs of Uncle Sam
Mails; Dead letters (pp. 95-104; 183-195;
or 23 pages)
- b Gravatt--Pioneers of the Air
Air mail (pp. 187-204 or 18 pages)
- b Halleck--Makers of Our Nation
Telephone; Telegraph; Phonograph
(pp. 253-268; 287-290; or 20 pages)
- b Keelor--Working with Electricity
Use of electricity; General (pp. 45-99
or 45 pages)
- a Knowlton--First Lessons in Geography
Modern means (pp. 240-249 or 10 pages)
- c Craig--Our Earth and Its Story
General (pp. 314-334 or 21 pages)
- T Meadowcroft--Boys' Life of Edison (9th grade level)
Telephone; Motograph; Microphone; Phonograph;
Motion pictures (pp. 117-134; 196-201;
204-249; or 70 pages)

Available in the Textbook Room: (cont.)

- b Milliken--Boys and Girls of Colonial Times (Fiction)
Eastern colonies (pp. 3-232 or 230 pages)
- b Paden--Seeing California
Movies (pp. 129-139 or 11 pages)
- c Payne--Elementary Science Readers, Book IV
General (pp. 118-136 or 19 pages)
- b Pitkin--Seeing America, Mill and Factory
Moving pictures; Radio (pp. 30-41; 307-329;
or 35 pages)
- a Salisbury--Boys and Girls of California
Pony Express (pp. 173-179 or 7 pages)
- c Carpenter--North America
U. S. Post Office (pp. 46-49 or 4 pages)

Available in the Teachers' Library (single copies only):

- c Amburgh--Communication (Unit Study Book #409)
General (pp. 3-36 or 34 pages)
- b Kelty--The Growth of the American People and
Nation
General (pp. 238-256; 414-418; 458-461;
or 28 pages)
- b McGuire--Adventuring in Young America
In pioneer times (pp. 303-314 or 12 pages)
- b McGuire--Building Our Country
In the 50's; Modern (pp. 124-134;
272-302; or 42 pages)
- c Nida--Following the Frontier
Pony Express; Telegraph and telephone;
Wireless and radio (pp. 288-294;
295-303; 317-320; or 20 pages)
- c Nida--Man conquers the World with Science
General (Early times to the present)
(pp. 5-78 or 74 pages)
- T Reh--Magnetism and Electricity, Book III
Telephone; Radio (pp. 105-109; 139-184;
or 49 pages)
- b Waddell--How We Have Conquered Distance
General (pp. 154-270 or 17 pages)
- c Webster--World's Messengers
General (pp. 1-328 or 328 pages)

BIBLIOGRAPHY

Man and His Records

Sixth Grade

- a - Easy (Fourth grade reading level)
- b - Average (Fifth grade reading level)
- c - Difficult (Sixth grade reading level)
- T - Teacher's Reference

Available in the Textbook Room:

- c Aker--Yesterday the Foundation of Today
General (pp. 173-229 or 57 pages)
- c Atkinson--The European Beginnings of American History
Rome; Printing press (pp. 57-58; 274-276; or 5 pages)
- c Burnham--Our Beginnings in Europe and America
Early writing; Monks (pp. 38-40; 159-160; or 5 pages)
- T Darrow--Thinkers and Doers (7th grade level)
Printing (pp. 104-116 or 13 pages)
- c Follett--Social Science Readers, Book 6
General (pp. 219-320 or 102 pages)
- b Follett--Social Science Readers, Book 7
Printing press; paper (pp. 76-80 or 5 pages)
- c Gordy--American Beginnings in Europe
Early writing (pp. 26-27; 30-33; or 6 pages)
- c Hall--Our Ancestors in Europe
During middle ages; Printing
(pp. 308-312; 336-339; or 9 pages)
- c Halleck--Our Nation's Heritage
Alphabet; Printing (pp. 46-48; 200-204 or 8 pages)
- b Mohr--Egyptians of Long Ago
Early Egypt (pp. 118-124 or 7 pages)
- b Pitkin--Seeing America, Mill and Factory
Phonograph records (pp. 287-306 or 20 pages)
- b Sherwood--Our Country's Beginnings
Early writing (pp. 307 or 5 pages)
- c Tappan--Old World Hero Stories
Printing (pp. 165-169 or 5 pages)
- a Uncle Ben in India and Egypt
Egyptian picture writing (pp. 46-47 or 2 pages)
- b Wheeler--Paper (Unit Study Book #306)
General (pp. 12-19 or 8 pages)
- c Tappan--Makers of Many Things
Paper and book making (pp. 25-45 or 21 pages)
Quills, pens and pencils (pp. 46-55 or 10 pages)

Available in the Teachers' Library (single copies only):

- c Maxwell--The Story of Books
General (pp. 1-75 or 76 pages)
- c Nida--Man Conquers the World with Science
General (Early means to Modern Newspaper)
(pp. 5-41 or 37 pages)
- c Schwartz--From Then Till Now
From pictures to alphabet; Printing
(pp. 85-93; 237-271; or 44 pages)
- b Waddell--How We Have Conquered Distance
General (pp. 181-214; 246-254; or 43 pages)
- c Barnes--Man and His Records
From earliest times through invention of
printing press (pp. 11-112 or 102 pages)

BIBLIOGRAPHY

How Man Has Improved
His Means of Travel

Sixth Grade

- a - Easy (Fourth grade reading level)
- b - Average (Fifth grade reading level)
- c - Difficult (Sixth grade reading level)
- T - Teacher's Reference
- * - Available some time after Jan. 1

Available in the Textbook Room:

- Aker--Yesterday the Foundation of Today
General (pp. 305-315 or 11 pages)
- c Barker--The Story of Our Nation
General (pp. 288-297; 350-359; or 20 pages)
- b Beebe--How the World Grows Smaller
General (pp. 3-153 or 151 pages)
- b *Branom--Home Land and Other Lands
General (pp. 82-85 or 4 pages)
- b *Carpenter--Ways We Travel
General (pp. 26-250 or 225 pages)
- b Chamberlain--How We Travel
General (pp. 10-45; 101-106; 111-130;
138-144; or 69 pages)
- c Coe--Makers of the Nation
Airplane (pp. 338-346 or 9 pages)
- c or T Darrow--Thinkers and Doers
Air travel; Gyroscope (pp. 326-340;
355-363 or 24 pages)
- b Fisher--Resources and Industries of the United
States
Modern Travel (pp. 183-192 or 10 pages)
- c Floercky--Visual Geography of California
In California (pp. 10-11 or 2 pages)
- b Follett--Social Science Readers, Book 7
Automobile and airplane (pp. 105-112 or
8 pages)
- b Fox--How the World Rides
General (pp. 1-143 or 143 pages)
- b Gravatt--Pioneers of the Air
Air travel (pp. 7-264 or 258 pages)
- b Halleck--Makers of Our Nation
General; Goodyear; Henry Ford; Airplane
(pp. 159-184; 232-236; 247-251; 268-281;
or 50 pages)
- b Hunt--California
Early means (pp. 97-110 or 14 pages)
- T Huntington--Modern Business Geography
General (pp. 159-170; 175-233 or 71 pages)
- a Knowlton--First Lessons in Geography
General (pp. 198-229 or 32 pages)

Available in the Textbook Room: (cont.)

- c Methley--How the World Travels
General (pp. 1-20; 105-127; or 43 pages)
- c Mooney--Air Travel
General (pp. 3-291 or 289 pages)
- c *Payne--Elementary Science Readers, Book III
Air travel (pp. 33-44 or 11 pages)
- c Payne--Elementary Science Readers, Book IV
General (pp. 96-117 or 22 pages)
- c Payne--The Story of Aviation
History of air travel (pp. 9-221 or 213 pages)
- a Persing--Elementary Science by Grades, Book
Four Compass; Airships and balloons (pp. 142-148; 161-167; or 14 pages)
- b Pitkin--Seeing America, Mill and Factory
Steam and electric power; automobiles
(pp. 66-91; 116-139; or 50 pages)
- c Powers--World Around Us
General (pp. 352-360 or 9 pages)
- c *Reh--Water, Air, and Sound, Book I
Air travel; Wilbur and Orville Wright
(pp. 120-126; 161-165; or 12 pages)
- b Richards--Our California Home
Travel in early California (pp. 282-303 or 22 pages)
- c Carpenter--North America
Foreign commerce (pp. 81-94); Canals
(pp. 263-264); Panama Canal (pp. 481-488);
or 24 pages
- c Law--Our Class Visits South America
The Panama Canal (pp. 95-107 or 13 pages)
- b Barrows and Parker--United States and Canada
Railroads in West (pp. 60-62 or 3 pages)
- c Allen--South America
Panama Canal (pp. 375-398 or 24 pages)
- c McMurry--Elementary Geography
General (pp. 20-27 or 8 pages)
- c Craig--Our Earth and Its Story
General (pp. 339-387 or 49 pages)

Available in the Teachers' Library (single copies only):

- b Atwood--Neighborhood Stories
General (pp. 203-213 or 11 pages)
- c Bounphrey--The Story of the Wheel
Wheel in its various uses (pp. 7-93 or 87)
- b Hurley--Boats (Unit Study Book #303)
Boats (pp. 3-35 or 33 pages)
- b Hurley--Story of Flying (Unit Study Book #302)
Air Travel (pp. 3-31 or 29 pages)
- b Hurley--Trains (Unit Study Book #301)
Trains (pp. 3-35 or 33 pages)

Available in the Teachers' Library (cont.):

- b Kelty--The Growth of the American People and Nation
General (pp. 111-128; 257-259; 389-394; 455-457; 594-603; or 40 pages)
- b McGuire--Adventuring in Young America
In pioneer times (pp. 303-314 or 12 pages)
- b McGuire--Building Our Country
Travel in the 50's; Modern; (pp. 107-120; 305-339; or 49 pages)
- c Nida--Following Columbus
In colonial days (pp. 277-284 or 8 pages)
- c Nida--Following the Frontier
First steamboat; Erie canal; Early overland travel; Early railroads; Modern (pp. 155-183; 191-195; 205-214; 304-311; 312-317; or 58 pages)
- c Nida--Man Conquers the World with Science
General (pp. 79-256 or 178 pages)
- b Stone--Joyful Adventures
Evolution of boats (pp. 291-364 or 74 pages)
- c Tappan--Travelers and Traveling
General (pp. 1-130 or 130 pages)
- b Waddell--How We Have Conquered Distance
Evolution of (pp. 1-153 or 153 pages)
- c Webster--Travel by Air, Land, and Sea
General (pp. 1-432 or 432 pages)

APPENDIX E

AUDIO-VISUAL MATERIALS FOR UNITS

TIME

Aztec calendar
 Beautiful old clocks
 Famous watches. Pamphlet
 How man has told time through the ages
 Japanese-American calendar
 Japanese calendar
 Kalendarium Romanum
 Modern clocks
 Pocket and pendant calendars. Pamphlet
 Watches
 Time in olden days. 8 plates. Hourglasses, sun dial, etc.
 Clocks

WATER SUPPLY

All-American canal. Pamphlet from Life.
 Boulder canyon. Chart
 Boulder dam. Chart
 Boulder dam and power plant
 Colorado river aqueduct. Large sepia plate.
 Grand Coulee
 Grand Coulee dam. Pamphlet from Fortune.
 Map and profile of the Colorado River aqueduct. Large
 colored plate.
 Metropolitan water district aqueduct. Pamphlet
 Pacific Gas and Electric Company. Pamphlet.
 Tennessee valley authority.
 Water for millions
 Water for thirteen cities in the Metropolitan
 water district of southern California
 Water supply. U.S. 6 plates
 Ways of getting water

INVENTIONS

Inventor Kettering. Pamphlet.
 Rubber
 Steel crucible. Large plate
 Edison, Thomas Alva
 Air conditioning
 Atlantic flying clipper. Pamphlet.
 Beautiful plastics
 Bell telephone and radio equipment.
 Benjamin Franklin
 Diagram of a microscope. Chart.
 Glass in modern life
 Glass, New uses for.
 Great inventors.
 History of light.

INVENTIONS (continued)

Machinery, modern
 Modern machines
 Modern road building machinery
 New turbine locomotive
 Plastics. Pamphlet
 Polaroid
 Santa Fe Super Chief
 Sheffield steel works. Chart.
 Storage battery. Chart. Diagram.
 The story of steam engine
 Teletypewriter
 Television
 Wind tunnels
 X-ray

ELECTRICITY

Westinghouse electric. Pamphlet from Fortune.
 Modern lamps
 Light. History of lighting
 Pacific gas and electric company. Pamphlet from Fortune.
 California industries
 T. V. A. on trial
 Electricity. Benjamin Franklin's discovery.
 General electric laboratories make lightning to order. Pamphlet from Life.
 Grand Coulee
 Our city. Home and community.
 Insulators. Large colored plate
 Natural resources. Power.
 X-ray.

MAN AND HIS RECORDS

Archeology the mirror of the ages
 Art of the book
 Aztec picture writing
 Blackfoot Indians
 Book making
 China. Education
 Coronation of King George VI of England
 Cuneiform inscriptions
 Early European records
 Egyptian writing
 Examples of European illuminated lettering
 Havasupai Indians
 Hieroglyphics
 History of California. Prehistoric animals and Indian Life.
 India. Books
 Indian designs and symbols

LIGHTING

Alhazen. Large colored plate. Refraction of light.
 Benjamin Franklin. Large colored plate. Invention
 of the bifocal lens
 Christian Huygens. Large colored plate. Wave theory
 of light
 In the light of polaroid. Pamphlet from Fortune
 Joseph Fraunhofer. Large colored plate
 The spectrum. Large colored light
 Light. History of lighting. 21 plates. (From first
 stone lamp to Edison carbon lamp)
 Light, Store of. 4 plates. (Candle dipping to
 "World's biggest bulb")
 Lighthouses
 Early lamps. 2 plates. Greek and Roman
 Edison, Thomas Alva
 European lighting devices. 4 plates. Candlesticks, etc.
 History of Light. Portfolio. Other countries & early
 times.
 Lightning
 Lighting fixtures
 Modern lamps
 Scientific lighting. Portfolio. Old and new types
 of light.
 Story of lighting. Pamphlet. (Pictures of early lamps)

COMMUNICATION

Alexander Graham Bell
 Airmail communication. Large black and white plate.
 Backstage on a long distance call.
 Behind the scenes in our central offices. Pamphlet
 Bell telephone and radio equipment
 Book making. (pamphlet)
 Early European records. Portfolio. (1) Nuremberg chronicle
 leaf and (2) vellum
 Handwriting of middle ages. Chart.
 Modern communication
 Newspaper
 Old illuminated manuscript leaf. From an old English
 prayer book.
 Printers using hand presses
 Radio
 Radio broadcasting
 Story of books and writing
 Television
 Marconi, Guglielmo
 Overland mail. History.
 American Indian symbols
 Books, rare
 Braille magazine
 Japanese prints. Costumes and customs
 Painted tipis and picture writing of the Blackfoot Indians.
 Paper making
 Papyrus

MAN AND HIS RECORDS (continued)

Parchments
 Plains Indians. Pictographs on tipis.
 Prehistoric art
 Primitive art
 Russian book
 Sahara life
 Sculpture, Assyro-Babylonian
 Sculpture, Mayan
 Story of the map.

TRAVEL

Travel in the Arctic. 4 plates
 Travel in the Himalaya mountains. 2 plates
 Traveling in Mexico. 6 plates
 Travel in Sweden. 3 plates
 Life in the American colonies. 12 plates
 Native means of transportation in the Pacific
 Area. Large colored plate by Covarrubias
 Pertaining to transportation. Portfolio
 Story of the wheel. 1 plate
 Air routes of the world. Chart
 Airplanes and airports
 Air transportation, modern
 Airplanes
 Atlantic clipper--Europe bound. Large colored plate
 Aviation. History
 Balloons and dirigibles
 Contrasts in transportation
 Parachutes
 Passenger planes
 Horses, donkeys, and mules
 How Mexico makes use of animals
 India. People and customs
 Japan. Transportation
 Arabia. Customs
 Arabian desert life
 Desert travel
 Desert animals
 Hot and cold lands
 Eskimo life
 Holland
 Land transportation
 Automobile
 Automobile industry
 Carriages, horse-drawn
 China. Transportation

TRAVEL (continued)

Covered wagon
Progress in transportation. Chart
Transportation in the Southwest. History. 12 plates
Japan. Transportation
Transportation. Land, water and air. 18 plates
Fruit train. Large colored plate.
Journey by train. Stills from motion picture
Locomotive development.
Railroad transportation. Modern
Trailers
Trailer camps
Modern motored trucking
Transportation. United States. 8 plates
Alaska today
California clipper ship off Point Conception during
the gold rush days.
Caravels and galleons
Famous American sailing vessels
Famous boats
Large liner. Large plate.
Merchant ships, modern
Modern freighters and liners
Modern liner "Lurline"
Normandie
Ocean liners
Oil tankers
River steamboat
Schooners

APPENDIX F
THE CITY SCHOOLS
OF
LONG BEACH, CALIFORNIA

Report of _____
School _____ Grade _____
4, 5, or 6
First
Report Due _____ Teacher _____
Second
Report Due _____ Teacher _____

EXPLANATION

This report is not intended to compare the work of one pupil with that of others. It is a message to parents to acquaint them with the experience of the pupil in his school life, especially in terms of his growth as compared with his ability to progress.

This report may be supplemented whenever it is thought best, by a letter from the school to the home or from the home to the school. To insure the privacy of such correspondence, these notes should be separate from this card.

SYMBOLS USED IN THIS REPORT

- V - Does work which a pupil of his or her ability should do.
- * - A pupil of his or her ability should do better work.
- X - Effort or achievement worthy of special commendation.

NOTE: If an item is not marked the parent will understand that the pupil is not having that type of school experience during the period, or the teacher has insufficient data upon which to form judgment.

(The material on this and the following three pages is placed on one sheet of paper in such a manner that it reads as herewith presented, and, when folded, makes four-page leaflet measuring 5 inches by 8 inches.)

TYPE OF SCHOOL EXPERIENCE	Mid Semester	End Semester
Individual Work and Study Habits		
Planning work		
Starting work promptly		
Using time and materials wisely		
Consulting dictionary for spelling		
Checking and correcting mistakes		
Following directions		
Using originality		
Participation in Group Work		
Helping to plan the enterprise		
Carrying share of the work		
Showing good sportsmanship		
Working cheerfully with others		
Persisting in work until completed		
Judging frankly success or failure of results		
Desirable Traits		
Keeping desk and work in order		
Maintaining a friendly attitude		
Being frank and honest		
Being careful of school property		
Health		
Knowing how to keep well		
Keeping well		
Standing and sitting properly		
Keeping emotions under control		
General Information in Field of		
Social studies (Geography, History, Citizenship)		
The World and Its Life (Science)		
Current Events		
Arithmetic		
Manipulating numbers		
Solving problems by reason		
Being able to make practical use of arithmetical skill		
Spoken English		
Speaking clearly		
Speaking correctly		
Speaking with ease and poise		

TYPE OF SCHOOL EXPERIENCE	Mid Semester	End Semester
Written English		
Writing clearly		
Writing correctly		
Vocabulary		
Ability to understand words		
Ability to use words		
Reading Skills		
Recognizing words		
Getting meaning from books		
Recalling the content		
Using information read		
Reading aloud		
Spelling Correctly		
Words in lists		
Words in composition		
Handwriting		
Writing so that it can be read easily		
Writing with reasonable speed		
Arts and Crafts		
Learning to discriminate between the beautiful and the less beautiful or good and bad taste		
Enjoys working with clay, wood, paper, paint and crayons		
Acquiring skill in		
Drawing		
Painting		
Decorating		
Music		
Reading		
Singing		
Playing an instrument		
Enjoying good music		
Manual Skills In		
Following directions		
Showing originality		

Note: For items left blank see note at bottom of the front page.

TYPE OF SCHOOL EXPERIENCE	Mid Semester	End Semester
Physical Education		
Showing skill in games		
rhythms		
Being a generous winner		
Being a good loser		
Use of Reference Works		
Finding help from the dictionary		
Looking up data in encyclopaedias		
Making wise choice and use of library books		

ATTENDANCE REPORT

	Days Present	Days Absent	Times Tardy
First Report			
Second Report			

Signature of parent or guardian
(It is preferable that both parents sign each report)

First _____
Report _____

Second _____
Report _____

Recommended for Entrance into _____

Grade _____ Date _____

Teacher

Principal