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THE
TWENTIETH YEARBOOK

OF THE
NATIONAL SOCIETY FOR THE STUDY
OF EDUCATION

PART I
SECOND REPORT OF THE SOCIETY'S COMMITTEE ON
NEW MATERIALS OF INSTRUCTION

THIS YEARBOOK WILL BE DISCUSSED AT THE ATLANTIC CITY
MEETING OF THE NATIONAL SOCIETY, SATURDAY,
FEBRUARY 26, 1921, 2:00 P. M.

PUBLIC SCHOOL PUBLISHING COMPANY
BLOOMINGTON, ILLINOIS
1921

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BROOKLYN, ILLINOIS
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THE TWENTIETH YEARBOOK

OF THE
NATIONAL SOCIETY FOR THE STUDY
OF EDUCATION

PART I SECOND REPORT OF THE SOCIETY'S COM- MITTEE ON NEW MATERIALS OF INSTRUCTION

A COLLECTION OF TWO HUNDRED EIGHTY-FIVE PROJECTS COM-
PILED BY THE COMMITTEE WITH THE AID OF VARIOUS
SUB-COMMITTEES FROM MATERIAL SUBMITTED BY
THE REPRESENTATIVES OF NUMEROUS
SCHOOL SYSTEMS

Edited by
GUY MONTROSE WHIPPLE

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EDITOR'S PREFACE

As explained in detail elsewhere, this part of the *Twentieth Yearbook* represents the contributions of an unusually large number of different persons, who, at the solicitation of the various sub-committees, submitted accounts of classroom exercises that had been developed by them and had been found to possess merit.

Whether the reader wishes to apply the term 'projects' to all these exercises or not, the fact remains that they all possess a degree of novelty, that they at least represent departures from the stock material of the school textbook, that they are calculated to enlist the interests of children, and that they afford obvious opportunity both for the exhibition of initiative and also for the securing of drill in the fundamental pedagogical tools.

The chairman of the various sub-committees and more particularly, Dr. F. J. Kelly, the chairman of the general committee, deserve the credit for assembling and arranging the material reported by the classroom teachers. The editor takes the responsibility for the final arrangement of the material and for excluding, on account of limitations of space, a considerable amount of excellent material. As it is, the 285 'projects' are surely numerous enough, varied enough, and comprehensive enough to afford an excellent sample of these newer educational developments.

Where known to the editor, the name and school address of the contributor has been credited to each item. This will make it possible, we hope, for supervisors and teachers who use this *Yearbook* to get into direct correspondence with these contributors, who will be glad, we are sure, to impart further details of their work and to exchange experiences. If the *Yearbook* can be used in this way, it will meet the hopes of the Society's Committee who have had in mind from the start the direct assistance of wide-awake classroom teachers in their daily work.

GUY M. WHIPPLE.

INTRODUCTION AND SECOND REPORT OF THE COMMITTEE

The Committee on New Materials of Instruction whose names are appended hereto, is a committee created by the National Society for the Study of Education in 1919. This Committee approved the plan for the assembling of materials such as appear in this report. The materials were to be submitted by a large sub-committee consisting primarily of teachers in actual contact with classroom situations. The chairman of the Committee was authorized to proceed with the work on this basis, and other members of the Committee have had no further opportunity to share with the chairman the responsibility for the contents of the report.

In following out the Committee's plan, the chairman sought from a large number of educators throughout the country the names of teachers who were doing outstanding work with curriculum materials based upon the genuine interests of children. The teachers whose names were thus secured were arranged in sub-committees according to their major interests. They were then asked to report to their respective chairmen, the new materials which they had successfully tried out in their classrooms.

For the final organization of the materials, sub-committee chairmen were held responsible. These were: for the kindergarten materials, Miss Nina C. Vandewalker, Specialist in Kindergarten Education with the Bureau of Education, Washington, D. C.; for primary grades, Miss Frances M. Berry, Supervisor, Primary Grades, Baltimore, Md.; for Grades Four, Five and Six, Miss Edna Keith, Supervisor, Elementary Grades, Joliet, Ill.; for the Junior High School, Mr. H. G. Lull, Superintendent of the Training School, State Normal, Emporia, Kan.; for sub-normal children, Miss Nellie R. Olson, teacher of an ungraded class, Faribault, Minn. A sixth committee under the chairmanship of Mr. F. L. Whitney, of the University of Minnesota, Minneapolis, was asked to assemble materials not readily classified under traditional school subjects, and that committee submitted valuable materials. However, since materials assembled by the other committees were not found readily

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classifiable under the traditional school subjects, the materials submitted by Mr. Whitney were not made into a separate section, but were distributed in the most appropriate places throughout the reports submitted by the other committees.

It is impossible to give adequate recognition to the very large number of people who have contributed from their experience to the materials of the following report. All, however, are seriously engaged in the effort to make the subject matter and method used in elementary schools function better than they now do in the production of an efficient citizenship. We can only express our appreciation of their service in making available to other teachers the results of their valuable experiences.

A word should be said with reference to the bibliography appearing at the close of this report. Each sub-committee presented a bibliography particularly valuable to workers in its own field. These were found to be embodied in the more complete bibliography which was prepared by Willis N. Kerr, librarian, and his assistants in the library at the State Normal School, Emporia, Kansas; it was thought best, therefore, to confine the bibliography to this one splendid classified list of references. I am glad to make public acknowledgment of the pains-taking work done by all those who prepared bibliographies, and especially to Mr. Kerr.

There is no longer any need for entering into a defense of the use of the sort of materials contained in the following report. Such defense is quite complete in many of the treatises referred to in the bibliography. One point may, however, be urged at this time. The traditional classification of materials for elementary education seems poorly adapted to these newer materials based upon genuine interests of children. It was found impossible, therefore, to make a distinct classification of materials under Reading, Arithmetic, Geography, and the like. In many cases each of these "tool" subjects was used in carrying out the objects of a single project. It seems fitting, therefore, to state that the following report adds striking testimony to the claim for the classification of materials in elementary schools above the primary grades on quite a different basis than prevails in our present classification. No distinctive classification was undertaken in this report, because it was thought at the

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time when work on the report was begun that it would be impossible to assemble any very large number of projects which had been successfully tried, except upon the basis of the traditional classification of subjects. However, when the accounts were submitted, it was discovered that in a great many cases they were independent of the traditional subjects, but did not lend themselves to any other classification. In the Junior High School section, Mr. Lull, Chairman of the Committee, has used a classification which he explains in his introduction, but he recognizes that the projects submitted do not fit especially well into his classification.

Respectfully submitted, for the Committee:

F. J. KELLY, *Chairman.*

**MEMBERSHIP OF THE SOCIETY'S COMMITTEE ON NEW
MATERIALS OF INSTRUCTION**

Professor W. C. Bagley, Teachers College.
President J. C. Brown, State Normal School, St. Cloud, Minn.
Dean C. E. Chadsey, University of Illinois.
President L. D. Coffman, University of Minnesota.
Dean E. P. Cubberley, Leland Stanford University.
President E. C. Elliott, University of Montana.
Director C. H. Judd, University of Chicago.
Dean F. J. Kelly, University of Kansas, Chairman.
Professor H. C. Morrison, University of Chicago.
Professor C. D. Strayer, Teachers College.
Professor G. M. Whipple, University of Michigan.

MEMBERSHIP OF THE SOCIETY'S SUB-COMMITTEES ON NEW MATERIALS OF INSTRUCTION

Committee I. Materials suitable for Kindergarten Children.

- Miss Nina C. Vanderwalker, chairman, Specialist in Kindergarten Education, U. S. Bureau of Education.
- Miss Emma Flinn, Kindergarten Critic, State Normal, Valley City, N. D.
- Miss Marion Watson, Kindergarten Critic, State Normal College, Ypsilanti, Mich.

Committee II. Materials suitable for Grades I, II, and III. General Committee.

- Miss Frances M. Berry, chairman, Primary Supervisor, Baltimore, Md.
- Miss Ellice Burke, Murray Hill School, Cleveland, Ohio.
- Miss Frances Dearborn, Primary Method, Detroit Normal School, Detroit, Mich.
- Miss Mary L. Dougherty, Primary Critic, Mankato, Minn.
- Miss Achsah Harris, Primary Supervisor, State Normal, Emporia, Kan.
- Miss Alison Hayne, First Grade Critic, Marr School, Detroit, Mich.
- Miss Regenia E. Heller, Primary Supervisor, Public Schools, Detroit, Mich.
- Miss Helen Reynolds, Primary Supervisor, Public Schools, Seattle, Wash.
- Miss Mary G. Bud, Primary Supervisor, Minot, N. D.
- Miss Cora Jean Smith, Primary Critic, Valley City, N. D.

Committee II a. Materials for Grade I.

- Mrs. Mabel Orr, Chairman, City Normal School, Rochester, N. Y.
- Miss Martha Griffith, City Normal, Dayton, Ohio.
- Miss Margaret Morris, Primary Critic, Training School, Athens, O.
- Miss Laura Remer, Primary Department, State Normal, Pittsburg, Kan.
- Miss Isabelle Veazey, Critic Teacher, Alva, Okla.

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- Miss Ann Den Blyker, State Normal, Pittsburg, Kan.
- Miss Katherine Nichols, City Normal School, Rochester, N. Y.
- Miss Amy Weihr, Critic Teacher, Training School, Athens, Ohio.

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- Miss Edith Buchanan, Critic Teacher, Training School, Athens, Ohio.
- Miss J. U. Charlton, Critic Teacher, Alva, Okla.
- Miss Nell C. Curtiss, Lincoln School, 646 Park Ave., New York City.

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- Miss Jennie M. Flemming, Director of Practice School, Detroit Normal, Detroit, Mich.
- Mrs. C. Flood, Eagle School, Cleveland, Ohio.

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Miss Mary Gardner, Critic Teacher, State Normal School, Valley City, North Dakota.

Miss Catherine Morgan, Director of Substitutes, Detroit Normal, Detroit, Mich.

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Miss Myrtle Hesse, Critic Teacher, Training School, Athens, Ohio.

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Miss Hazel McCulloch, Critic Teacher, Minot, N. D.

Committee III b. Materials for Grade V.

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Miss Julia Hubbard, Critic Teacher, Winona, Minn.

Miss Blanch Loudon, Critic Teacher, Moorhead, Minn.

Miss Susan Norton, Critic Teacher, State Normal, Valley City, N. D.

Miss Johanna G. Soland, Critic Teacher, State Normal, Minot, N. D.

Committee III c. Materials for Grade VI.

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Miss Mabel Benson, Critic Teacher, State Normal, Moorhead, Minn.

Miss Ethel Black, Sixth Grade Critic, Marr School, Detroit, Mich.

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Miss Carrie Lankford, Franklin School, Okmulgee, Okla.

Miss Kathryn Mulry, State Normal, Kalamazoo, Mich.

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Mr. H. G. Lull, Chairman, Superintendent Training School, Emporia, Kan.

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Miss Anna Wilke, Critic Teacher, Alva, Okla.

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*Committee VI. Materials not readily classified under the traditional school
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Committee VII c. Home Economics.

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Committee VII d. Hygiene and Health.

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Committee VII e. Social Studies, economic, civic.

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Miss Louise Robertson, State Normal, Louisville, Kentucky.

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Committee VII k. English Literature.

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Junior High School.

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Committee VII n. Penmanship.

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CHAPTER I

NEW MATERIALS FOR THE KINDERGARTEN

INTRODUCTION

The work of the kindergarten must be constantly new if the present-day conception of education as a meeting of children's needs at the successive stages of their development is kept clearly in mind. Having grasped this principle, the kindergartner sees that children's interests and activities must serve as the starting point in their education and that these interests must be so guided as to create problems for them to solve. The approach to subject matter is made by the meeting of play situations and the solving of play problems. It cannot, therefore, be stereotyped, but must be brought afresh to each individual or group.

When the approach is thus psychologically made, the working out of the problem naturally takes the project form. The project method is not, therefore, new to the kindergartner of insight, since she has worked in the spirit of that method for years. The curriculum of the kindergartner is in fact embodied in a series of projects by the working out of which children gain an insight into the world of man and nature and their own relation to both. At the beginning of the year, for example, they carry out in play the activities of the home; they build the store from which the home secures its supply of food and dramatize the process of buying and selling; and they make in the sand table the garden or miniature farm which supplies the store. They arrange a harvest festival in preparation for the Thanksgiving party in which the products that characterize the season are grouped together. Other projects worked out in other seasons or in preparation for other festivals interpret for the children other significant aspects of life. In these several ways human life and activity come to have meaning for children, and they see themselves as parts and partners in the great drama that is being played on the stage of nature.

Because of the method that characterizes kindergarten procedure, the expression "New Material of Instruction for the Kin-

dergarten" should not be taken to mean extraneous matter brought to the children for which they have no basis in their experience. The kindergartner must find her material in the aspects of the children's environment. The newness needed is a newness of interpretation—a clothing of the familiar in new forms so that its real significance may be made apparent. New interpretations of known facts in project form therefore constitutes the best form of "New Material for the Kindergarten." Projects vary in value, however, and need to be weighed in the balance before being adopted. There are many that grow out of the stimulus of the material and have little if any thought value. Since they show initiative and the result of experimentation, they should be worked out. If these only are worked out, however, the curriculum lacks cohesiveness and continuity, and does not yield the results that it should in the child's developing life. The projects of real value are those that interpret some aspect of life. Among these are the garden, either in spring or fall, the doll house and family, and the community, in which each is seen to be needed to make a complete whole.

TYPICAL KINDERGARTEN PROJECTS

The following projects furnished by the kindergarten sub-committee are, of course, too few in number to represent adequately the work being done by the kindergartners of the country. This is doubtless due to the fact that few could be reached during the summer, and that the opening weeks of school hardly admit of a favorable response to requests for such material. Some of these furnished are of the accidental and others of the interpretative type. Some are a combination of both.

1. "A Collection of Seeds for Spring Planting"

(Reported by Mrs. Elizabeth Jacobson, of Minneapolis)

This project started from the children's seeing dandelion seeds floating about while on an excursion, and led to their bringing to kindergarten seeds from their home gardens.

The steps in carrying the project forward were:

1. Converting the baskets they had made into boxes with covers in which they could bring their seeds to the kindergarten.

2. The making of boxes of uniform size and shape, and of colors selected by themselves, to hold the collection of seeds.

3. The sorting of the seeds, making labels for the boxes, and storing them away for the spring planting.

This led to the collection of milkweed pods, rose hips, cat tails, and many other kinds of seeds, which were used to decorate the room.

2. "The Making of a Barn"

(Worked out under the direction of a group of students in the Milwaukee Normal School)

This project originated in a suggestion from two boys that they make a shelter for the toy horses they had received at Christmas to correspond to the doll house made for the dolls.

The steps were as follows:

1. Making with blocks the ground floor of a barn arranged from the children's personal knowledge.

2. Looking at pictures of barn interiors.

3. Building the ground floor with stalls for the horses on one side and a feed bin and place for implements with which the horse does its work on the other.

4. Making a barn for each child from construction paper (at the children's request), so that they might take them home to play with.

This was of special interest to the boys, whose interests are too often ignored. It fitted in with the kindergartner's idea of helping the children to play happily at home during the winter months.

3. "The Making of a Toboggan"

(Carried out in the kindergarten of the State Normal School at Valley City, North Dakota, under the direction of Miss Emma Flinn)

This project was suggested by a child whose father had a toboggan.

The steps were:

1. The free building of a toboggan.
2. The gradual improvement of the toboggan as the result of observation, trial, and discussion, until it was good enough to be used, and large enough to hold eighteen children.
3. The construction of toboggans in card board, the making of clay forms and sand table scenes, and the illustration of coasting scenes with crayons and scissors.

The interest in this was maintained throughout the winter, and the results were real dramatization, skillful hand work, cooperation and marked progress in construction.

4. "The Valentine Party"

(Reported by Miss Mary C. Jacobs, Milwaukee Normal School)

To make the children conscious of the ties of friendship and of the written message as a means of maintaining these is one of the purposes of the customary Valentine party in the kindergarten. The incident of the children's receiving a letter from a soldier in France during the war, the father of one of the group, was the stimulus to a new interest in such messages in one of the kindergartens of the Milwaukee Normal School, directed by Miss Mary C. Jacobs.

The steps in the carrying on of their work were:

1. The composing of a letter by the children in reply to the one received and the writing of this for them by the kindergartner.
2. Folding envelopes (one of which was to contain the letter) addressing, stamping, and mailing the finished envelope.
3. Making of Valentines and post cards to send to other friends.
4. Making a mail bag and mail box to be used at the Valentine party.
5. Making the street car, train, and boat to carry the soldier's letter to France.

Among the results were a marked improvement in the hand work, and an interest in the letters received at home.

5. "The Church for Easter"

(Reported by Miss Anne M. Wells, State Normal School, Bridgewater, Massachusetts)

Thanksgiving is made much of in kindergarten because it symbolizes the season's completed work. It is no less important that children's attention be called to the re-awakening of the life of nature at Easter time. Just as the markets full of vegetables have been brought to the children's attention in the fall in preparation for Thanksgiving, so the shops full of flowers may herald the coming of Easter. It is because children frequently see and hear about the preparations for Easter in the nearby Sunday Schools and churches that many kindergartners include the building of a church in their Easter preparation. The steps taken in building it, considerably simplified, are as follows:

1. Experimental building of churches during the year.
2. Observation of the best church architecture in the neighborhood.
3. Building freely with miscellaneous blocks.
4. Looking at pictures of churches.
5. Building by suggestion and direction of the final form.

This experience in the building of a church as a building having definite characteristics of its own would be a valuable preparation for the building of a community of houses later on.

6. "Building a Village"

(Reported by Marcita Halkyard, Ridgewood School, Joliet, Illinois)

After a walk around the neighborhood to learn the names of the streets and to look at the buildings, we built a little village in the room.

We laid out our plan on the floor using long strips of paper for our streets; we named each street.

The floor blocks were used to make the houses, garages, stores, school, church, and the viaduct near by.

We found material, such as boxes and paper, to make street cars, automobiles, mail boxes and the other things suggested by the children.

When it was finished, the children brought their dolls and let them play in the village.

7. "A Seed Store"

(Reported by Miss Marcita Halkyard, Joliet, Illinois)

We observed that the flowers in our room, golden-rod, asters, sunflowers, cat-tails, were withering. Breaking them apart, we found something which a few children were able to identify as seeds. This gave opportunity to talk of seeds—what they were good for, where to get them, etc. Some seeds, I was told, one had to buy at the store. At this point the children were asked if they would like to have a seed store in school and they, of course, were most enthusiastic.

From this opening there resulted: (1) making a seed store of big blocks, (2) making boxes for seeds in store, (3) printing labels for different kinds of seeds—flower seeds, fruit seeds, tree seeds, weed seeds, etc., (4) making baskets in which to gather seeds, (5) a trip to a vacant lot for seeds, and (6) selling of the seeds.

The last day of our store the children cut money out of paper and went to the store to buy seeds. Out of these purchased seeds they were encouraged to make something—baskets and dolls out of burrs, necklace of milkweed, pipes of acorns, a watch chain of sunflower seeds, and designs out of some of the seeds which could not be strung, were among the things suggested.

Some results of this store were: (1) some little knowledge about seeds, (2) a keen interest in various kinds of seeds, (3) a few new words in the children's vocabulary, (4) a linking together of home, out-of-doors, and the schoolroom. Many mothers helped the children gather seeds for the store.

8. "Dressing a Doll"

(Reported by Miss Edith Adams, State Normal College, Ypsilanti, Michigan)

The kindergarten purchased a doll without clothes. One little girl, seeing the doll, wished to dress it. The need of each article of clothing arose naturally in the following manner: First, a dress

was made which was such a good product that the kindergarten director decided to take it to the State Teachers' Association to illustrate a talk. If the doll was to take a trip, the little girl thought it should have a coat and hat to keep it warm. She chose her material, even to such details as cloth for a handkerchief and for a pocket to hold the handkerchief. The hat was made with turned-back corners, like a Dutch cap. After finishing the hat, she discovered it would not stay on, so she sewed strings on far enough back to allow the corners to stay as she had planned them first.

When the doll was dressed in a petticoat, dress, coat, and hat, we thought she was ready for her journey, but not so with the little girl. She decided it would not do to let the doll go in bare feet. She asked a student to cut a paper pattern for her. This she pinned to a piece of cloth, cut it out, and made a trial shoe. As this fitted, she pinned the same pattern to a piece of wide velvet ribbon which she found in the cloth box and made a pair of shoes. The doll was then ready for its journey.

9. "A Doll House and Furniture"

(Reported by Miss Blanche Lovett, State Normal School, Milwaukee, Wisconsin)

A three-inch celluloid doll was given the children to play with at the beginning of the school year. They then wished to dress the doll, and each child was allowed to select the material from pieces of cloth or crepe paper furnished and decide how a dress could be made. The children then wished to make a bed for the doll and did so from spool or other boxes, fasteners, and paper and paste. The making of three walls of the room like a screen was suggested by the teacher. This led to the making of a chair, a dresser, bed clothes, and a rug, each child working out the plan for himself.

10. "Furnishing a Play House"

(Reported by Miss Elizabeth Hannan, Louisville Normal School, Louisville, Kentucky)

The children of this class were given an opportunity to choose something to make that they might take to the first grade with them

on promotion day. After much discussion, they decided to furnish a play house. One group of children papered the walls, hung the curtains, cut and decorated the rugs; another group made the furniture; while a third group cut out a paper doll family and dressed the dolls appropriately. The teacher was consulted from time to time by the various groups. When the play house was completed, it was criticised by the class and teacher, a few changes made by the children, then taken with the class to the first-grade room.

11. "A Toy Shop"

(Outline submitted by Florence Williams, Richmond, Indiana)

Shop built with blocks, including counters, shelves, etc.

Toys of various kinds constructed of clay, paper, wood, etc.

Problems involved—building shop, constructing toys, buying and selling, counting, wrapping parcels, etc.

General excursions made to toy store.

Experimental results criticised by teachers and children, and the best chosen.

Tools of learning involved—language through conversation, discussion, dramatization; handwork, number work, drawing.

12. "An Entertainment"

(This project and Nos. 13, 14, and 15 are reported by Miss Allene Seaton, Louisville, Kentucky)

Kindergarten children selected and arranged the program from stories, rhymes, dramatizations and songs which they had learned during the year. They also suggested *very simple* costumes for the parts they took, and made them. First-grade children made and sold the tickets, made cardboard money, posters for advertising and cards for announcing program; they also acted as ushers, finding number of seat corresponding to number of ticket.

13. "A Train"

This project continued several days with accumulating interest as the needs arose for new materials and new characters. The idea was initiated by children who had traveled during the summer.

The first step was the construction with large floor blocks of a passenger train with seats; the second, the tickets; the third, a dining car with small tables and chairs; the fourth, a Pullman, using tables for berths. Detailed problems arising within this project were the representation of satchels, trunks, money, tickets, pocket books, ticket office, train yard and signs indicating proper train. Character dramatizations were the conductor, the waiter, the porter, the fireman, a family, the chauffeur and the baggage man.

Compare with this project No. 20.

14. "A Grocery Store"

This was a group project developed in a locality where the patrons work in neighboring shops. Smaller groups cooperated in carrying out the larger group project. One group built a store; another modeled and painted vegetables and fruits; another constructed market baskets; another a grocery wagon; others, grocery books and paper bags, etc. One boy made a sign for the grocery. This project was stimulated by an excursion to a grocery store.

15. "Christmas Celebration for Parents of Kindergarten Children"

This subject was launched by the teacher, but developed by the children, the mothers, and the teacher. The mothers were asked (without the children's knowledge) to allow the children to do some little service for which they might be paid a small sum. This money they used to *buy* the tree which they (the children) selected. All the ornaments were made and the tree was decorated by the children. They also made invitations and simple presents which they delivered in person to their parents. This plan was preceded by a conscious consideration of the child's interests at this season, and he was, of course, remembered in the festivities planned, but this was a surprise and incidental to the real pleasure of the occasion.

16. "A School Cafeteria"

(Outline submitted by Miss Frances M. Berry, Baltimore,
Maryland)

Discussion of materials used, things to be sold, signs, labels, and price marks.

Experimentation (discussion, judgment, decision) visit to real cafeteria. Visit to store, dairy, and garden for sources of supply.

Children visited school cafeteria, took tray, bought milk and crackers, ate at table, and paid at counter on going out.

Visits and excursions modified and amplified.

Much oral language was involved, also dramatization, number work, and manual training.

Project used in kindergarten and first grade.

17. "A Mother Goose Show"

(Outline from Miss Frances Berry, Baltimore, Maryland)

In a summer school preparing non-kindergarten children for the first grade, a Mother Goose show furnished material for six weeks' work. The following are some of the features:

Telling Mother Goose rhymes by children and teacher.

Singing, repeating, and acting rhymes by children.

Making characters and objects in plasticine and clay for the sand table.

Reading rhymes attached to pictures.

Suggestion of a show was made by children and worked up for public exhibition.

A third-grade child was "Mother Goose" in costume.

First-grade children sang the songs as "Mother Goose" introduced her children, who appeared one by one in costume on the stage.

Much reading was involved, also dramatization, manual training, music, and drawing.

18. "A Kindergarten Circus"

(Reported by Marion Watson, State Normal College, Ypsilanti, Michigan)

A circus in town had created the interest and many conversations resulted. It was then decided to have a circus in the kindergarten. Then followed a discussion about what was needed to have a good circus.

The following participants were chosen:

- (1) Manager
- (2) Band (6 persons)
- (3) Costume Committee—"Clothes to dress up"
- (4) Actors

Next followed a discussion about the "stunts" that they could do and many children illustrated their capacities. A lively practice was the result that was heartily enjoyed, and then the "best stunts" were decided upon.

Costumes were brought from home and some were made by the children, though very crudely, from paper cambric and paper. These were placed in an empty drawer when completed.

The audience was discussed and the position of chairs, ring, etc., decided upon.

They played this game several days, adding something each day, until it was voted good enough to invite the first grade in to see it.

19. "The Rainy Day"

(Reported by Miss Lillian E. Stege, Louisville, Kentucky)

A morning of unusually steady, heavy rain before school and during assembly roused the interest of children and became a natural topic of conversation. A suggestion by the teacher to do or make something connected with this unusual rain met with enthusiasm. Drawing, cutting, dressing dolls in rainy weather clothes, construction of umbrellas, etc., resulted. Later, when called on for a story, a rhyme or a song pertaining to rain, contributions were readily given. The well-known Mother Goose rhyme—"Rain, rain go away"—proved most popular, and as no song was forthcoming for it, it was requested that the children try to sing it. Many responses followed, one of which proved so very good that it was published in a local paper.

The excellent thing about this project was that for the remainder of the session we had many spontaneous bits of music for rhymes or original words, and now in the new session of 1920-21 the name of the child whose effort proved most singable is remembered with real respect, and the desire to emulate his example is still proving a real stimulus.

20. "Building a Railway Station"

(Reported by Miss Mary A. Goodwin, Richmond, Virginia)

The building of this, like the building of the church, Project No. 5, might be a step toward the larger community project later. It grew out of the story of a visit to the station by one of the children, and was carried out in the following order:

1. The attempt to make an engine.
2. A visit to the station by a group of children.
3. The making of a full-fledged train, consisting of the engine and tender, baggage and passenger cars.
4. Making the station itself.
5. Making trunks and suit cases by one group of children, and cutting paper dolls or dressing china dolls by others.
6. Making signs, such as "Union Station," "Ticket Office," "No Smoking," etc., and putting these up. In the ticket office there were two groups of dolls representing people waiting for the train.

This project stimulated the children to several other lines of work later on, and was of special interest to the boys.

COMMENT

There are many additional projects that have been successfully worked out illustrating other phases of the year's thought. Among these are: a park play ground; a farm yard, using construction paper; a winter play-ground in the sand table, the sand being covered with cotton for snow. Some projects representing out-of-door life have been successfully worked out in Summer Observation Kindergartens. In the Milwaukee Normal School a summer band concert was successfully worked out by a group of children under the direction of Miss Blanche Lovett. The children made the band stand and the seats for the audience, making the seats with large blocks, large enough for the children to sit on. They then devised musical instruments of different kinds and gave a concert to their friends.

The projects above described have been confined to one kind—those requiring the use of materials. Many kindergarteners have

worked out game and story projects, but these have been omitted as they will probably be well represented in the work of the primary grades. To be of maximum value all these projects need a fuller description than could be given in the brief space allowed. The conditions as well as the equipment in the grades are fairly uniform and a brief description will suffice for the projects used there. Those in the kindergarten have not yet become standardized and a more detailed statement is therefore needed. Several of the projects named could not be carried out in the average kindergarten because of the lack of the needed material and of adequate floor space. A project requiring floor space and several days of work for its development is practically impossible if the room must be used by different groups of children in the forenoon and in the afternoon.

The work here given will have value, however, if it gives an added insight into the nature and purposes of kindergarten education, and shows the unity of aim and effort in the work of the kindergarten and in the grades that follow. The recognition of the project is bringing about a truer relation between the kindergarten and the primary grades than has ever existed, because it is based upon the principles that subject matter must grow out of the experiences of the children and that it must have real content, which finds expression in many kinds of material.

CHAPTER II

NEW MATERIALS FOR THE PRIMARY GRADES

The materials assembled by the sub-committee on the primary grades are presented in this chapter in three sections, according as they are designed for use in the first, the second, or the third grade. The project materials for the third grade naturally fell under classification of school subjects, as: history, geography, arithmetic. Those for the first and second grades, because each project involved several of the tools of learning, were more difficult of organization, therefore more inclusive terms were used as: seasonable, special occasions. The chairman regrets that much valuable material came too late to be used. Readers may find it of interest to refer also to the "Reading Exercises Based on Children's Experiences" presented as Chapter I of the earlier report in the *Nineteenth Year-book, Part I*, of the Society.

A. MATERIALS PRIMARILY FOR THE FIRST GRADE

21. "Our Garden Fair"

(Reported by Miss Mary L. Dougherty, Mankato, Minnesota)

In the spring the children of the Primary Department ordered seeds from the Children's Flower Mission and made plans for their gardens at home. These they cared for all summer and when school opened were ready for the Fair, which had been planned for the second week when the County Fair would be in progress.

In preparation, the children made doilies on which to display the vegetables and flowers, labels bearing the name of the exhibit and the name of the exhibitor, posters for advertising. The third-grade pupils each made a poster, while the second-grade used that as a group project. Invitations were taken home by all. The pupils of the second and third grades wrote their own. The first-grade pupils composed theirs and made decorated folders for the type-written copies which were made for them. The science instructor in the school acted as judge and gave red and blue ribbon awards

just as was done at the County Fair. A large attendance of parents and general appreciation for the work rewarded the children for their efforts.

Third-grade children wrote to a teacher who was ill, letters telling about the fair, and so had drill on correspondence forms and a general summary of the experience.

22. A Series of Suggestive Projects

(Submitted by Aschah May Harris, State Normal School,
Emporia, Kansas)

1. A Kite Tournament (see No. 25, further on)
2. A Puppet Show (to raise money to purchase a canvas for our new play house)
3. A Bed Time Story Book (for a wee girl's Christmas)
4. A Picnic for the Three B. Class (planned by the Three A. Class)
5. A Robert Louis Stevenson Program (for chapel)
6. A Rossetti Program (for chapel)
7. An Entertainment "Christmas in Other Lands," for the first and second grades or for our mothers (third grade)
8. A Mother's Day Program
9. An Easter Greeting for the Home (a small potted plant grown from seed, planted in the school-room window-box—the pot decorated with paper cuttings representing the flowers and leaves conventionalized, then the pot covered with shellac)
10. A Picture Show "Little Black Sambo" (by the first grade to entertain the kindergarten or the second grade)
11. A Play—Dramatization of Little Black Sambo (by the second grade—costumes all made by children in their "Free Choice Room")
12. Making a School Garden (to earn money for purchasing new books)
13. Making a Dictionary for Grade One (planned by the third grade)
14. Making Christmas Presents (to be distributed by the Welfare Association to the needy children in the city)
 - a. Noah's Ark (made by the first grade)
 - b. Picture Puzzles (made by the second grade)
15. Planning a Christmas Dinner (third grade)
16. A Christmas Present for Father (box of stuffed dates)

23. "The Spirit of Spring"

(Reported by Miss Frances M. Berry, Baltimore, Maryland)

Subject Matter

Mother Nature's work, her care for her children. Awakening life. Preparation of garden, planting of seeds, study germination. Care of garden. Study of flowers. Kinds—garden, field and woods. Their beauty and use. Poems and stories in correlation.

Activities

1. Illustrate "Mary Quite Contrary." Use the sand table. Make house, wall, and garden. Cut and paint tulips, daffodils, sunflowers, lilies. Trees and wall in background. Make a paper doll; dress in spring costume with a watering can for Mary. Cut and dress a man with wheelbarrow, a boy with rake or lawn mower.

2. Illustrate a "May Pole Dance." Construct of cardboard houses, a church, and fences, hedge and gardens. The "Village Green," with May pole. Paper or real dolls (15 cent celluloid) dressed in costumes of crepe paper, dancing around May pole.

3. Weave May baskets of raffia. Take trip to fields or woods; fill baskets with flowers. Present them to a friend.

24. "A Flower Shop"

(Reported by Mildred Dickinson, Richmond, Indiana)

Easter and the spring flowers suggested the project; one child thought of a flower shop and the others accepted the idea. Patty Hill blocks made the shop, shelves, tables, etc. Flowers were made of crepe, tissue, and drawing paper; pots of paper, clay and plasticine; baskets of various original forms, of paper. One child suggested that gold fish be placed in the shop, and one day all went out of doors with the toy wagon and brought back violet-plants in bloom. A long narrow sand tray was placed in the center of the shop, the gold-fish bowl put in it, and the violets planted about it. The children bought, sold, and delivered the flowers.

25. "A Kite Tournament"

(Reported by Aschah May Harris, Emporia, Kansas)

The making of kites this spring, which started in the "Free-Choice Room," led to a kite tournament. The result was that every child in the primary department made a kite. Honors were given to the child making the largest kite that would fly and the smallest kite that would fly, also to the one making the prettiest kite, and the kite that would sail the highest in five minutes. The children selected their own judges and invited them to assist in the tournament. They wrote their notes of invitation.

Work that grew out of this project was as follows:

(a) *Reading for Information*

“Our Little Japanese Cousin”
 “When I Was a Little Boy in China”
 “Home-made Toys for Boys and Girls”
 “Harper’s Out-of-Door Books for Boys”
 “Child Life in Japan”

(b) *Reading for Inspiration and Appreciation*

Stevenson—“The Wind”
 Rossetti—“Who Has Seen the Wind?”
 Steadman—“What the Winds Bring”
 Æsop—“The Wind and the Sun”
 Bailey—“The Windmill”
 “The Foolish Weather Vane”
 “The Little Half Chick”—from Kansas Second Reader
 “The Windmill”—from Elson Rinkel’s Primer
 “Ulysses and the Bag of Winds”

(c) *Language, Writing and Spelling*

Dramatization of the Wind and the Sun (first grade)
 Writing quotations that have been memorized (second and third grades)
 Invitations to judges.
 The Work of the Wind.
 Story made by the One B. reading class.
 “I have a kite.
 I made my kite.
 It is a red kite.
 I can fly my kite.
 See the pretty kite fly.”

(d) *Singing*

Knowlton’s *Nature Songs for Children*. (“March Wind”)
Normal Institute and Primary Plans, March, 1920. (“The March Wind”)
Primary Education, March, 1918. (“I should Like to Be a Kite”)

(e) *Hand Work*

Making kites—two-piece frames and three-piece frames.
 Decorating kites with birds, butterflies, etc., calling for free choice in selection of colors, careful paper-cutting, pasting, etc.
 Chapel programs, using the wind songs, poems, stories and rhythm work.

(f) *Number Work*

Measuring string, sticks for frames.
 Kite sales (playing store).

26. “A Halloween Party”

(Reported by Florence Williams, Richmond, Indiana)

Decorations were made for the room by using the pumpkin Jack-o’Lantern, comical cats from circles of black paper, apples, etc., as

units for border design. The room was so pleasing that the children wished others to see it, and so decided to give the kindergarten a party. Invitations were planned, designed, and sent (using oral composition). An entertainment committee was chosen, also a refreshment committee. After much discussion, first without, then with, the teacher, plans were made. The entertainment consisted of games suitable for the occasion and a story. The refreshments were pop-corn which the children popped themselves and animal crackers which were donated. These were served in baskets made of orange-colored paper and appropriately decorated.

27. "A Toy Shop"

(Reported by Alison Hayne, Detroit, Michigan)

The shop was constructed from materials borrowed from the kindergarten. The children made toys, dolls, doll clothes, beads, doll house and furniture, picture books, blocks, animals, picture puzzles, clay dishes, vases, etc. The arranging and selling of toys was also done by the children. Their plans and discussions formed the basis for board reading lessons. The buying and selling involved the use of numbers. The prices were marked from five to twenty cents.

28. "The Christmas Spirit"

(Reported by Frances M. Berry, Baltimore, Maryland)

Subject Matter

The legendary Santa Claus, his home, his work, his visit. The Santa Claus spirit—a kind thought taking human form never passes away. A beautiful spirit enters people's hearts, telling what to do to make others happy. Santa Claus of the home, the school, the shop, the natural world. Work of father and mother to give people happiness. Presents, toys. History of Santa Claus. Santa Claus of other lands.

Activities

1. On the sand table make a room. Show mantel, fire-place, and chimney. Construct bed; place dolls in bed, dressed in night gowns. Cut out and dress a Santa Claus with bag. Secure small

fir tree. Children make the ornaments for tree. Paper icicles, cornucopias, chains, drums, stars, trumpets, lanterns and flowers. String pop-corn and cranberries.

2. Make a community toy bag of burlap. Each child make or donate a toy.

29. "Fairyland"

(Reported by Floy Campbell, Kansas City, Missouri)

The class took a May walk, gathering pretty pebbles, bits of moss, and other materials. Each child brought the lid of a shoe box, covered it with green paper, and arranged in it his treasures, making a bit of fairyland by adding paper bridges, little paper trees, tiny fairies cut from paper or fairies made from white-headed pins dressed and arranged in a circle. The children had listened to stories of the "Legend of the Fairy Ring" and of the return of the fairies in the spring, and this little project resulted therefrom.

30. "A Country Home on the Sand Table"

(Reported by Frances M. Berry, Baltimore, Maryland)

In this first-grade project there was involved the building of house, fences, barns, out-buildings, chiefly by paper construction.

The problems involved were such as the following: the selection of materials best suited for the construction of each part—experimentation, criticism, judgment, decision, final construction, the best product then chosen by group.

The materials used were paper, cardboard, clay, wood, twigs and branches, seeds.

The project involved much oral language, also dramatization, drawing, manual training, number work, and measuring.

31. "A Post Office"

(Reported by Frances Berry)

There was a discussion of the use of the post office in the community. One was built of blocks and rough boards.

Use was made of it in play thus:

When entering, child is given card with names upon it, becomes familiar with it, returns it when leaving. Gradually card is filled with full names, address, name of school teacher, principal, janitor, nurse. Envelopes addressed to these people are supplied. Child selects one he wants, mails in it some of his own work, an invitation, thanks, greetings, etc. Teacher supplies type-written stories, poems, songs, etc. Child chooses one of these, reads at home to someone.

The tools of learning involved are reading, oral language, composition, and dramatization.

32. "The County Fair"¹

(Reported by Frances Berry)

The fair grounds were made on the sand table, using clay, sand, and paper. There were represented the band stand, books, stalls, various exhibit buildings, people, and animals.

This project led to abundant free conversation and supplied stories for reading lessons.

33. "The Family"

(Reported by Frances Berry)

Subject Matter

The family members—mother, her services; father, his services; children, how they may help. Family pleasures, activities, food, shelter, clothing.

Activities

Cut out paper dolls to represent various members of the family. Paste on faces cut from advertisements in magazines. Cut kimono patterns. Use for petticoat—scallop edge. Use for dress, make of checked tissue paper. Trim dress with pockets and belt. Hat of cardboard or tag board; cut slit for head; trim to match dress. Cut short coat of paper; color with crayola to match hat.

¹ Compare the use made of the County Fair in the primary grades at Janesville, Wisconsin, as described in the *Nineteenth Yearbook, Part I*, pp. 20-23.—*Editor.*

These dolls may be dressed in cotton when studying Eskimo Life in January. Also may be dressed as Dutch children when studying Dutch Life, and used in Dutch village on sand table in March.

34. "A Mother Goose Party"

(Reported by Alison M. Hayne, Detroit, Michigan)

There were presented attractive pictures of "Jack and Jill," "Little Miss Muffet," "Little Jack Horner," "Little Boy Blue," "There Was an Old Woman," etc., by Jessie Wilcox Smith.

The dramatization, memorizing, and discussion which followed led to plans for a Mother Goose party. This party was distinctly a first-grade party and only first-grade games were used. These were: (1) marching around, as in "Musical Chairs," having phonetic sounds on cards; puzzles getting the words and pictures matched; (2) matching words in different places; (3) labeling actors in dramatization, removing labels and having children recognize the names; and many other games recalling such association.

The children made the costumes to be worn in dramatization. The dances were chosen by the children from the course of study in physical training. The music teacher furnished the songs. The boys made the tuffet, Bo Peep's staff, sheep's coats, the pie, etc. The girls painted the cardboard plates and made doilies, and all helped with the costumes. Each individual had an important part in making the occasion successful for the group as a whole.

35. "An Exchange of Houses"

(Reported by Alice C. Porter, Louisville, Kentucky)

This project was carried over from the kindergarten. A two-room house completely furnished by a kindergarten group was brought to the first grade when the group was promoted in February. The house was occupied by a family of paper dolls. The first grade had two rag dolls and the children began playing visitors. One child suggested that the rag dolls were country cousins who had come to visit the paper dolls in the city. There was but one bed. How were the visitors to be made comfortable? The children asked for wood to make another bed. The bed was made,

but where was it to be placed? One child said a larger house was needed, and asked for floor blocks. Several groups built houses, but they realized that the block houses were not as stable as the little house. The teacher suggested that perhaps the large boys would make a four-room house, if asked. The class dictated a note asking help. The sixth-grade boys agreed to build, but the first grade must furnish measurements. The best block house was measured and the new house was built. At the suggestion of the class, a note which was dictated to the teacher was sent to the builders, thanking them for their cooperation. The next problem was what to do with the old house. One group visited the neighborhood to see how empty houses were advertised. They printed a "For Sale" sign and advertised in a newspaper, which fell into the hands of the kindergarten children, who sent a note inquiring the price of the house. The note was read by the first grade. They had a sale and the house was bought by the kindergarten for ten dollars. The next problem: additional furniture was needed for the larger house. The class divided into three groups for this work. One group visited a neighboring store and bought material for draperies. On their return, this was measured and made up to fit the windows. The kitchen needed a cabinet and this was made by the child who had discovered the need. A miniature bath-tub was sent by an interested parent and a real iron stove by another parent. A child brought a tiny telephone. Many other lines of thought were suggested by the class and were worked out. The project furnished material for thought and work for a period of five months.

36. "A Doll Sale"

(Reported by Marguerite DeLano and Myrtle L. Kaufmann,
Springfield, Illinois)

It was desired to raise money enough to buy rubber tips for the chairs in the first-grade room. The children suggested means of raising the money and finally decided to sell paper-bag dolls to children in other rooms in the building.

In making the dolls cotton was put in the bottom of the bag and tied to make the head. The top of the bag, when inverted, served as a skirt stiff enough to support the doll in a standing

position. A face and hair were painted on the head. Variation in facial expression made each doll different from the others. Rolls of paper put through slits in the dress and fastened with paper fasteners formed the arms. Dresses and caps were made of colored crepe paper. The variety of dolls made included: witches, Red Riding Hood dolls, sun-bonnet babies, and dolls with and without aprons.

The children were in charge of the sale. Five cents was the price of each doll. Advertising posters were planned and made.

The plan called for:

1. Language
 - (a) Oral: discussion of plans and the announcing of the sale in other rooms.
 - (b) Written: addressing of package sent out of city to a visitor who had left an order.
2. Reading of posters.
3. Art: Selection of pictures for posters, and arrangement of the same. Cutting of letters for posters. Decorations of doll heads. Planning color combinations for the dresses.
4. Occupation work: Preparation for making the dolls was given in the period set aside for project work. Later children were able to work unsupervised at tables and workbenches. After the sale the children made dolls for themselves.
5. Number: The class felt the necessity of learning to make change.

As a result, every chair in the room is rubber-tipped.

37. "An Egg Hunt"

(Reported by Wezette Hayden and Myrtle Kaufmann,
Springfield, Illinois)

The children (1 B Grade) talked about the approach of Easter and planned for some observation of the day. Some of the children told about experiences with colored eggs. It was decided to have an egg hunt and to invite another first grade to participate.

The children brought eggs to school and boiled them, timing the process. Later, they decorated them with water colors,—in some instances applying flat washes and then designs in contrasting colors.

The eggs were hidden in the grass at the foot of shrubs and trees in a small park near the school. At the time set for the egg hunt, the children of the two rooms went to the park and had a happy time finding the nests. Those who found several voluntarily gave to those few who found none.

The plans for the egg hunt furnished interesting language work, and the records of the experience were used as reading material. Word study and writing grew out of the plan to send invitations to the other children. The decorating of the eggs made very interesting work in color and design.

B. MATERIALS FOR THE SECOND GRADE

38. "Old Pipes and the Dryad"

(Reported by Fannie L. Ballou, Kalamazoo, Michigan)

The second grade was given charge of "Assembly." The children conferred together and decided on the dramatization of "Old Pipes and the Dryad." Committees were appointed, five scenes were finally decided upon and arranged and children chosen for the parts. Costumes were gathered from various sources and were simply made. Scenery was made in the art class on huge sheets of bogus paper and was pleasing, though crude. Oral and written language and hand work were involved in this project.

39. "The Easter Rabbit"

We determined the acts for this dramatization, to be outlined by the children as follows:

- Act I. In the woods, just before spring.
- Act II. Springtime in the woods.
- Act III. Easter morning in the town.

The characters were not chosen until everything else was ready. The daily language lesson was the rehearsal of the various parts of the story by different individuals. Then the selection of the characters was left entirely to the children.

This particular story called for much investigation on the part of the pupils in order to have a more perfect understanding. The following were some of the children's questions which they answered for themselves:

"When is Spring due?"

"What are the first spring flowers and birds?"

“Do bears really sleep all winter?”
“What kind of homes do foxes have? Etc.”

Occupational activities concerned were:

Writing invitations

Posters

Programs

Tickets

Costumes

Stage settings

Decorations for room, picturing different scenes and writing a few sentences to explain the picture.

Writing “What I would like to be in the play and how I would do it.” (Here the children came to the teacher for the spelling of very difficult words. She often directed them to one of the class who had asked for the same information at some previous time.)

Reading these stories by the children to the class.

The undertaking involved language, nature work, reading, writing, a limited conception of number, much spelling, handwork of every description, and most of all, the cooperation and directed effort of every child in the room. These children had one hour every morning in which all worked toward one goal—the presentation of “Bunny’s Easter Trip.”

40. “The Party”

(Reported by Fannie L. Ballou, Kalamazoo, Michigan)

Suggested by the offering of some child of his bag of cookies or box of candy.

The host chooses an entertainment committee and refreshment committee, each after a short conference. The entertainment is decided upon, which takes the form of a short play, stories, or games. Many lessons are learned regarding manners and simple courtesy during these parties and much training is given in social etiquette.

41. "Making a Story and Picture Book for the First-Grade Library Table"

(Reported by Ruth E. Davis, Bridgewater, Massachusetts)

The children selected from a number of bird pictures a few in which they were interested. These were trimmed and mounted in a brown paper book, and were made a basis of conversation, the children contributing from a study of the pictures and from experience. For each picture the facts were organized into story form, for each child wrote his own story. Encouragement was given when necessary to assist in mastering the difficulties in spelling. The corrected draft was used as penmanship material and the best final result chosen for one page in the book.

42. "Seed Planting"

(Reported by Neva I. Lockwood, Bridgewater, Massachusetts)

This question was raised by the children, "How do seeds grow?" Beans were soaked and examined. Other seeds were placed on damp blotting paper and in damp sawdust that the first stages of growth might be observed. Each pupil made a flower pot of oak and planted seeds of his own choosing. He was responsible for the care of his pot and reported to the class what he observed. When the plants were ready for transplanting, each pupil took his home to put in his garden. In the fall a number of the children brought to school flowers or vegetables which their plants had produced. A little manual work and much oral language grew out of this study.

43. "Bird Diaries"

(Reported by Fannie L. Ballou, Kalamazoo, Michigan)

As the birds began to return in the spring, the children became so interested in them that some of them wanted to keep a report of what they were seeing each day. "Bird Diaries," with attractive covers were made in the art class and each day, the date and the birds seen were recorded. The children saw many they did not know and wished to have a near-by place where they could solve their problems. A table was put in the back of the room, and all

the bird books available from home and library were collected there. Frequently, we met together for a nature conference to share individual bits of new information with the group.

44. "A Wool Book"

(Reported by Fannie Ballou)

Children were interested in the study of wool. As informational material was difficult to find in a form simple enough to read, the teacher answered their questions, and the pupils decided to make books of their own. Different groups worked together, and as a result there were several compositions which were mimeographed and used as reading lessons. These were bound into book form. Covers and illustrations were made in the art class. Original stories and poems were prepared in the same way.

45. "Making Bank Books"

(Reported by Fannie Ballou)

During the war, the children brought money to school for the purchase of thrift stamps. One day, someone suggested that we have a savings bank in our room, so that pennies and nickels would grow to quarters without the danger of being spent for candy. The children decided that they needed bank books as well as a bank, so each made his own book, ruling the columns on the pages and using the words *In*, *Out*, and *Left*, instead of *Deposit*, *Withdrawal* and *Balance*. Each child kept his own account; the teacher kept a duplicate on filing cards. It was interesting to see how quickly the children knew when they had saved twenty-five cents. They learned much arithmetic easily and naturally through their "Thrift Stamp Bank."

46. "A Health Code"

(Reported by Jessie G. Kennedy, Kansas City, Missouri.)

The day after the coming of the Health Exhibit to our school, for language we talked about Miss Brown's visit, each one telling what interested him most. After a number had said "We must do

this" and "mustn't do that," I asked them if they would like to make their own health rules. They wanted very much to do it.

Then some one suggested that we make posters of them, like Miss Brown's. To the question, "Where will we get pictures to illustrate them," one little girl said, "I saw in a magazine a picture of an open window; we could let that tell us to keep our windows open at night." Others thought of pictures they could bring.

That afternoon the first picture was brought by a little boy whom I hadn't before been able to interest in anything. As he handed it to me, he said, "That picture tells us to go to bed early." He was one who had been accustomed to spend as many nights at the picture show as he could get nickels to pay his admittance. As each picture was brought, the class decided whether it was suitable for a health rule and then we made the rule.

Of course, a number of the pictures that were brought could not be used. If they disagreed with what the "Health Lady" taught, they were at once discarded. We spent several weeks in planning for the posters.

During this time all of the writing period was spent in writing the health rules. We also took all of our spelling words in the second grade from this source. We used the language and hygiene period in talking about our pictures and making all our plans. In the hand work period the pictures were cut out and mounted. The cutting of the letters for the folder was part of our art work for the month. (The children used half-inch ruled paper, but we found the letters too large to use, so the teacher made the letters and the children colored them.)

Many new words were added to their reading vocabulary, as the rules made one day must be read the next day before they were used for writing. We also had a number of supplementary reading lessons on the board with our health project for its basis. I also found a number enjoying reading a few health stories we had on our reading table.

Before we took up this work the health lesson seemed something foreign to the children, but while we were doing it and afterwards, it seemed a part of them. Often the first thing in the morning and afternoon session, they would say "I did a health rule; I

brushed my teeth." "I washed my hands before eating." "I drank milk for breakfast." "I ate something green for lunch."

Working out the health project was not only a very pleasant and profitable school experience, but I am sure the lesson learned will stay with the children and carry over into their everyday life.

47. "The 'We Like It' Cafeteria"

(Reported by Jessie G. Kennedy, Kansas City, Missouri.)

We had just finished making a health project, based upon the Health Exhibit, in which we illustrated health rules with pictures cut from magazines (No. 46).

In waiting to be served at our school cafeteria, I noticed that sometimes pupils were not courteous in the way they asked for food. I thought if my pupils could have a cafeteria, we could teach the proper way of serving and being served. The next day in language time, I found that all of the pupils had eaten at a cafeteria, either at school or elsewhere. When I asked if they would like to have one in the room, they were enthusiastic. To the question, "Where will we get the food?" they replied, "Out of magazines." At the next session the pictures began coming in.

I was very much delighted at the resourcefulness they showed in getting pictures. To illustrate: we were unable to find suitable pictures of butter. One day we had a visitor who asked for butter. The girl serving said, "I am sorry but we have no butter."

The next day a boy brought to school a half-pound butter carton with a small butter mould on the end. This was too small to use, but some one said, "We have a pound box like that at home." So it was brought and that problem was solved.

We decided to follow as nearly as possible our own school cafeteria, both as to food served and prices asked.

The pictures were pasted on card-board and then cut out. These were given to a group who decided which ones should stand and a way to make them stand.

Then came the question of plates. A paper plate was brought to school for a pattern. The teacher ventured a suggestion, but found it wouldn't work, so one boy said he could make them of the

sort he ate ice cream from down town. He was given material and made his own and showed the rest of us how to do it. We decided to use forget-me-nots to decorate our dishes.

We used lids of large boxes for trays. In choosing a name for our cafeteria, three or four names, any one of which was thought suitable, were placed on the board and the class voted. "We Like It Cafeteria" was chosen.

Names for those to serve were suggested by the class and then voted on. The different helpers were changed after serving a while, so as to give a number a chance to help.

Food was divided into meats, vegetables, breads, fruits, and desserts. Milk was served with the meats, soup and crackers with the bread, and lemonade and cookies with the fruits.

We borrowed three individual desks from our neighbor (ours were screwed down tight) and these with a table in the room were used for serving tables. The teacher's desk was the checker's stand and a kindergarten table was our dining table. The cashier used a box lid on top of a desk. On the board back of each serving table was written the names of the food served, with its price. Advertisements that had been made at the writing period were placed where it was thought the customer would see them.

Each person in charge of a food had her own box and displayed her food and put it away when through with it. Others removed the chairs and placed the various tables. We elected a manager who looked after all this.

A customer got his tray, knife, fork, spoon, and plate. He passed along the various tables and selected his food, stopping at the checker's stand to have his tray valued. Those at their seats would often have paper and pencil and, as the food was taken, put down the price and then see if their addition agreed with the checker's. We would often discuss the food chosen to see if the meal was a balanced one.

The person served sat down to enjoy his meal. At first on leaving the table, he merely left his check with the cashier. Later toy money was used and change made. These checks were saved and used to find out the day's business (drill in adding and carrying).

48. "The Store"

(Reported by Fannie L. Ballou, Kalamazoo, Michigan)

A group of boys decided to make a store, so gathered grocery boxes and boards of different lengths and sizes. The making of the store occupied two weeks' time. Other boys joined, and finally the entire group was involved, the leader giving orders to sub-groups. They made paper money, signs, price tags, articles to sell, etc. Through their play came recognition, addition, subtraction, and a splendid motive for drill.

49. "The Grocery Store"

(Reported by Frances Berry, Baltimore, Maryland)

After a visit to a grocery the children brought cereal boxes, can wrappers, soap wrappers, etc., from home. Boards supported on boxes answered for shelves. The children copied fruit and vegetable wrappers on manila drawing paper and made hollow cylinders (without top or bottom) for cans. Cereal boxes were folded, decorated and pasted; representations of match boxes, bars of soap, soap powder, Dutch Cleanser, packages of vegetable and flower seeds were made. On the table was a show case for the candy. This was a large gray box with a sloping lid and a large piece of window glass set in with glued corners. A cash register, various trays and baskets were evolved and constructed, and each child made his own paper money and a purse to contain it. The stock was invoiced and a grocer was asked to make a price list. Small price cards were made and articles bought and sold. As articles were sold, they were replaced by the "farmers," "canners," and "manufacturers," thus affording wholesale, as well as retail exchange.

Conversation, reading, composition, arithmetic, manual training were involved.

50. "Health Charts"

(Outline from Frances Berry)

Topic: "What the good citizen tries to do."

Takes care of his health.

Tries to be neat and orderly.

Tries to be courteous and considerate.

Tries to be honest and trustworthy.

Tries to be fair and generous.

Tries to be prompt.

Discussion of each of these, and a chart made for each, such as the following on care of health.

"I wash my face, neck, ears, hands and arms every morning."

"I wash my hands and clean my nails before each meal."

"I wear my rubbers when it is wet."

Illustration of these by pictures from magazines.

Individual books may be made, containing related readings and pictures.

51. "Dramatization of Arab Life"

(Reported by Florence E. Williams, Richmond, Indiana)

At the outset pictures were shown and discussed, and there were lectures to the children by a native of Jerusalem.

The children then made and wore Arab costumes, *e. g.*, tunics, head-dresses, veils. They made camels by turning down small chairs, making head and neck of brown construction paper and gluing to a ruler, then tying the ruler to the back of the chair and draping a coat over the chairs for the body. They constructed an Arab tent in the corner of the room and sat there to weave their rugs, which were made of rags dyed by themselves.

An oasis was made in the sand table. Palm trees were made of green and brown construction paper (the fronds by folding green paper slashed diagonally—five or six tied together and glued to the end of a roll of brown paper). A spring of water was represented by a tin lid; sheep were made of plastic covered with white cotton; goats and camels of clay; dolls were dressed in Arab costumes, some sitting before the tent weaving tiny rugs on tag board looms. The camels laden with rugs were being ridden across the desert.

52. "Watching Caterpillars Turn into Butterflies"

(Reported by Ethel Salisbury, Berkeley, California)

A caterpillar was brought into the classroom. Several children were afraid of it. It was put into a glass case and given leaves to

eat. Other children brought more. The children found out all they could about them. Its metamorphosis was watched and one morning a beautiful mourning-cloak butterfly emerged from its brown cradle. It dried its wings in the sun and flew away as the children watched. They were told that after awhile it would lay little black eggs which would make pretty brown caterpillars and then more beautiful butterflies. Several of the children who were afraid of caterpillars found and brought some in the following days and put them in the case.

53. "Doing Something for a Sick Classmate"

(Reported by Lucia M. Densmore, Ypsilanti, Michigan)

A few weeks ago a little boy in our room met with a serious accident which necessitated his removal to the hospital at once. As his seat was vacant the next morning, we began a "conversation" about this absence—why he was not in school, etc. I stated briefly, without going into detail, the reason he was not there, telling the children Glen would not be with us for several weeks, as the accident was serious.

Then followed several questions. "What can we do for him while he is away?" "What do you think he would like to have us do?" "What would he enjoy most?"

These questions were answered quickly by the children as follows: "We could make picture books." "We could write him a letter." "We could send fruit and flowers." "We could send toys."

As a result, apples, grapes, pears, oranges and flowers have come in abundance. These we have arranged tastily in boxes and sent to him with a little written message suggested by the children. They have also written a letter, made picture books, pages of which were their own drawings, illustrating stories. Other books have been made of paper cuttings.

By letting two or three sit at a small table which is in the corner of our room, the children have made several toys for him—among them boats, wagons, baskets and aeroplanes.

This project will 'carry on' several weeks, as some of the chil-

dren are just beginning their activities. All are eager to do something.

C. MATERIALS FOR THE THIRD GRADE

54. "A Library"

(Outline from Jennie Smith)

Election by the class, of librarian, assistants, etc. Books brought from home and from public libraries. Rules for management, care of books, etc., worked out by committee on rules and adopted by the group. Card system used. Name for library chosen by group. Oral and silent reading.

55. "A Health Club"

(Outline from Jennie Smith)

Class organized and selected their leaders, chose name for club, etc., using standard leaflet of *Health Chores* published by Tuberculosis Society. Reports of successes, questions, problems, etc., came in to the business meetings of the club. Discussions were carried on here also. All records, inspection of same, and charge of buttons issued for chores completed in hands of officers of the club. The teacher works through these officers, as a guide to the group.

56. "An Indian Entertainment"

(Outline from Gertrude E. Pollard, Atlanta, Georgia)

History: Life, customs, dress, etc.

Reading: Indian stories.

Literature: Hiawatha.

Composition: Arranged an original play based on Hiawatha. Each child wrote of his Indian adventure to tell around the camp fire.

Music: Part of Hiawatha. Indian records on Victrola.

Dance: Made up a corn dance from a reading lesson.

Construction: Measured and made head gear. Made costumes from cambric.

Drawing: Drew borders and designs for their costumes after studying Indian design.

57. "Making the School Garden Pay"

(Reported by Ellice E. Burk, Cleveland, Ohio)

The seeds for the garden were provided by the school and the garden was a class project. The children did all the work with the exception of plowing. When the vegetables were ready for the market, the class was divided into committees, each one having a particular responsibility, such as keeping in touch with the market prices, soliciting customers or delivering goods. At regular intervals the crops were harvested, weighed, measured, put in bags with labels attached giving quantity, prices, and name of customers. The arithmetic lesson for that day consisted in finding out how much the sales amounted to and of keeping the record in good form. A strict account was kept, and at the end of the season, after paying back the amount advanced for seeds, the class had a nice little sum which was spent in buying some much desired apparatus.

58. "Making a Notebook"

(Reported by Isabel W. Riddell, Quincy, Massachusetts)

A notebook was needed for some arithmetic work and the children were asked to choose between a book made by themselves and one furnished by the school. They decided that they would like to make one. A discussion took place as to materials for covers, number of pages, manner of binding, etc. These materials were provided and estimates made as to how much would be needed for one notebook, and then for notebooks for the entire class. Each child measured his own covers and pages, and where help was needed, it was given in most instances by the children. After they were finished, it was suggested by the teacher that they find out whether these notebooks had cost more or less than those furnished by the school. The cost of the materials was computed as accurately as possible and compared with the cost of the ready-made notebook. The pupils seemed to take pride in the fact that a small sum had been saved.

59. "Construction of a Japanese Village on a Sand Table"

(Reported by Isabel W. Riddell, Bridgewater, Massachusetts)

The desire to construct a village arose while the children were reading stories of the life customs of the Japanese people.

Pictures and stories were collected from outside sources by the children. These were examined and discussed for some time before the village was started. Through the kindness of the instructor in drawing, some plans were obtained, and the class was divided into groups, some working on houses, some on jinrikishas, some making figures, lanterns, flowers, etc. Another group prepared the table, making a miniature lake. When the models were ready, another group had charge of placing them on the table, and members of the class offered suggestions.

60. "Making Product Maps"

(Outline from Ellice E. Burk, Cleveland, Ohio)

The aim in this project was to make maps to indicate such items as: location of our school, streets leading to the market, important buildings on these streets, location of the market, also to study products, like fruits, vegetables and meats, dairy products and poultry.

The following activities were developed: Making a trip to the market, making a map showing the route we took, locating streets, buildings and our school, collecting pictures of products, making charts, like a fruit chart, a vegetable chart, a dairy products chart; taking a trip to a truck farm, constructing and decorating a market stall of cardboard, making fruits of clay and painting them in colors, making a price list and the name of the owner of the stall, buying and selling, making out bills, making a book describing the trip, with pictures of products.

61. "Dramatization of 'The Hardy Tin Soldier.'"

(Reported by Isabel W. Riddell, Bridgewater, Massachusetts)

The story was discussed by the children and scenes and characters decided upon. Several groups were chosen to try the parts,

and a final choice was made by the class. Of those not taking part in the play, one group attended to making the programs, while another wrote the invitations to guests.

Out of this language project grew projects of a different type, such as the making of crepe paper costumes by the girls, and the making of a few simple stage settings by the boys.

62. "Preserving Tomatoes"

(Reported by Mary L. Dougherty, Mankato, Minnesota)

The children of the third grade were given some ripe tomatoes. They decided to make preserves for refreshments at a Hallowe'en party, which the primary department was enjoying. Each child inquired at home for a recipe for preserving tomatoes. These were reported in a composition period and the method of procedure settled. The domestic science teacher offered the use of her kitchen, so the thirty-two children could all take part—two at a stove. The teacher scalded the tomatoes and the children finished the cooking.

The second day, an arithmetic lesson was based upon the use of the scales in weighing the fruit and sugar. Then the fruit was boiled down and lemons were sterilized by two other groups of children. The fruit was put in jars and when cold, covered with parafine. The children washed all dishes and cleaned up the tables. None of the fruit was burned or spilled.

Following this work the children wrote a note of thanks for the use of the kitchen, prepared a report to go in their book of records of work, and in the art period made labels for the jars.

63. "The Doll Museum"

(Reported by Florence Williams, Richmond, Indiana)

The children were asked to make dolls of any material they chose. The only condition was that it should be the child's own work. Boys as well as girls entered into the fun, and dolls of every sort, some dressed, some not, were brought. The following were some materials used: paper, paper bags, cardboard, cardboard boxes (cylindrical shapes), rags, stockings, beads, corn cobs, clothes

pins, chestnuts, raisins, candy, potatoes, gourds, bottles, spools, raffia, yarn, and string.

A little exhibit was held and all the dolls were inspected and criticised.

Later, these dolls were used for suggestion materials from which to make dolls for the various projects carried out in connection with history and literature.

64. "Robinson Crusoe"

(Outline from Ellice E. Burk, Cleveland, Ohio)

From the book the following points are learned: His life in England. Home, family, love of sea, his running away. Life on ship, shipwreck. Life on the Island. Food, shelter, clothing. Weapons. Transportation. Records. Return to England. What he learned from life on the Island. The children then made a collection of pictures of ships, took a trip to the park to see the artificial island, illustrated on sand table Robinson Crusoe's Island, constructed a house, built a stockade, pen for animals, and palm trees, made a canoe for sand table, kept a weather chart, and made a community poster: "Life on the Island."

CHAPTER III

NEW MATERIALS FOR GRADES IV, V, AND VI

There are grouped in this chapter materials, mostly of the type now frequently referred to as "projects," which have been actually used in the fourth, fifth, and sixth grades. Many of them will be found useful in more than one grade, but they have been arranged within the chapter as projects for the fourth, the fifth, or the sixth grade according to the grade in which they were originally developed. Within each grade they are also grouped roughly to bring together those that feature a given aspect of school work, like geography, nature study, composition, etc.

A. MATERIALS FOR THE FOURTH GRADE

65. "The Neighborhood Map"

(Reported by Floy Campbell, Bancroft School, Kansas City, Missouri)

The teacher draws on the board a rectangle representing the schoolgrounds, and at the dictation of the children, she adds all the streets in the district, with their names. The children follow at their seats. Each child then comes to the board, and traces on the map his route to school, and draws his house where it belongs. It is wise to use different colors for the various children. The best of these maps is framed, and hung beside the Room Constitution, the idea being that it is an adjunct to the Room Club, helping us all to find at once the home of any one who is ill or in trouble.

66. "A Live Map"

(Reported by Floy Campbell)

Children of a Porto Rico school went to the town "plaza," or square, and there paced off all the main dimensions, and noted them on paper. Regathered at school, each one with a piece of plotting paper, the teacher at the board with a large sheet of heavier paper, the entire group worked out a plan or map of the square. Each

child was now given one house or store to study, and one tree. These he drew, making a front elevation only of the house, and using the same scale the teacher had used in her large map. Box-forms were made, and the "elevations" were pasted on the box fronts. The teacher's map was placed on a table of suitable size, the houses put in the proper place on it, the tree-drawings cut out and placed where they belonged, sand-paper cut and pasted for streets and walks, green crepe paper for grass, and colored papers for the flower beds. Benches were made of paper. By this time the class was enthusiastic about the work, and asked to finish it by indicating the type of life that went on in the square. They made a wedding procession coming out of the church, people in front of the stores, autos, horses, wagons of all kinds, dogs, etc. Each child was permitted to add what he thought especially characteristic and interesting, unless vetoed by the rest of the class or the teacher. Scale was observed throughout. One pace in the original estimate of sizes was counted 3 feet, and the rest of the construction planned accordingly.

Following this, a committee of boys volunteered to make a map of the entire village, as none existed, and outside school hours they paced off every street in town, and drew a very good little map. The town was about a mile wide and two miles long.

67. "Learning About Bread"

(Reported by Anne den Blykes, Normal School, Pittsburg, Kansas)

The children made a collection of grains, different flours, and things made of wheat, bran, puffed wheat, cream of wheat, etc. They exhibited on a bulletin board all the stages from planting to the finished products. Then they made bread. Each child brought a small package of flour. The bread was made in school and placed by the window where they could see it rise. It was put into three small pans and three little girls took it home and baked it. When it was brought back, each child was given a piece of bread to eat.

The class wrote to a bakery and asked if they might visit. They were allowed to do so, and a very interesting and instructive time they had. The children were told to ask questions if they wanted

to. They asked how many loaves of bread the baker could put in the oven? How many loaves he baked a day? etc. They learned that a lb. loaf cost them 10 cents, a two-lb. loaf cost 20 cents, and 1½-lb. loaf cost 15 cents. The baker boy showed how he weighed each loaf. They were interested in watching the pies being made and marked "A" for apple, etc.

The children were told to make up arithmetic problems for the next day about this visit to the bakery.

This project led to two little girls entertaining the teachers of the training school. They wanted to make some little cakes and have a party. This was allowed, and they served hot chocolate and cake.

68. "A Study of Kansas City"

(Reported by Floy Campbell, Kansas City)

For six weeks the topic in geography was Kansas City. After considering all the textbook had to give on the subject, each child took one local activity (manufacture, organized charity, former inhabitants of place, etc.), and found out all he could about that one subject. When the topic allowed, the child made a Saturday visit to the manufacturing plant or office he was studying, and reported to the class all that he saw or learned. He reported on his topic in the class, wrote a theme on it, made a slogan, which he lettered, with or without illustration, on a large piece of cardboard, and designed and made a costume that would express the especial character of his investigations. For instance, the child who reported on newspapers made his costume of the daily papers. The child who reported on the care of the old and poor wore a cap, spectacles, a shawl, and walked with a cane. They tacked their posters on long poles, and, in their costumes, marched through the school halls, and around the block, to the great enjoyment of the class, the very vivid interest of the school at large, and the edification of the neighbors. We had a photograph made of the procession.

In addition to the study of local geography, the project was of great social value, gave excellent work in reading, writing, oral language, lettering, and design.

69. "Getting Acquainted with the City's Public Buildings"

(Reported by Hedwig Carlson, Rockford, Illinois)

The class became interested in the buildings of Rockford through their study of the city. They expressed their desire to see the buildings. They planned several trips through the city, being careful to choose the places where the most buildings could be seen. When they returned, they traced their trips on the map of Rockford. As the class became more interested, they brought in pictures of Rockford buildings. The pictures were all classified and hung up. Before the semester was over, we had a large collection of pictures.

70. "The Making of Leather"

(Reported by Mary May Wyman, Louisville Normal School, Louisville, Kentucky)

In connection with the study of world geography the question arose as to where leather came from. Through pictures of hides in a tannery and cattle grazing on the plains, enough of an answer to stimulate further interest was given. The children found a number of pictures of cattle on the plains and in Argentina. They divided themselves in two groups, one to study ranch-life in the United States, and the other to study cattle raising in Argentina. From suggestive pictures, each group worked out his country in the sand table. At the invitation of a stock broker, we visited our local stockyards to see branded cattle from the west. One boy reported that his father (a butcher) sold skins to a Louisville tannery. The boy wrote for permission for the class to visit the tannery. The entire class made the trip. The processes were discussed in class; the class divided itself into small groups each to represent one process in the sand table. All worked to a scale so as to have a complete tannery. Books were consulted to see if all tanneries were alike. The tanner gave us the address of a Louisville shoe manufacturer who used his leather. Permission was granted to the class to visit the factory. Permission to share their experiences with the school in an assembly period was granted. The class selected the most important topics and the children to represent them. Letters

were written, at the suggestion of the children, to thank the business men for their kindness.

71. "Making Industry Books"

(Reported from Joliet, Illinois)

Each fourth-grade class in Joliet made a special investigation of an industry and illustrated it with charts and booklets.

When the projects were completed, the charts and booklets were brought together and then sent from building to building in order that all the fourth-grade classes might study the collection.

72. "Iron Ore—from Minnesota to Youngstown"

(Reported by Virginia Mariner, Youngstown, Ohio)

As Youngstown is one of the great steel centers of the world, iron ore seemed to us a peculiarly suitable project around which to build geography work. The children were first sent to the mills to secure iron ore with which they filled a large sand table. They were given a description of the iron mines of the Mesaba range of northern Minnesota. Using the sand table, they modeled in succession shaft mines, open-pit mines, the Mesaba range itself, the railroad leading to Duluth, the docks at Duluth, the loading machinery (made with a steel "Constructo" set), wooden boats, the Great Lakes, the locks of the "Soo" canal, the docks at Cleveland, the railroad connection at Youngstown, and finally a blast furnace. Meanwhile, a blackboard map of the Great Lakes region was developed day by day connecting up the story as shown through the models. The teacher merely provided the outline and organized the material. In the actual work itself the children were allowed to use their own initiative. Socialized recitations were carried on and papers were also prepared by the pupils, thus correlating the work with English.

73. "An Imaginary Trip Around the World"

(Reported by Marie Higgins, Joliet, Illinois)

After reading "Around the World with the Children" for silent reading, it was suggested that the class take an imaginary trip around the world.

The class was divided into groups and each group chose the country through which they would like to conduct the others. They then planned how best to make their country attractive to the travelers. The pupils found pictures to show and visited the library to find interesting facts.

The group who worked on Japan made a sand table, a representation of the country in cherry blossom time. One group gave a dramatization and another used lantern slides. This called for much reading, careful group planning, and was altogether an enjoyable project.

74. "A Christmas Trip to Palestine"

The study of the Holy Land was held for the pre-Christmas season, and this Kansas City class made a trip there. They wrote or called for pamphlets giving all routes by rail and steamer from their home town to the Holy Land, figured the time needed for the trip, the cost of it, estimated how much "extra" they should provide, found out what type of clothing they would need for each stage of the journey, etc.

They decided what stop-overs they should demand, and read up on all of the things they would see in each place they stopped. They collected pictures dealing with the places visited, and also pictures illustrating events of great importance that happened in Palestine. They made a list of words and names met with—Bethlehem, Raphael, Magi, Handel, etc., and used these as spelling lists.

Having reached Jerusalem, they wrote a letter home, telling of their journey and their plans, and illustrating it with the pictures they had collected, treating these as kodaks of their own, and telling under what circumstances each was snapped. While making this study, they constructed a large modelled map, and placed on it at the proper places the figures of animals or vegetation they would be likely to see there.

75. "An Irish Museum and Play"

(Reported by Anne den Blyks, Manual Training Normal School,
Pittsburg, Kansas)

A small exhibit of Irish pictures and laces was collected. The children brought shamrock and peat to school. Some Irish songs were learned and music brought for the victrola. The children made bobbinet lace upon spools.

The talk of the Irish belief in fairies motivated a play. Anabel brought a story by Eugene Field called "The Fairies of Pesth" and asked to play it. Under her management this was done. The children made and collected their own costumes.

The elves wore brownie costumes of brown cambric. The children made crepe paper dresses for the fairies. The fairy queen was furnished with several tinsel crowns before it was decided to use a crown of real apple blossoms. Her wand was a pointer with a tinsel star.

The prince of the elves wore a scout suit and a German helmet. The poet appeared in overalls and wore a man's coat and hat. He wore spectacles and carried a cane. The play was given in the gymnasium. The music was furnished by a fifth-grade child who played a waltz for the fairies to dance. The dancing was improvised. The children wrote invitations asking the other grades to attend.

76. "Central Africa versus Eskimo Land"

(Reported by Hattie E. Cox, Louisville Normal School,
Louisville, Kentucky)

After a study of Central Africa and the Eskimo country the question arose among the children as to which country they would rather live in. After an informal discussion in which the advantages of each country were enumerated, the class was divided into groups, each group to be held responsible for representing life in one of the above countries. Imaginary trips were taken from their home to each place, which led to a study of maps and directions. Clothing needed was also studied. Each group accounted for what it had seen. This was written and illustrated in book-

lets. The sand table was used to represent the life of the two countries. Original plays were worked out by the children in each group. Much number work was developed from this series of lessons.

77. "What Was Kansas Like When the First White Men Came?"
(Reported by Anne den Blykes, Manual Training Normal
School, Pittsburg, Kansas)

The story of Coronado's search for the cities of gold and his visit to Quivira were studied.

The project was worked out on the sand table. The sand table formed the map of Kansas. The children made the rivers in the sand. The Pawnee village of Quivira was built upon the Kansas, or "Kaw," river.

The children made the Indian tents from brown paper and decorated them with Indian borders and signs. The winter lodges were made from clay and grasses. The children wove mats from grasses, splints and wool yarn. Some of the white yarn they dyed with berry juices. These looms were very simply made from cardboard. One boy made a large wooden loom and started a rug of carpet rags for his own room. This same boy made a large work basket of cat-tail rushes, while the other children were making small baskets of reed.

Clay was used for making ovens and pottery and also for a herd of buffalos and the ponies which Coronado's men rode. The children constructed canoes from paper and bark. The bark was soaked so that it would be pliable. One child made a canoe out of a Nabisco box.

The trees along the streams were made of paper, evergreen and hemlock branches. Tansy blossoms made the prairie flowers. The fifth-grade pupils were invited to see our sand table and hear the stories about it.

78. "Visiting Our French Orphan"
(Reported by Florence Jelly, State Normal College,
Ypsilanti, Michigan)

This project originated in the question: "What can we do for Michael this winter?" (Michael is our French Orphan. He lives

near the Vosges Mountains.) The children decided to go and visit Michael, to tell him what they are doing and relate to him the experiences of their journey.

There were instituted inquiries about railroad and steamship rates. Then we set up a bank, using toy money, and drew this money from the bank for tickets and spending money. There was a ticket office for buying tickets, and we converted American money into francs.

Business letters were written to Mr. C. F. Leidich (Detroit) for information regarding ocean trip, followed by "Thank you" letters for the information. The children selected the letter to be sent in each case.

After a visit in Paris, the children sent letters home to the first-grade teacher telling of their experiences thus far. The organization of material for oral reports of places visited and things seen included:

Eastern United States.

Important cities passed through on train
Character of country—mountains, plains, etc.
Rivers crossed; Erie canal
New York City
Crossing Ocean

Weather conditions

Study of sea life

France (compared with America)

Character of land, customs of people, occupations, etc.

Visit with Michael at his home

Trip home by southern route

Finally, there was a general discussion, on our return home, of what we had seen and done and what we would do differently if we went another time.

79. "Making Maps"

(Reported by Ruby M. Harris)

A fourth-grade class was making a study of the geography of Kansas. The only available map of Kansas was a detailed, uniformly colored, political map. During a class exercise the pupils who were sent to the map had great difficulty in locating the cities required in the lesson. When questioned as to the cause of their failure, one pupil said, "On the outline map at home I can find these cities." Further questioning brought out the fact that a

series of maps, each for a definite purpose, would be desirable. The class expressed a desire for such maps as: relief maps, railroad maps, product maps, and forest maps.

The project thus suggested by the class was: "Let us make a series of these maps large enough for the class to use."

The procedure involved:

1. Listing materials needed and plans made for obtaining them.
2. Division of the class into groups.
3. Decision as to kind of map each group wished to make.
4. Plans for making the maps. (As a large number of outline maps were needed, a pattern was suggested and used to save time.)
5. Similar outline maps made on the board.
6. Small-sized maps selected for copying.
7. Board outline maps made as lessons were developed.
8. Wall maps made by the pupils.

80. "Making a Miniature California Department of the State Library"

(Reported by I. McLeod, Berkeley, California)

The teacher told of her recent visit to the California section of the State Library. The class decided to make a collection of all things Californian. Letters were written by the pupils and sent all over the state to the Federal Board, State Library, Bureau of the Interior, development boards, etc., asking for bulletins and other material. A suitable place for exhibition purposes was made by the boys. Collections of postcards, pictures, flowers, pictures of birds, minerals, names of California authors, etc., were made and organized. Birds and flowers were drawn and painted. They measured, drew, painted, sewed, pasted, and cut, in the making of California flags. They made California out of clay, salt, and flour and water, sticks, cardboard, chalk. They became early California settlers and did things which they did. Short plays were given, poems recited, and articles read to other classes about California.

81. "Writing a Local History"¹

(Reported by Clarice Houston, Rockford, Illinois)

Stories of the early settlers were read and retold by the children in class, afterwards being written as group work. The writing of

¹ Compare in this connection the material reported in Chapter VIII of the *Nineteenth Yearbook, Part I*.

these stories in short form gave a splendid opportunity for work in English, as good sentence structure was very necessary. The English was also emphasized when the children gave oral talks about the early settlers.

When these stories were written, they were gathered together and preparations were made to put them into permanent form. They were taken to the school printer, who had them printed in small books. To illustrate their work, the children cut out a block picture of a log cabin and tree which represented Rockford as it looked in early days. This picture was printed on the second page.

One hundred copies of these books were printed; the books were bound, and the children presented each fourth grade in the city of Rockford with a copy. The children then felt that they had accomplished a valuable piece of work which would help other children in the city.

82. "History of Pioneer Life"

(Reported by Ethelyn Yount, Experimental School, State University of Iowa)

Many projects grow out of the Pioneer Study of Iowa. The projects may be worked out under about the same conditions that the Pioneers solved them. Some of the most interesting projects coming out of this study have been: the building of a log cabin, the oiling of paper (for windows), the starting of a fire with flint and steel, the churning of butter (as the pioneers did), the making of paraffin candles, the making of hominy, of lye, of a butter ladle, of a wooden husking peg, and of a flail.

In connection with this study, other activities arose which came under the head of language, such as the writing of letters by the children to pioneers, asking for information about the problems and conditions they had to face when they came to Iowa, the explaining of the processes which the projects involved, the account of a trip made to the carpet weaver or the log cabin (in the city park).

This work may be carried on accurately if the directions in the following books are noted carefully:

Earle, *Home Life in Colonial Days*, MacMillan Co., New York.
 Aurner, *Iowa Stories, Book 1*, Clio Press, Iowa City, Iowa.
 Nida, *Letters of Polly, the Pioneer*, MacMillan Co., New York.
 Stone & Fickett, *Everyday Life in the Colonies*, D. C. Heath & Co., Boston.

83. "A Celebration for Columbus Day"

(Reported by Floy Campbell, Kansas City, Missouri)

The children collaborated in writing the story of Columbus' life; each child took a certain part of the story to investigate. As part of the work, the child had to look up a picture illustrating his "chapter," and to arrange for that picture to be posed by class members. The boys made a frame for the pictures; the girls furnished curtains to draw in front of the frame. The children spent several hours in the library, studying details of costume, flags, etc. Finally, they put on a program, all their own work, including the making of the costume. The "Story of Columbus" was read aloud, chapter by chapter, by a reader chosen by the class. At the end of each episode, another child announced the title and artist of the picture that illustrated the episode, the curtain was drawn aside, and the living picture shown for nearly a minute. The entire class was engaged in giving the program, and the school auditorium was filled with the children from the other rooms.

84. "The Story of Columbus"

(Reported by Mrs. A. F. Douglas, Franklin School, Louisville, Kentucky)

It was decided by the members of the group that they would dramatize the Story of Columbus, and invite other grades of the school to see the play. The visitor who was to be present was invited particularly to see the "surprise" involved in the last act of the play.

First, in order to get the necessary data, children read and reported what they had gathered in regard to the story of the discovery of America.

Second, the class decided what acts would be necessary to tell the story of Columbus and just which experiences in his life must be selected in order to get the essential episodes.

Third, it was necessary to select the characteristics of the time of Columbus that showed the most decisive contrast to the present day, as the children planned in the last act of the play to have Columbus return and see the wonders of the present.

These problems were discussed, and a boy selected by the class to represent Columbus.

The children planned the extremely simple costumes. By introducing sailors, courtiers, and Indians, a part was arranged for each member of the class.

The last act was extremely informal. The small Columbus came to the American children and in surprise and bewilderment asking such questions as: "What is this little glass ball (touching an electric-light bulb)?" "What is that strange bird that I see in the sky?" The American children took great pleasure in explaining to Columbus. Finally, the young Columbus closed the play with the conclusive remark. "All this is too much for me. I think I'll go back where I came from."

85. "Our Pilgrim Fathers—a Booklet"

(Reported by Alma Van Der Kar, Rockford, Illinois)

The class studied the Pilgrims—a detailed account of their experiences from the time they left England, including their life with the Indians in this country. Group compositions, as well as individual compositions, were written during this study, which was begun in October and reached its climax in November, when a Thanksgiving party was given for their parents and friends. The planning of the party included invitations, room decorations, two original sand tables. These involved the making of windmills, boats, log-cabins, cradles, spinning wheels, Indian tents, canoes, and a scene in Holland developing the program which included an original playlet. All this and more was worked out by the class. After the party they decided to write about it. Later, a book-cover was designed and all the details completed for the printing of the chapters in an elementary print shop.

86. "Colonial Life"

(Reported by Catherine Morgan, Teachers College, Detroit, Michigan)

"From the time a little Colonial boy arose in the morning until he went to bed at night, how was his day different from yours?" The class suggested many phases in which they were interested as games, amusements, occupations and school. They formed committees, made reports, visited museums, libraries and other places of public interest. They listed the advantages and disadvantages of both boys.

87. "The Pageant—'End of the School Year'"

Planning this pageant furnishes the best possible type of review of the work of the entire year. The final result cannot be twice alike.

Every student sits dreaming over the year that is past, and the vacation that is near. Memory, leading the past months, enters, and each month carries a representation of the most significant and worthy project the class worked with during that month. The selection and representation of these projects must be the result of class discussion, which should be fully as illuminating to the teacher as it is valuable to the child as review. Designing appropriate costumes and planning the general color scheme is splendid art work. Following the school months, the summer months frolic in, beckoning the children to the fields, and bringing Nature with all her riches to help them have a happy time.

88. "Dramatization of Joseph and His Brethren"

(Reported by Harriet Beale, State Teachers College, Mankato, Minnesota)

The teacher told the story, using the version in Hodges' *Garden of Eden*. After considering the possible ways of retelling it, the fourth grade chose to dramatize it. Because of its length, they decided to work it out in two units. One class was responsible for the part laid in Canaan and the stronger class for that in Egypt. The knowledge gathered by this second class included the location of Egypt and the Nile, the idea of "B. C.," the customs of that

time, particularly as they bore on costumes and action, the use of the lotus flower in art. They turned to versions of the story to get typical phrasing for their play. They worked out the acts as they had planned them: Act I, In Canaan, The Coat of Many Colors; Act II, In Egypt, The Seven Years of Famine. They planned costumes and held try-outs for parts. Then the classes met, and each presented to the other its part of the play. They proposed presenting it in the gymnasium for a larger audience. The teacher suggested inviting the third grade, because they had loaned costumes, and the children decided to invite the librarian, who had lent many books and pictures, and others who might enjoy it. They cut and colored a lotus design for the front page of the typed programs. They asked the aid of the gymnasium instructor in planning a set drill based on the idea of the wheel with spokes, in which they used fans they copied from pictures. The music teacher provided a march from *Aida* to accompany it.

89. "Booklets on Vacation Fun"

After examination of a few well-planned pamphlets, and free reading of Roosevelt's letters, *Daddy Long Legs* (the latter for the sake of the illustrations), the class members wrote a booklet with free illustrations, telling the funniest or most interesting thing they did during the summer. We emphasized cover and title-page design, margins, decorations, and expressive freedom of illustration. The books were placed on the table where all the class could get them. The ones that were best liked were given in assembly as chalk talks, and finally the whole small library was sent to a sick comrade, or a last year's class member who had left the city, or a hospital for children.

90. "Valentine and Hallowe'en Celebrations"

A Kansas City fourth grade had 'adopted' a certain Old Ladies' Home, and every holiday they planned some special treat for "their old ladies." On Valentine Day they made valentines, with original verses, and many original decorations, and took them to the Home. They had practiced "Annie Laurie," "Believe Me if All Those En-

dearing Young Charms," "Drink to Me Only With Thine Eyes," "Love's Old Sweet Song," and other songs, and these they sang for the old people, who thoroughly enjoyed the entertainment. One of the boys dressed as Saint Valentine, in a white beard, red robe, and pointed cap, and distributed the valentines with appropriate speeches.

The same Kansas City fourth grade planned a nutting party shortly before Hallowe'en, and afterward made baskets that would hold about a pint each. These they decorated, filled with nuts, placed on top of each a little witch with a head made from a nut, and gave a basket to each old lady in the home. Christmas Carols, and the distribution of Christmas cards; and an Easter Song Festival, with Easter Greeting Cards, were other class projects of the same nature.

91. "A Class Story Book"

(Reported by Harriet E. Gannett, Bridgewater Normal School,
Bridgewater, Massachusetts)

This book contained stories of birds, reproductions of fables, conundrums, and history stories. These stories were written reproductions of some told by members of the class, by student-teachers, and by the regular teacher, or were based on some of the pupils' own reading. Some were written in letter form; others were descriptions of animals and objects written as conundrums. Many of these conundrum letters were written to different teachers, who guessed the name of the animal described. Oral work always preceded the written. The work was then read to the class, criticized by it, and corrected by pupil and teacher, and then rewritten. The best story, as to language and penmanship, was chosen sometimes by the teacher, but more often by the class, and pasted into a book which was illustrated with free-hand drawings.

92. "Writing a Letter to St. Paul, Minnesota"

(Reported by Irene McLeod, Berkeley, California)

A pupil in my class, having come from St. Paul, Minnesota, told the class a few facts about this city. It was decided that more

knowledge could be gained by receiving letters from other pupils of that city. Therefore, each individual in the class wrote a letter to a teacher (whose name was furnished us by our new pupil) asking permission to correspond with members of her class. After the letters were finished, the best paragraphs from each were selected, and these were combined to make one long letter. The final letters were written by pupils elected to be the best in penmanship in the class.

Other letters were written in similar fashion on the following subjects:

1. To absentees.
2. To janitor for favors received.
3. To principal for favors received.
4. To Lincoln Day Speaker.
5. To a school-visitor for stories told.
6. To Educational Foundations for store materials.
7. To Baker's Chocolate Co. for exhibit.
8. To California State Library for materials and acknowledgment.
9. To California Development Board for minerals and acknowledgment.
10. To United Fruit Company for books.
11. To Oakland Museum acknowledging exhibits received.
12. To Seed Co. for catalogues.
13. To San Diego for folders.
14. To parents inviting them to visit an exhibit.
15. To Colgate Co. for sample Dental Cream tubes.

93. "Illustrating Stories on the Blackboard"

(Reported by Harriet Beale, State Teachers College,
Mankato, Minnesota)

The children decided that they would like to tell the story of "The Boy Who Discovered Spring," by Raymond Alden, which they had enjoyed hearing their teacher tell. At their request, she retold it, while they listened to note characters and settings. They discussed suitable backgrounds for the four scenes, fall, winter, spring, and summer. The teacher made the series of crayon backgrounds as a blackboard border. The children cut the characters out of colored poster paper and placed them on the blackboard. They told the story to entertain another section of the fourth grade. A different child told each of the four scenes. Comment by visitors to the room on the beauty of the pictures several times called forth a telling of the story to explain the pictures.

94. "A Health Play"

(Reported by Gertrude Olson)

A health play was written and given by the third, fourth, fifth, and sixth grades. The children planned a suitable program to present for the Fresh Air group of boys and girls, who had been invited for an afternoon. Besides a spelling contest, readings, music, and games, a health play of four acts was decided on as most suited to our work and needs. The four grades were arranged in four groups, each group to write one act. The acts were then read, discussed, criticised, and finally rewritten by the groups. Suitable costumes were discussed and most of them made by the children. A program and the invitations were written.

95. "A Health Crusade"

(Reported by Georgia Davis, Muskogee, Oklahoma)

In each school, the children were stimulated to think about health. The following are typical problems:

1. What does Muskogee do to protect the health of its people?
2. What can we do as boys and girls so that we may grow up to be strong men and women?
3. What can those of us that are under weight do to increase our weight?

In working these out, many ways of bringing the important points before the rest of their classmates were devised by the pupils. Drills, plays, and pageants were written by the children in their language classes and given in the school auditoriums. Compositions dealing with health were written, read and exhibited. Posters and banners illustrating the 'high points' of the project were made in the art classes and shown about the buildings and grounds. Spelling lessons based upon the work in health were given. Problems dealing with the costs of proper and improper food and clothing were stated and solved by the children.

The children not only learned the health facts and rules but actually put them into practice. Ways of bringing the health facts before the children throughout the year were devised by the pupils and teachers in order that the pupils might more surely form the

habits of good health. The pupils not only covered the course of study in a more thorough way, but they also covered it with an enthusiasm and interest that is seldom seen in any work on health.

96. "The Friendly Club"

One of the first things this class did was to organize into a club, with the usual officers, and to adopt a constitution and by-laws. The constitution sets out the purposes of the class for the year; the by-laws, such rules as they believe essential to carrying out those purposes. Everyone in class now plans, letters, and illumines a copy of the constitution and by-laws; or if it is too long for lettering, they write it. In either case, they observe correct margins, and try for a beautiful effect. The best copy is framed by the manual training class, and hung in a prominent place in the room. This has been done in Grades 3, 4, 5, 6, 7, the formality of the procedure being increased as the grade grows older. The class enforces its own rules, once it has adopted them, and the result is excellent. This idea was worked out partly in Kansas City, partly in Porto Rico.

97. "Making a Toy Shop"

(Reported by Mrs. Velma Cuddeback, Berkeley, California)

The school had decided to have a bazaar to raise funds for a printing press. This class decided that their part should be the making and selling of toys. Patterns and scraps of wood were obtained from the manual training shop, and toys made and painted. The prices were calculated, and the articles tagged for sale. The amount realized from this project was commendable.

98. "What Is the Best Soil for a Garden?"

(Reported by Constance Brown)

Either from class discussion or from a supervised study period (depending upon the ability of the class), the class was led to discover:

1. The names of the various kinds of soil.
2. The qualities of soil desired in a garden.

After this short and general preparation the assignment was made. The class was divided into three groups according to ability (the more difficult problems being studied by the more able groups). Each group worked out one of the following problems:

1. How do sand, clay, loam differ when dry? When wet?
(Examined by feeling, weighing, use of hand lens)
In which will bean seedlings grow best?
From your observation, which soil do you think is best suited for a garden soil?
2. Which soil is better—an acid or a sweet soil?
 - a. How to determine whether soil is acid or sweet.
 - b. Grow bean seedlings in each kind of sandy, clayey, and loamy soil.
 - c. How to sweeten the soil.
 From your results which kind of soil do you consider best for the garden?
3. How does water act on sandy, clayey, and loamy soil?
 - a. Pour the same amount of water on each kind of dry soil arranged in lamp chimneys and time the results.
 - b. Place another set of lamp chimneys arranged as above in a pan of water so that the same amount of water is available to each kind of dry soil and time the results.
 - c. Place the same amount of each kind of dry soil in pans and pack with the pans tilted at the same angle. Pour the same amount of water on each soil to determine the effect of surface water.
 From these experiments which kind of soil would you desire for your garden?

The work of each group was planned for by the leader of the group and the teacher. The leader in turn worked out the problem with his special group. The teacher supervised the work of all groups. After results were obtained, each group prepared an organized report, which was given to the class by the group leader in the next recitation period. While the report was being given, the chief points were placed on the board by the teacher. At the close of the last report, the work of the several groups was put together and the whole class allowed to decide the original question, "Which soil is best for a garden?"

As a home assignment, the class was asked to test the soil found in the school or home garden.

99. "How to Rid the Garden of Weeds"

(Reported by Constance Brown)

The dandelion was chosen as a typical garden weed. In the preparation for the assignment the class was led to discover the various means by which plants in general protect themselves. The dandelion itself was then studied, each group taking one part, as seed, flower head, stem, leaf, and root, to discover whereby the dandelion protects itself. The actual material was examined by each group during the supervised study period. The children were guided by the teacher and books placed at their disposal.

Thus each group came to its own conclusions and presented its report to the class. The class in turn drew up a set of directions whereby the dandelion might be exterminated from the garden.

In application of the fact gained various garden weeds, plantain, mullein, burdock, horse-nettle, wild lettuce, were studied with the same question in mind—how to rid the garden of them. The home reports were given in class.

100. "Raising Money by Selling Garden Produce"

(Reported by Irene McLeod, Berkeley, California)

Some money was needed for the school's French orphan. The children decided to form a garden club. The object of the club was to make gardens, raise vegetables, and sell them.

They held a meeting, and elected officers. It was decided that it would be nice to let the whole school know about this project. It was voted to have a parade and to give a talk in each classroom. After these things were done and catalogues and seeds obtained, the gardens were made and a fence was built around them. Enough money was raised from the sale of vegetables to give the proper amount to the French orphan, to buy a classroom picture, and a Victor record.

101. "Keeping a Library in the School Room"

(Reported by Irene McLeod, Berkeley, California)

Books were borrowed from the public library. A librarian and assistants were appointed from among the pupils. The books were

catalogued, indexed, and loaned to pupils in the room by the usual library system. Children who had never taken library books and read very little at home, at first did not avail themselves of this opportunity. Before the term was over, most of these were borrowing regularly and not only enjoyed the class library books, but were also regular visitors at the public library.

B. MATERIALS FOR THE FIFTH GRADE

102. "Making a Candle as Primitive Man Did"

(Reported by Florence King, Southern Illinois State Normal Training School, Carbondale, Illinois)

After studying how primitive man discovered and tamed fire, it is interesting to follow with a series of lessons on lighting, leading up to candle making.

The children think about what was probably the first light used, as the bonfire. Then they see that some other kind of light might be needed in going from one place to another, so a torch might have been used, then a shallow dish with oil and a wick, leading to the tallow dips and the candles, or the old kerosene lamp.

Then the children tried to think how candles were made. They greatly enjoyed 'trying out' suet. They dipped a string in the hot oil, let it cool, then dipped again and again until a tiny candle was made.

The next problem was how a number of candles could be made at once and so save time. Several wicks were tied on one stick and all dipped at once. These were found to be rough when compared with our beautiful Christmas candles. One child found a piece of gas pipe which the children filled with warm oil. The following morning the oil had hardened and they found a fine smooth candle.

103. "A Weed Book and Museum"

(Reported by Katherine Thompson, Macomb Normal School, Macomb, Illinois)

Preliminary observations during the preceding spring, while extensive, must of necessity have been rather unorganized and

scattering, but they widen the children's experience, make them discriminating weed destroyers during the summer, and keep their interest in weeds, and in plants in general, fairly keen in most cases. On the return to school in the fall they are ready to organize the knowledge they have gained and to go on with the study of weed seeds, which are the most abundant and interesting phase for fall study.

The organization work culminates in a booklet in which are set down the collective experiences of the class, plus some of the very interesting facts made available in the reports of certain of the state experiment stations. Each pupil is allowed a good deal of individuality in the organization and decoration of his booklet.

In addition to this written account, seed charts are made by pasting the seeds to show methods of distribution; the seeds of a single plant of many different species are gathered, counted, bottled in tiny glass vials, and mounted. Charts are made to show the parts and growth of typical annuals and biennials from seed to seed, and of perennials from seed to maturity. A resourceful teacher can find many such problems, fitting the ones she uses to her local environment.

Books which have been helpful are:

Manual of Weeds, by Ada Georgia. Macmillan Co.

Indiana Weed Book, by W. S. Blatchley. Nature Publ. Co., Indianapolis.

Unlawful and Other Weeds of Iowa, Bulletin No. 31, Iowa State College of Agriculture and Mechanic Arts.

104. "The Home Garden"

(Reported by Frances Trainor, Ada M. Tea, and Maude Kelley, Joliet, Illinois)

Many children in our building had their individual home garden. The homes were located near the school building, consequently close supervision during the preparation of ground and early growth of the plants was easily arranged.

Very little money was expended for seed, as we obtained many packages from the United States Department of Agriculture.

Early in the spring, meetings were held; our clubs were organized; the preparation of ground and the selection of seed were discussed.

A record card of each child's garden was kept by him and the teacher. In this was recorded a diagram of the plot drawn to a scale, the date of each visit, expenditures, and receipts, the condition of the garden, and the help given. At the end of the season each child checked up an account of receipts and reported same on his card. These amounts ranged from four to fifteen dollars.

When early vegetables were removed, a second crop was planted. If possible, the surplus was canned.

Our garden work closed in the fall with an exhibit of the best vegetables out of each garden, canned vegetables, and any choice seeds that had been saved. Blue, red, and white ribbons were pinned on the first, second, and third choice of each kind.

105. "Learning About Beef"

(Reported by Dorothy B. Marx, Louisville, Kentucky)

Charts and graphs were made to show the reasons for cost and scarcity of meat, also to show the distribution of cattle in North America. Life on a cattle ranch was approached through pictures, and oral discussions were given. Written descriptions soon followed. Blackboard sketching and modeling in the sand table were used to bring out the surface features; animals and buildings were made out of plasticine; people of clothes-pins. Shipping and marketing of cattle were studied, especially the packing house. A trip was made by the teacher and a group of children to a provision company. Names of the meat procured from different parts of the animal were studied, and also the uses of cattle products. The class divided itself into groups; each group took a special topic on which to give an oral report and to bring out the most important points in this industry.

106. "A Coffee Plantation"

(Reported from the Marr Training School, Detroit, Michigan)

The children decided upon working out a Sao Paulo coffee plantation. The room was divided into two groups. They wished

the girls in one group and the boys in a second, because the boys were to make use of their manual training. The mill was made from a large box, a roof put on, and papered by the boys; they also made the cement (white paper pasted on a wide board) drying floor, the machinery (worked out from pictures from the Art Museum), the plantation railroad, etc. Each boy submitted printing, from which selections were made. Such signs as "Sao Paulo Plantation," "Private," "Dangerous," were printed. The girls made the sacks for the coffee; collected green, roasted and dry coffee, and filled the sacks. They carried the process through from the picking of the berry to the shipment to the United States.

107. "Making Old-Fashioned Hominy"

(Reported by Rose Baumgarten, Rockford, Illinois)

In discussions of pioneer life, methods of preparing food then and now were contrasted. In order to appreciate these contrasts, the class decided to make some hominy just as the pioneer women did. The work, as done by the class, consisted of these steps: making of old fashioned hopper, making of lye, soaking and washing corn, cooking it. When the hominy was prepared, the children enjoyed eating it.

108. "A Fifth-Grade Pupil's Account of Tanning Leather"

(Written by Tom Ewing, Williams Street School, Atlanta, Georgia)

"We have been studying leather and found it very interesting, so we decided to tan a piece of it. One of the girls in our class brought us a piece of skin with the hair on it. We put it in a strong solution of lime water to make the hair come off easily. Then we took it out and scraped it. The hair came off easily and we washed it. Then we sent to the drugstore and got three boxes of red oak bark. We put an ounce of red oak bark to one gallon of warm water, and after we had mixed the red oak bark well in the water and it had cooled, we put the skin in and left it for three days. Then we put in more red oak bark to make the solution stronger. Three days later, we put in half an ounce of red oak bark and one-third of an ounce of tannic acid that a boy in our class brought us.

We let it stay in it for about a week and then put it on a board and stretched it. Then we put it up to dry. After it has dried, we will grease it to make it soft."

109. "A Fifth-Grade Pupil's Account of Making Cheese"

(Written by Helen Witherspoon, Peoples State School,
Atlanta, Georgia)

"We made some cheese at school about a month ago. The reason we made it was that we were studying about cheese and butter. So we decided we would try and make some cheese.

"The first thing we had to do was to get a coffee can. One of the children got the can and melted the bottom off, so it would not have any top nor bottom. Five other children brought sweet milk. With all the milk put together we had a gallon. Another child brought a saucer. Another brought a crockery bowl. Then we were ready to make cheese. First, we heated the gallon of milk just a little, then we dissolved four junket tablets in a little cold water, and put it into the milk, which was in the crockery bowl, and let it stand until the next day. The next day the milk had been changed into curds and whey. We strained the whey out, raked the curds, and added a teaspoonful of salt. We lined the can with white cheese cloth, which had been greased, and set it in a plate. Our curds were packed in the can and covered with a saucer. At the end of the second day, we had a half a can of cheese. This was all our gallon of milk made. We decided to eat it. Some of the girls brought crackers, our teacher made sandwiches, and we had enough for everybody in the class.

"We really enjoyed making our cheese more than eating it. We were proud of it, too, and had its picture taken."

110. "Making Bricks"

(Reported by Latrelle Meadors, Atlanta, Georgia)

The children did all the planning themselves. One of the boys volunteered to bring the clay, another the mallet to beat the clay with, and a box to prepare it in. Another child had a mold. Two of the boys placed the clay in a box and beat it until it was in powder form,

then they mixed a bucket of water with it and stirred the mixture well. Then they placed the clay in a mold, pressed it as hard as they could and put it in the sun to dry. In two days' time, they had a sun-dried brick like those of antiquity.

111. "A Booklet About Cotton"

(Reported by M. McBroom, Detroit Teachers College)

Letters were written to friends in the south asking for samples of cotton bolls, for descriptions of fields, etc., letters to New Orleans Cotton Exchange asking shipping rates on a bale of cotton to New York, letters to mills in the east and south as to the wages paid in the mills, letters to the Weather Bureau in southern parts, asking for rainfall reports. Charts were made containing samples of articles made from cotton and showing the prices as compared with a few years ago. Members were delegates to go to the natural science department to get material on the work of the boll weevil. In arithmetic classes graphs were made showing the comparative production in the last few years. A book containing charts, letters, and reports was made to send to two members of the class who had been absent during the study.

112. "Life in a Lumber Camp"

(Reported by Tippha Coleman, Louisville Normal School,
Louisville, Kentucky)

In connection with the study of lumbering the class asked to be permitted to go to the woods for a day and live the life of the lumbermen. They divided themselves into groups, with a chairman for each group. Their object was to plan the day, with the activities as nearly as possible like those of a lumber-camp. One group planned the lunch, one the games to be played, and one worked on the things that should be observed while they were in the woods. Much reading was done while planning the trip. Charts were made showing the products from trees, forest scenes, forest animals, and lumber camps. The day of the trip happened to come during fire-prevention week; a camp-fire was built for cooking the lunch, and the children observed how easily it could spread and the difficulty

of putting it out. The children were asked to give a demonstration lesson that would show what they had learned. They wrote and gave a one-act play showing the life in a lumber camp.

113. "A Book on Lumbering"

(Reported by Charlotte J. Flood, Eagle School, Cleveland, Ohio)

The class is divided into groups and given different aspects of lumbering. The library is used to get the reading matter, supplementary to geography textbook.

Every group is assigned a day on which it is to be prepared. The group having Topic 1 bring books from which they read extracts relating to their topic or they tell stories of it and, if possible, bring illustrations. The others are given time to discuss, ask questions or contribute pictures. That group then prepares a spelling lesson with words from its material. This lesson is given the next day. Then the group prepares to write the story. Also, a short general statement is chosen for a writing lesson.

Next day, the second group bring materials on Topic 2 and follow the procedure of Group 1. So each group continues.

When all stories are well written, and all illustrations well mounted, they are bound as chapters of a book. In drawing time, title pages are made, letters cut and pasted, illustrations mounted, and chapters and book bound.

Every day, an original problem is made for the arithmetic class. These problems include the abstract difficulties of the grade, and are made concerning cutting, shipping, measuring, etc.

When completed the "bound volume" is placed on the table for reference.

114. "Reports of Home and School Gardens"

(Reported by Mary O'Sullivan and Dorothy Marx, Louisville Normal School, Louisville, Kentucky)

The study grew out of a request for a report of the gardens cultivated by the children during the spring and summer months. Points to be considered in this report were suggested by the pupils and listed on the board. To determine the size of the school garden

the class divided itself into groups; each group was responsible for the measurement of a part of the garden. After the measurements were gotten, the irregularity of the plot called for much discussion as to how to get the area. At the suggestion of a pupil a diagram of the garden was drawn to scale, and the pupils worked out how to get the areas of the triangles and rectangles included in this diagram. After the report of the school garden was completed, pupils found the area, cost of plants or seeds, and value of crops in home gardens. Graphs were made showing comparative sizes of the gardens, and expenditures and returns. A discussion of the reasons for the failures of some of the gardens led to a consideration of rainfall and temperature. In connection with this study a trip was taken to the Weather Bureau. Arithmetic problems of various kinds grew out of the work. A form of report was recommended by the class that was afterwards adopted by the other schools of the city in reporting the results of home and school gardens.

115. "A Home Garden Fair"

(Reported from the Bancroft School, Kansas City, Missouri)

The children were prevented from having a school garden this year by lack of suitable ground. The seed was therefore distributed in the spring, and the children made their own gardens at home. This fall they had a Home Garden Show in the gymnasium. They brought the kindergarten tables to the room, decorated them with crepe paper, choosing each his own color scheme. There were flower tables and fruit tables. The most artistic table and the table offering the greatest variety of products grown by one person were given blue ribbons. The children made written reports to the principal, covering the amount actually raised on each garden, the sum it would have cost if bought at the store, and the amount, if any, sold, and the saving to the family from use of the garden products. The reports indicated a saving to the family of from two to thirty dollars, and cash sales from one to seventeen dollars. Those children who had no gardens wrote on the value of a garden to a home. The reports furnished a basis for many arithmetic problems.

116. "Paper Making"

(Reported by Elizabeth McEvoy, Rockford, Illinois)

The class made a study of paper making and printing, beginning with the earliest history. After securing as much material as possible, suitable for the grade, a composition was neatly written on uniform paper.

The engine room in the building was made into a work shop where paper could be made more conveniently and with less annoyance to the other classes. Each member of the class made two pieces of paper, one to be taken home and one which was to be mounted. The latter, together with the composition, was bound into a book with title in cut letters as a design for the cover. Some volunteered to give their extra pieces to be used as place cards for the Eighth-Grade Graduation Banquet. The members of the eighth grade printed them suitably for the occasion.

The lower classes were allowed to watch the process of paper making.

117. "A Museum of Home Manufacture"

(Reported by Mrs. Beulah Johnson, Rockford, Illinois)

The class had studied the different occupations of Illinois, and was interested to learn that manufacturing was carried on so extensively. Choosing Rockford as their type city, the children cut out "ads" of various concerns. The story of Illinois was written, the pages illustrated with pictures cut out, and a large chart was entirely covered with pictures, pieces of steel, tiny knit stockings, miniature bags of flour, knives, watches, doll chairs, etc., representing all sorts of articles manufactured in Rockford.

118. "A Zone Exhibit"

(Reported by A. L. Benson, Bennett School, Boston, Massachusetts)

In the early part of the geography course for the fifth grade, a short time is given for the consideration of zones. Types of life in these various belts appealed so strongly to the class that it was decided to portray them in such a way that a direct comparison could really be made by eye.

The frigid zones were easily mastered with cotton-batting artificial snow, dogs, fur dressed dolls, mirrors, toys in the shape of polar bears and walruses.

The torrid zone brought us wet moss for our jungle and sand for a desert. We had black dolls and dark brown dolls engaged in several activities. A strong desire to have the activities of this region shown brought us a toy train with the cars belted with broken rubber erasers. An orange, banana, lemon, etc., illustrated the typical fruits.

For the temperate zone we had a typical village with house, animals, people, and so forth.

119. "A Sand Table Map"

(Reported by Jennie Williams, Kansas State Normal,
Emporia, Kansas)

A fifth-grade class of children studying Europe was taking up the study of Holland. They asked if they could not represent the country in a sand pan, size six feet by four and a half feet. They planned that the class be divided into three equal groups. Two groups should see which could make the best representation, and the third group was to study in order to be capable of judging which group had the best work. The pan was divided into two sections. Each group elected a captain and proceeded to work. It was surprising the amount of good work that was done in a week's time. They volunteered to do much outside work.

The same class made a sand pan representation of Switzerland, but they planned to do this differently. One group made the whole map, but it was divided into smaller groups. One took the surface features, another the rivers and lakes, another the cities and several groups took different industries.

120. "A Floor Map of Africa"

(Reported from a Summer School at Kansas City, Missouri)

The class made a large map on the floor covering a space about 12 feet across. They modelled the mountains on this map, strewed sand for the desert, constructed palm-trees of paper, painted and

cut out a camel train crossing the desert, made pyramids of clay, and placed them properly, made jungles for the wild beasts, and placed the beasts in them, represented every crop grown, in its proper place, painted red roofs for the cities, and put them where they belonged. The animals and trees, etc., were too large for the map, of course, but a scale was observed in making the individual things. The elephant, for instance, was larger than the horse or the lion. The class visited the 'Zoo' several times during the progress of the work.

121. "A Travel Club"

(Reported from Youngstown, Ohio)

The class formed an imaginary travel club. With their home town as a starting point they journeyed to Ellis Island where they studied the various nationalities. On suggestion of the class they divided themselves into groups, each group representing a country of Europe. Guides were appointed to supply the class with timetables, maps, travel books and descriptions of routes that were secured from steamship lines. The route voted on by the majority was selected and preparations made for the trip. The groups then set out for the various countries assigned them.

One group journeyed to Italy. They made a study of the physical conditions, social and industrial life. A model Italian farm was built in the schoolroom. Small dolls dressed in the native costume of the country represented the family. The house, furniture, and farm implements were constructed by the group.

Other countries were similarly studied.

Bulletins on Immigration Laws were secured from the U. S. Department of Labor. An outline of the laws was placed on the board and discussed by the entire class.

The conditions of the foreigner in America were taken up. An attempt was made to list the nationalities represented in the different lines of work, such as, Portuguese, textile; Spaniards, cigar manufacture; Russians, mining, iron and steel; Magyars, sugar refining plants; Italians, clothing.

Conditions of work in factories, mills, etc., were studied and ways of improving those conditions were discussed.

122. "A Norway Book"

(Reported by Jennie Williams, State Normal School,
Emporia, Kansas)

After the children had finished their study of Norway, they asked if they might write a book. The teacher, recognizing this as an excellent means for review, consented.

The class proceeded with their plans. It resulted in each child contributing a chapter to the book. Supervised study followed. When the chapters were written, each was read to the class. Any points not clear were revised. As the work progressed, some one suggested making a book cover in the industrial arts class. The one having the best would be selected. The one chosen had a picture of North Cape and the midnight sun painted in black on white paper. This was posted on a gray cover, edged with a black line and the word Norway for the title printed across the upper half above the picture.

The contents of the book were as follows:

- Introduction: A poem, "The Building of the Long Serpent" (picture of a viking ship).
- Chapter I. Christiania (picture of the city).
- Chapter II. Bergen (picture of the city).
- Chapter III. Trondhjem (picture of the city and of a cathedral).
- Chapter IV. Tromso (illustrated).
- Chapter V. The Food of the Norwegians.
- Chapter VI. Lumbering in Norway.
- Chapter VII. Sardine and Herring Fishing (picture of a fish market).
- Chapter VIII. Farm Life in Norway (picture of drying hay).
- Chapter IX. Railroads of Norway.
- Chapter X. Manufactures.
- Chapter XI. The Children of Norway.
- Chapter XII. The Sports of Norway.
- Chapter XIII. The Midnight Sun (three pictures, "The Fiery Ball of the Midnight Sun," "Landing Stage at the North Cape," and the "Steam Yacht at North Cape").
- Chapter XIV. Labels found on Packages: "Halden's Electric Matches," "Giraffe Safety Matches," "Safety Matches packed in Norway for Fred Harvey," "Norway Smoked Sardines," "Norwegian Sardines."

123. "A 'See-the-United-States-First' Exhibit"

(Reported by Bess M. Hayden and Zoe A. Thralls, State Manual Training Normal, Pittsburg, Kansas)

Each child selected an industry for which he was to work up a chart, using pictures, clippings, drawings, and also write an account. The charts were about 24 by 36 inches. After finishing one chart, several of the children asked of the class permission to make another, and a number made as many as three charts. They did the same with the chief cities of the United States. They wrote to chambers of commerce, industrial concerns, and railroads for material, and secured a large amount of valuable and unusual material.

They borrowed the kindergarten's sand table and made a large sand map of the United States. For the map they made tiny oil derricks, ships, etc., to illustrate the industries. On a table they laid out the books and magazines which they had used for references. They also mounted a number of pictures of historical and scenic interest.

Then they asked the printing class to make them some tickets which they distributed. The afternoon of the tour the class acted as guides and explained to their interested guests, the charts and exhibits.

124. "An Oriental Bazaar"

(Reported from the Marr Training School, Detroit, Michigan)

Collections of pictures, fabrics, coins, and articles of Asiatic countries were made. Committees were chosen to solicit the co-operation of other departments. The Art Department produced some splendid posters; the Physical Education Department helped with the Japanese dance; the Music Department taught the class Japanese and Chinese descriptive songs. A second-grade class gave an oriental dance. A visit to the Art Museum was made by the whole class.

Some of the boys and girls dressed dolls to show the native costumes; others made product maps; others collected pictures. A large exhibit from the Art Museum helped swell the collection.

Invitations were written by the children, inviting the parents to attend on "Open Day" the culmination of the project, which was the work of several months. The arrangement of the program was in the hands of the children and was thoroughly enjoyed.

125. "A History of Bridgewater"

(Reported by Jane Bennett, State Normal School, Bridgewater, Massachusetts)

Class discussed freely and decided what subjects should be included in this history. Groups of pupils visited the library to consult old records. Research was made for local Indian names. Maps were made and various industries visited by groups of pupils. After the class had contributed all it could, short chapters were written. The illustrations were in charge of the drawing teacher. Observations and drawings of old colonial houses and a colonial church were made. Old doorways and windows were drawn. Pupils made collections of pictures of colonial days. The drawings and language papers were bound with attractive covers under the title "History of Bridgewater." Under the direction of the manual training supervisor, groups of pupils made models to illustrate colonial kitchen, well sweep, the stocks, etc. The boys did the wood work; the girls dressed the colonial dolls. These models are to be used as permanent illustrative material for the school.

126. "A Columbus Day Program"

(Reported by Floy Campbell, Kansas City, Missouri)

The children were asked: "Did Columbus really discover America? If not, who did? Why do we honor Columbus rather than any other man? How shall we, as a room, show our respect?"

The suggestion was made that his name be lettered on the board, with the date of his birth, his death, and the date of his discovery of America, the whole surrounded by a border of oak leaves. That on the Day itself every child in the room come prepared to give a poem, a song, or a story about Columbus, or to show and explain a picture of him. To prevent duplication, and make things go smoothly, a committee was appointed, to which each child reported

his intended contribution; the committee arranged the program, and warned the child if his theme was already taken, or if his contribution took too much time.

Another class dramatized the story of the landing of Columbus, making the flag, costumes, etc., out of paper and old clothes rescued from attics.

The discussion of our reason for honoring Columbus was most valuable, and gave meaning to the entire program. The painting of brilliant oak leaves from nature was a preliminary step to the design on the blackboard, which was patterned after a very fine "Roll of Honor" in bronze.

127. "A Columbus Play"

(Reported by Ada M. Tea, Joliet, Illinois)

After talking the matter over, we decided that we should like to celebrate Columbus Day by writing a play, dramatizing it, and inviting our parents and friends to see it.

A knowledge of the story of Columbus' life was found to be necessary. To gain this information, books were consulted, stories told, pictures studied, and questions asked.

The composition of the play, invitations, and letters required many language and writing lessons. As each part of the play was finished and practiced, articles that were needed to make the play effective were listed. These were mostly made by the children; a few were borrowed, or brought from home. For instance, a cap worn by the boy Columbus came from Italy; Indian beads, requested by letter, were made from straws and colored papers, by the beginners.

The play was written in six parts:

- Scene I. Columbus as a Boy.
- Scene II. Failure to Get Help.
- Scene III. At the Convent of La Rabida.
- Scene IV. Before Queen Isabella.
- Scene V. The Voyage.
- Scene VI. The Discovery of the New World.

As a finale a child called "The Spirit of America" told of the wonderful resources and advantages of this new country.

128. "An Historical Play"

(Reported by Tippa Coleman, Louisville Normal School,
Louisville, Kentucky)

The desire to write a play was expressed by the children in this class after the reading of several mediaeval stories as a background for American History. The children suggested contrasting the life of the middle ages with the life of to-day. Pictures were studied, castles worked on the sand table and blackboard; stories were read; a Health Crusade was carried on, with the knighting of each child who kept the health rules; and finally a plot was submitted by each child. From these, the class chose the one they deemed the best. Committees were formed to be responsible for (1) the costumes, (2) the stage properties, and (3) the stage management. The play was written on the board during the English periods with one child as the scribe. Each child made an attractive book cover for his play during the art periods, made his costume during the industrial periods and learned the music used in one of the scenes during the music periods. A production of the drama—"The Goose-girl and the Knight"—was given the last week of school as an assembly program.

129. "Making Bird Sticks"

(Reported by Heber M. Cubberley, Bartlett School,
Lowell, Massachusetts)

The children in this grade were growing bulbs, and at the same time a study was being made of the winter birds. The blossoming bulbs, being rather top-heavy, needed support badly, and in discussing how to furnish that support it was brought out that ornamental sticks were sometimes used. It was suggested that we might make sticks with bird forms perched upon them. The teacher provided each child with the outlines of the winter birds. These outlines were traced on boards of white pine a quarter of an inch thick, and a strip was marked out one-half inch wide and about fifteen inches long extending from the bird's feet. The children were taught the use of a coping saw, and then they proceeded to saw out the bird stick, sawing just outside of the marked outline. With a

knife and sandpaper the edges were rounded and smoothed. The birds were then colored naturally with wax crayons. In every case the name of the bird was taught to the child.

These sticks were used to support the bulb blossoms. A piece of raffia was used to attach the stem to the supporting bird stick.

130. "A Speakwell Club"

(Reported by Agnes Scanlin, Buffalo, New York)

The purpose of the club was to keep up a lively interest in the use of correct English. This club keeps its thoughts on not more than two or three common errors at one time. When these are conquered, other new ones are attacked. Some excellent rules were devised by the club as follows:

1. No child shall use any incorrect form which is listed on the blackboard for that week.

2. Any member noticing another member using one of the incorrect forms shall write down on a paper the name of the transgressor and his offense.

3. Errors shall be reported to the class once a week, during a language period.

4. Any member reported three times for the same error shall be placed on the black list, which is kept somewhere on the blackboard.

5. Members may get themselves off this list by being free from complaint the following week.

131. "Dramatizing King Arthur Stories"

(Reported by Elizabeth B. Small, Buffalo State Normal School,
Buffalo, New York)

The dramatization, a pantomime, "How Arthur Was Chosen King," given on the school campus as a part of the May Day exercises, was the culmination of many simple dramatizations of the daily reading lessons. It was out of these lessons there grew the desire and decision to make a play from one of the King Arthur Stories.

The large sections into which the story naturally fell were considered acts; and the points that made the acts were organized as: first, the introduction, explaining the situation; second, the sequence of events leading into, third, the problem to be settled. The dialogue was lifted bodily from the text and indirect discourse changed to direct discourse. The working up of the speeches afforded opportunity for applying the requisite standards of the paragraph which the grade had already been taught. Mary MacLeod's adaptation of the Malory stories was used as the basis for the play.

132. "A Class Book"

(Reported by Ella Wilson, Michigan State Normal Colleges,
Ypsilanti, Michigan)

This booklet was made by the fifth and presented to the seventh grade. It contained acrostics based on each child's initials, expansions of nursery rhyme themes, short nature poems and stories. The material for the booklet was selected by a grade committee after the standards for criticism had been worked out by the grade. The booklet was made, a presentation speech was composed, and the booklet was delivered to the grade.

133. "A Literary Society"

Organization by the children was according to parliamentary procedure, and there was a business meeting each day preceding the program. The president acted as chairman; the secretary kept records; sergeants-at-arms were responsible for order, etc. The programs consisted of debates, original stories and poems, dramatizations written and prepared by children, first-aid demonstrations, etc.

134. "The Reading Period as a Contest"

The class was divided into rival groups. Each group chose a leader, prepared material and presented it to the other groups. The class as a whole worked out standards for judging material presented. Score cards were kept and scores gathered at close of

each class period. The class, after sufficient training in self-control, co-operation, self direction and judgment of their own work, carried on their contest without the teacher's help.

135. "A Hawaiian Entertainment"

(Reported by Jennie Williams, State Normal, Emporia, Kansas)

Purpose: To represent life in Hawaii in pantomime with music and dancing for the entertainment of the intermediate grades in General Assembly.

Books, pictures, pamphlets and maps were placed on tables in the library. The children were told that this material about the Hawaiian Islands was placed there for them to read, that they might select anything of interest to discuss at the next recitation. An hour was thus employed. In the discussion the next day the girls asked if they might represent the native girls dancing for a program number. A boy said he could learn to play a Hawaiian piece on his mandolin, accompanying a Victrola. Some other children wished a part, but did not know what they could represent. The teacher said that probably they hadn't read enough to be able to decide. All plunged into reading to perfect their plans for a program. There were eight girls and eight boys. Their plans grew and materialized. One girl brought in a dress she had made of wild grass, another one made of raffia. These served as patterns for the other girls. They made mats of raffia and corn husks, and dishes for squashes to substitute for those of gourds and calabashes. The gymnastic teacher helped with the dancing. Some boys suggested having sugar and pineapple plantation owners; others, Chinese and Japanese as laborers. They could carry sorghum stalks and canned pineapples. One wished to be a surf-board rider. This could represent a scene described by someone. This description was written by all in the class under the title "A Trip to Hawaii." The best was selected to be read.

In the final program "A Trip to Hawaii" was read first. The curtain was drawn aside and showed the girls seated in a semi-circle eating poi, later changing to make leis. Back of them stood the surf-board rider holding his board, the plantation owners and

the Chinese at work. Jack sat at one side playing his mandolin. He had no ukelele. As the last strains were played, the boys and girls moved to one side to clear the stage for the five dancing girls. The curtain was drawn at the close of the dance.

136. "Story-Telling"

(Reported from the State Normal Training School,
Westfield, Massachusetts)

This project takes for granted the usual story-telling in the classroom by individual pupils, and provides in addition for:

- (1) The choice by the children of the stories most suitable for the audiences mentioned below.
- (2) The arranging by a committee for the interchange of class visits and the re-telling of stories for the entertainment of the visitors.
- (3) The arranging by the committee for telling stories in the Training School assembly hall and at the Normal School.
- (4) The arranging for groups of story-tellers to visit "shut-ins," the Children's Home, The Home for Aged People, and the State Sanatorium.

These activities all involve the offering of services, either by personal interview or by letter, the planning of the different programs, the arranging when necessary for transportation, and the acquiring by the story-tellers of the niceties of conduct that such occasions demand.

137. "An Operetta"

(Reported by Mrs. Maude Meyer, Decatur, Illinois)

The fifth-grade class of the Lincoln School at Decatur wrote an operetta entitled "Fairy Flowers" and gave it at an evening entertainment in connection with the annual money making event of the Mothers' Club.

All the planning and execution of suggestions adopted, was carried on by the pupils under the guidance of the teacher. Oral and written English, music, art, and physical education were motivated for a period of four weeks.

As a rounded finished product and to preserve the work in some permanent form, a booklet was made for the supervisor of

elementary grades. The book contains one or more papers from each child and includes copies of program, invitations, posters, stage arrangement carrying out color scheme, design of costumes, description of dances, songs used, letters of thanks to mothers who made the costumes or who played for their practices or who gave other general assistance on the night of the performance.

138. "A Riddle Book Made for an Absent Member"

(Reported by Edith M. Robbins, State Normal, Westfield,
Massachusetts)

When Victor broke his leg, the class wished to show their sympathy by making something for him. They discussed whether it should be a joke book, a scrap book, or a riddle book. They decided upon a riddle book. They decided to set aside a time for making it. They brought in a large collection of riddles and through class discussion selected those that appealed to them as being the most enjoyable and the cleverest. The next part of the project was the making of the book. Each child copied a riddle and, realizing that Victor should have a chance to guess, wrote the answer on the back of the sheet. Then the class selected a committee to plan and make the cover and another committee to carry the book to Victor with a note, the outcome of community composition, expressing greetings and good will. Should occasion arise for repeating this project, there will be included in the book a preface, the result of community composition, stating what the children have been able to find out about the origin of riddles and the nature of the earlier ones.

139. "Learning Thrift by Keeping Accounts"

(Reported by Bertha A. Morse, Rockford, Illinois)

Inexpensive bookkeeping sets, especially prepared for each study, were purchased to keep daily accounts of all money received (allowances, earnings, etc.) and spent, as well as a form to account for ways in which the money was disposed of or saved. A scale for the class as a whole was arranged to show weekly percents spent on luxuries as compared with entire expenditures; besides each pupil kept his individual percent of progress. Gradually, pupils

handled their own accounts with interest and confidence in their own accuracy, as was, of course, necessary to balance their records each week.

140. "A Pageant: 'To Arms for Liberty'"

(Reported by Marguerite F. Maloney, Dearborn School,
Boston, Massachusetts)

In our oral English class we were reading Miss Catherine Brice's fine patriotic pageant, "To Arms for Liberty." Some of the children asked if we could not play it. We started to do this for our own amusement, and we found that it grew and grew. It entered into our work in history, geography, English, music, drawing and manual training.

Our music was the national anthem of each country with which the pageant was making us acquainted. Our history and geography were the stories of their people—the fears, joys, sorrows, customs, and everything we could find that made us better acquainted with them and their problems.

The hearts of the children were in this enterprise to such an extent that when they gave the entertainment as a whole, they interested many people outside of our school in the attainment. We gave it for our neighbors and earned money enough to have a wonderful Christmas party which we shared with them again. We gave it for a social centre where we were strangers. Later we gave it for teachers and supervisors who were surprised that such a serious message could be given in such a simple way by children.

141. "Building and Furnishing a Cardboard House"

(Reported by Charlotte J. Flood, Eagle School, Cleveland, Ohio)

This fifth-grade class was divided into groups and to each group was assigned a certain part of the work of building and furnishing a house of cardboard and paper. The house had three rooms on the ground floor and three rooms and a bath on the second floor. The furniture was stained to resemble oak, mahogany and pine and was shellacked to give it stiffness. The exterior was painted

gray brown with dark brown trimmings, a green roof and red chimney.

The measurements for the building and its furnishings were worked out and the paper cutting was done during the drawing periods. Original arithmetic problems were submitted by each group daily having to do with measuring, drawing to scale, figuring costs of furniture, papering, etc.

When completed, the house was donated to a summer school play ground.

142. "Staging Toy Scenes"

(Reported by Anne H. Stewart, Cleveland, Ohio)

One project to be worked out in thin wood was a stage group representing some phase of the colonial period which the children were studying. Each pupil selected his own subject and made his designs for it. He found for himself helpful pictures from which he made the drawings needed to tell his story. He made his drawings in right proportion, cut them out of paper, transferred them to the wood and sawed them out. He finished and assembled the parts. He then painted the wood in a color scheme which had been tried out on the paper template. Each child made a base of thicker wood on which to mount his group. This base or stage was pierced with many holes. A peg was placed in the base of each unit, thus affording choice and variety of arrangement.

Some of these groups showed "Dutch Life," "The Landing of the Pilgrims," "The Return of the Mayflower," "Paul Revere's Ride," etc. When all were finished, the children constructed a large stage by placing together many small ones. Units were taken from the small stages; enough trees were collected for a forest; there were animals in the woods, dancing warriors and Indians on the hunt and in the camp.

In another fifth-grade room a different subject was chosen. The children had written original fables and each child illustrated his own in the working out of similar stages. The problem makes vital appeal to the children.

143. "Making a Toy Circus for the First-Grade Class"

(Reported by Marguerite Reasor, Mary D. Hill School,
Louisville, Kentucky)

The class listed articles to be found in every good circus. Each boy decided what he wished to make and then worked out a way to saw the wood most economically. Some boys chose to work alone. Others, working out individual problems, grouped themselves as they chose, some members of the group sawing, others sandpapering, etc. One group volunteered to make all animals "stand," using different methods for different toys. Several boys made articles for which patterns were not obtainable. A committee of four, acting as "finishers," inspected the completed toys and passed them on to an art class to paint. Several boys well advanced in woodwork worked out their own plans and made the tent of unbleached muslin. Others brought rings and sawdust and arranged an entire circus. In their English work, the 5-B class wrote about the animals, making their stories simple enough for first-grade children to read.

144. "A Picture Museum"

(Reported by Francis D. Young, Berkeley, California)

Through the interest aroused by a talk given by the teacher the class decided to try to make a worth-while collection of pictures with facts about each picture. This grew into ideas of contests on the part of individuals of the class to see who could learn the most about the pictures. Reprints of forty different pictures were purchased at a cost of one or two cents each. The children, with the help of the teacher, took up the study of five different artists with the important pictures painted by each. They classified the pictures as follows: portraits, animals, landscape, history, sacred, decorative, still life. The children then developed and wrote stories for booklets. The class developed some of the outlines by means of a socialized recitation. A stereoptican lecture on pictures was given by the class for other classes in the building. Children selected by these classmates contributed interesting facts about their favorite pictures. The children wrote to Milton Bradley Company

for pictures and spent some fourteen dollars for copies to place in their booklets. The subject matter covered was that of oral language, picture stories, discussions, descriptions, biographies, silent reading, use of library, penmanship. Pride was stimulated to make the work in the booklets look neat and legibly written.

145. "Writing Music for a Play"

(Reported by Catharine E. Strouse, State Normal School,
Emporia, Kansas)

A class in English were dramatizing "The Maid of Orleans." The text gave the words of a song supposed to occur at intervals, but no tune. The class asked the English teacher if they might request the music teacher to find a suitable tune so they could sing it. The music teacher suggested that it might be more desirable to make a tune than to find one ready made. The class took the suggestion eagerly, and they studied diligently the successive steps involved in matching music with words as these steps were proposed by the teacher. They wrote the music and when the play was given in public, the song was used as made by class.

146. "Music Naming Contest"

(Reported by Effie E. Harmon, South Bend, Indiana)

Fifty compositions have been selected for the pupils to study in order to be able to recognize them whenever played or sung. After three months' study, the contest is held. Twenty of the selections are played or sung. The pupils try to write the name of each composition and its composer. The contest is an annual affair, and ten selections are added each year to the list of the previous year.

147. "Class Self Government"

(Reported by Miss Tippa Coleman, Louisville Normal School,
Louisville, Kentucky)

In a fifth-grade civics class there had been a discussion as to why certain rules of conduct were necessary when people live together in groups. "How can we improve our deportment, as a

class, this term?" was the question left with the children. The following day the class voted to adopt the suggestion made of organizing a club that should take care of the department of the class when the teacher was not present. A president, secretary, girl and boy governor, and a jury were elected. Definite laws were formulated and written during the English period. Penalties were decided upon by the club. Great improvement was noted in the general department of the class during recitation periods as well as times when the teacher was not in the room.

148. "A Jury of Fifth-Grade Pupils"

(Reported by Marguerite F. Maloney, Boston, Massachusetts)

A new boy entered our schoolroom about the middle of February. From his habits, I judged that he must have come from a school where the "be good while the teacher is looking" idea is the custom.

When I had occasion to leave the room, he poked the girl beside him, annoyed the boy in front of him by looking over his shoulder and made himself generally disagreeable. The class surprised me one afternoon by saying that a certain boy was breaking *their* rules and deserved punishment.

We gave our attention to the case, heard everyone in the room who had anything to say, and asked for any defense which could be offered. Not a child in the room offered a word in behalf of the offender. Seven children were selected to decide what his punishment should be, while I waited fearful lest they should decide to take his case to the highest powers of the school, or to put him back into the fourth grade. I was immensely relieved to hear the decision.—"James is to have his seat changed to the fourth row, first seat, where he can be under the eye of everyone in the room. If at the end of the month he has proved he can be trusted, he may return to his own seat again. We were easy with him because he is new in our room."

The solemnity and firmness with which this was all carried out proved beyond a doubt the sacredness of self-imposed law.

C. MATERIALS FOR THE SIXTH GRADE

149. "A Ground Map of the United States"

(Reported by H. H. Ryan, St. Louis, Missouri)

On the floor of a large room or an out-door vacant space construct an outline map of United States, using two tape lines, small map, and scale. Points on large map are located by their respective distances from two set points as found by proportion. Have children bring in objects and materials to represent the products, and place them in position on the map. Miniature flour mills, elevators, packing houses, cotton mills, hardwood forests, etc., can be constructed of cardboard.

150. "A Products Contest"

(Reported by H. H. Ryan, St. Louis, Missouri)

Place in position on a ground map cardboard discs to represent fifty principal products, taking care that each state has some discs: naturally several will be needed for "cotton," several for "coal," etc. Divide the class into two sections, and play some contest game like racing, jumping, etc., for possession of each disc, the victory depending upon number of discs, aggregate value of annual crops, outputs, etc.

151. "The Japanese Festival"

(Reported by Grace Ellis, Rockford, Illinois)

A play, representing Japanese festivals, was written and staged by the class. After making a careful study of Japanese home-life, the children selected the "Dolls Festival" and the "Flag Festival" as the most enjoyable holidays for boys and girls. Japanese games, music, and folk-lore connected with these festival occasions furnished the material for a two-act play, "Sunrise." Besides being an interpretation of happy childhood, the play was written to show the intense religious feeling and patriotic devotion of the Japanese people.

152. "A Trip Over the Lincoln Highway"

(Reported by Catherine Morgan, Teachers College, Detroit, Michigan)

The class decided that a trip over the Lincoln Highway would make both an interesting and profitable vacation. They formed into committees to approximate the necessary time, expense, and places of interest to be visited. They collected pictures and souvenirs interesting from the standpoint of history and geography and, in the best English at their command, gave the account of their trip to the seventh-grade class.

153. "Making Potato Starch"

(Reported by Louise A. Dawson, Rockford, Illinois)

Having learned that one-fifth of the potato was composed of starch they wondered why potato starch wasn't used. This led to inquiries about it. The suggestion was made that we make some potato starch. The class was divided into working groups, which learned the various processes, and then began the operation of them. The potatoes were peeled, grated to a pulp and placed in cold water. This pulp was washed through a very fine sieve several times until only the pure starch remained. The comparative cost and values of corn starch and potato starch were discussed. The starch was used in Domestic Science by the girls, and made into a "potato-starch pudding," which was served to the class.

154. "Discovering the Reasons for a Military Move"

(Reported by Marguerite Reasor, Louisville, Kentucky)

In this sixth-grade class we sought an answer to the question: "Why, during the recent World War, were the Germans so anxious to obtain possession of the Po Valley?"

The conclusions reached were that the Po Valley must be excellent in some features, and that a study of Italy would reveal them. Free discussion determined the following method of procedure:

- I. Class selected topics of study necessary, such as location of Italy, size and population, raw materials, etc.

II. Class divided itself into committees, children selecting the topics they preferred studying. Each committee selected its own chairman, who directed the work of the group.

III. Each group outlined points to consider under its topic, then discussed sources of material. Representatives were sent for supplementary and reference books.

IV. Class study began, children preparing charts, graphs, maps, tables, statistics, etc., to illustrate certain points. Teacher assisted individuals and made suggestions only when necessary.

V. Children reported on topics, answering original question. All reasons were summed up.

155. "A Museum of Nations"

(Reported by Floy Campbell, Kansas City, Missouri)

In one large school, the space down the middle of the hall was filled with a line of show cases, and a series of small models of foreign lands was made, covering Egypt, Japan, France, Italy, Greece, etc. As these became dusty, or were discovered to be faulty, they were replaced with improved representations. The following description of the Hawaiian scene will indicate the general method.

A large hat box was used. One side was removed, and the other three covered with blue paper on which the mountains, a volcano, etc., were drawn. Sandpaper represented the beach, and a painted sea with white breakers met its edges. A group of paper palms (cocoanut) was fastened to the beach by a touch of sealing wax. A raffia hut was built on the edge of the beach, with a mat under the front thatch, to eat on. Clay utensils were made and decorated. A surf-board and two canoes rode at the edge of the water. Drying poles with fish nets on them stood near. A brown man stood in the edge of the surf, fishing. The scale was about half an inch to a foot. Broad reading, and the consultation of many pictures, and help from a returned missionary were helpful factors in the making of this picture.

156. "An Illustrated Diary of a Trip to South America"

(Reported by Sue Bishop, Government School, Quincy, Massachusetts)

The children and their teacher talked over a "Raymond Whitcomb Tour Through South America" just as if they were actually to take the trip. The "Autumn Tour" was selected because of

places included and expenses. The tour was planned on the map according to dates scheduled by Raymond Whitcomb. Children volunteered to be responsible to act as guide through places visited at each given date. Each volunteer, together with his two or three helpers, then withdrew to discuss how to find the interesting points about which to tell the class on the trip. For example, Santos, Brazil, would call for a study of the Brazilian coffee region. Similarly, the industries, resources, or historical facts associated with each place visited were discussed. Each group wrote and illustrated its page in the diary.

157. "The Mythology Play: 'The Greeks Sailing to Troy'"

(Reported by Mary S. Shelley, Victor H. Engelhard School,
Louisville, Kentucky)

After the episode was read, one act and six scenes were decided upon. Six groups of children were arranged, each group responsible for the scene assigned it. A chairman was selected and consulted with each of his group. Introductions for the scenes were written. These were read before the class for approval and the best were selected. The characters were studied, and the pupils chose the child whom they thought best suited a particular part. All the members took part, either in a leading role or as pages, heralds, or a member of the army. After selecting the characters, the time and place were considered. The costumes and customs of those days required a great deal of search, and the library was frequented many days while the work was in progress. The manual training and domestic art periods were used for constructing the shields, the war weapons, the costumes and head dresses for the girls. Use of measurements was brought in many times. Various decorations in gold and silver were done in the art period. In literature the myths and stories of the Greeks and Trojans were consulted. In geography the climates, soil, dress, and nature of the people were reviewed. The sixth grade gave their play as a program for the Parent-Teachers Association. They worded their invitations, wrote them, addressed and sent them.

158. "Folk-lore and Story Representation"

(Reported by Grace Ellis, Rockford, Illinois)

Folk stories connected with the Siege of Troy were told by members of the class, then a miniature stage setting representing the region around Troy was painted on tag board 13 by 27 inches. Brilliant orange, blue, and purple, the favorite colors of ancient Greeks, made a gorgeous background for tiny figures of *papier maché* that formed the opposing armies. Simple materials, such as pipe-stem wire, tissue paper, and paste were developed into other historical characters that aroused interest and aided in visualization.

159. "A Scrapbook of Classical References in Modern Business"

(Reported by Ruth Craig, Rockford, Illinois)

The class was ready to take up the study of Europe in geography, the study of Greek and Roman history, the study of Greek stories and myths in reading. By lecture, and by study and discussion of reading work in Gordy's *American Beginnings in Europe*, pp. 11-104, we produced an exhaustive list of modern traces of ancient influence in architecture, other art, sports, etc. Such a list included styles of pillars on modern local buildings, road construction of stone, Olympic sports, theatre buildings, etc. At the same time we studied modern Greece, Italy, and other Balkan states to compare the ancient and modern. (Tarr and McMurry, *Geography, Book II*, p. 334). We followed these countries' courses through the World War, finally bringing in the study of the rest of Europe with the history of the invasions and crusades (Gordy). In the *Elson Reader, Book II*, we read the stories of Greek heroes and gods. After nearly four weeks of this we discovered that advertisements had expressed many modern uses of ancient arts and customs. We then collected advertisements of this sort, succeeding in finding a different advertisement for nearly every child. They included Atlas cement, Ajax tires, Athens, the Home Journal symbol, etc. With these in hand each child hunted up the story of his hero or god, and told the story to the class. Then the advertisement was pasted on a large sheet of school paper on which was the story neatly copied from a corrected paper.

Below the story was an explanation as to why that god or hero was used for that 'ad.' We had nearly thirty leaves to bind. A cover design, made by one lad, was chosen after competition. Another child bound it with raffia.

The children connected the ancient and modern peoples in this experiment, making the ancients, real people. They got drill in speaking and in composition and penmanship. In hunting up their stories they learned how to use the reference books in the Public Library. The cover offered an opportunity in design.

160. "To the Rescue"—a Play

(Reported by Edith Stewart)

The motive for the play was furnished by our desire to earn money for the support of a French orphan; the theme was supplied by current events. Uncle Sam's problem of meeting war demands was solved when his natural resources, one by one, came "to the rescue." The signing of the armistice, before we were ready to present the play, furnished a fitting climax. Each child of the class prepared a suggested part from day to day. A committee of three—different every day—selected from all the papers the most interesting portions and combined them. Class work included criticism by the children—a study of the natural resources of the United States, writing of invitations to parents and friends, planning of simple costumes, printing of tickets with a child's printing outfit, keeping account of funds from the sale of tickets, writing of newspaper accounts, and finally, the presentation of the play.

161. "A Diary of Beauty"

(Reported by Ruth Craig, Rockford, Illinois)

Beginning with April Fool's day we kept a five-cent note book for a "pretty thing a day." The schoolroom was on the second floor, with an exposure to open country. Often we had watched clouds and rain effects across the hills and trees. Now we watched color effects of coming spring. Doing this in the classroom led them to looking for sounds and smells of spring in their own world out of school. Some of them began to find beauty in their friends and

their actions. Each day developed a picture of nature, a little story of a kind act, or a little talk of a beautiful thought they had. This took but fifteen minutes a day. I went from seat to seat correcting and advising. The last day of the month we made our booklets. I had a supply of heavy paper in six different colors. We studied color combination and made paper-cutting designs which we pasted on the cover. After tying the booklets together with colored raffia, we copied our diary. The booklet was about four and one half inches by six inches and contained twelve double leaves. The children thought a good deal of these, because they were something they could keep, and something worth keeping.

162. "Publication of a Monthly Magazine"

The material suitable for a magazine, the number of copies to be sold, the price per copy, cost of printing, suitable covers, etc., were discussed and investigated. The group elected an editorial staff and divided themselves into committees according to their choice of work. The editor-in-chief acted as chairman of all meetings and each committee selected its own chairman. Each pupil wrote for the magazine what he could. This material was judged by the group before being accepted or rejected. Standards were set up, and if material did not come up to these standards, its author worked it over and presented it again. The business managers investigated various printing concerns and brought reports to the group before a contract was entered into. Advertising was solicited, and in some cases this covered the expense of printing. Covers were made during the drawing period. One hundred copies were sold at ten cents each. The pupils handled all money, paid all bills, etc. The interest in this activity carried for several months. Each issue had an entirely new organization. Three issues were published.

163. "Conducting a Real Library"

Upon the information that books might be secured from the Public Library or brought from home, a library organization consisting of librarian, assistants, secretary and treasurer was worked out by the children. Committees chosen by the group arranged

shelves in the room, visited the public library and secured cards, rules, etc., for the use of children's books. Another committee brought books from the library. Each pupil was asked as a favor to keep a record of each book read and his opinion of each book. A certain period was set aside each day for book reports, dramatizations, etc., chosen from books in the library. Standards for both preparing and presenting material were set up here and judgments made by keeping scores. Each pupil measured his speed in silent reading and kept records of progress.

164. "Writing a Class Creed"

(Reported by Josephine E. Maloney, Milwaukee Normal School,
Milwaukee, Wisconsin)

Different creeds were read to the class by the teacher. The meaning of a creed was discussed by the class. The teacher asked the children if they would like to write a class creed of their own. At first it seemed quite an undertaking, but they thought they would like to try. The following day each one was to bring a suggestion that would be helpful in writing the creed. The next day the suggestions were given, and what the creed ought to stand for was discussed. It was decided that each member of the class would write a creed, and then a vote would be taken to decide which one was best. This one was to be accepted as the "Class Creed." The following one, written by Dorothy Morgan, was chosen:

A Class Creed

I believe in Class Spirit—the foundation of all motives in school life.

I believe that success and achievement are only obtained by class and school unity, co-operation and team-work.

I acknowledge that to be a member of a progressive and worthwhile class, I must attend to myself only—not to others.

I believe that it is the little things of life, done well, that fit us to accomplish greater things when the opportunity comes.

I believe that each individual of this eighth-grade class should set a good example, that the boys and girls to come may find it worth their while to follow, so they may be good citizens.

When the creed was re-read after the voting, one of the boys who liked to print volunteered, for his work during free periods, to print a copy of the creed on a large sheet of paper, to tack up in

the front of the room. He did such a splendid piece of work, that when it was finished, the class suggested that it ought to be framed, so it was taken to the Manual Training room, where with the help of the Manual Training teacher it was very artistically framed. It now hangs in the most conspicuous place in our room.

165. "Writing and Performing a Play"

(Reported by Gertrude Brown, State Normal School,
Emporia, Kansas)

The sixth grade read in the Bolenius *Sixth Reader* the selection from "New Chronicles of Rebecca," called "The Flag-Raising at Riverboro." Part of it is in conversation form, and while reading those parts in dialogue fashion in the class, a pupil suggested the selection could be made into a fine play. With this as a start, the work began. The story easily divided itself into two acts and the 6-A class wrote Act I, while Act II was assigned to the 6-B class. There were no parts for boys, so at the outset the children proposed a scene by which the boys could be brought into the play. The play was written, speech by speech; the class decided which parts they wanted or often combined parts of several to make a certain part. Interest was keen throughout the eight days taken for the writing of the play. Many explaining parts had to be dramatized, and much original material was added to give parts to all. Long before it was completed, it was decided to print it in the magazine of the department, "The Searchlight."

The class chose the cast of characters, having an understudy for each important part, and rehearsals began. These showed that many changes must be made. It was the children's own play and interest did not once lag, especially as they were asked to hasten their work on it and give it at the Lyon County Fair. It formed the basis for all work in literature and composition for over two weeks.

166. "A Debate"

(Reported by Julia E. Norris, State Normal School,
Dillon, Montana)

In the study of the Greeks the pupils were much interested in the Trojan War and its leading heroes. They divided, naturally,

in their opinions on matters pertaining to the two sides in the struggle. It was decided to hold a series of debates on the question, "Resolved that Achilles was braver than Hector." This was done, first in private, and afterwards in public. The final victory lay with the side supporting the claims of Hector.

We give a sample paper from each side of the debate.

I think that Hector was just as brave as Achilles. Achilles was immortal, as the Elson Reader said. When Hector took the armor of Achilles he didn't know the weak spot in it. Achilles got a new armor from the gods. It was of immortal make. Achilles had horses from the gods, too. Hector didn't have anyone to help him fight either but Achilles did. Wouldn't you be afraid if you saw fire on another man's head? If two men fought and one got killed wouldn't you call the one who got killed just as brave as the one who lived? If one man was small and the other large the smaller one would be brave to fight the larger one.

I think Achilles was the bravest man in the Trojan war. When Achilles appeared on the scene of battle unarmed, the whole Trojan army fled in terror. Achilles did not know what fear meant. Achilles went out to the battle in the Trojan war without any armor on and was not afraid.

I think that Hector was not as brave as Achilles. When Hector saw Achilles coming he was afraid to stand and fight at first. He thought the people would rebuke him so he stayed outside the walls. He ran from Achilles.

167. "Publishing an Annual"

(Reported by Gertrude Brown, State Normal School,
Emporia, Kansas)

The children of the intermediate department of our training school publish a magazine called "The Searchlight." From its beginning, it has been a wonderful stimulus toward good work in composition. Last spring the children heard the students of the Normal talking much about their "Annual" and in a fifth-grade composition class, it was suggested that our spring magazine take the form of an annual. This was followed by much discussion as to what should be included in such a number, differing from what we had had in previous numbers. The wish of the children was that any outsider, reading the magazine, should get a good idea as to the scope of our year's work. To accomplish this, our organization was fully written up—the year's work of all our committees, our school planning periods, our special programs, our regular pro-

grams which are the result of classroom activity, a "point" contest at the gymnasium in which the entire department was greatly interested, an account of our annual operetta, a sketch regarding the French orphans we are supporting, full accounts of the year's work in industrial arts, our spring poems, echoes from the geography, arithmetic, science, history, and literature classes, a dramatization worked out by one of the classes, and a few of the best original stories of the year.

For nearly two months the children eagerly worked on this number, gathering material, making and rejecting suggestions, and working as a unit to make this number the best of the year. Each child wrote on themes of particular interest to him; on some of the larger themes the work would be divided, and group work would be in order later to compare results and to judge them. All these articles passed before the critical eyes of the editorial staff, and while the first and basal question was always, "Is it interesting?" the second was, "Is it well written, properly planned and punctuated?" The children paid for the printing of the magazine by giving plays, selling sandwiches at ball games, etc. The sandwich-selling gave rise to a splendid project in arithmetic.

168. "Editing Poems of the Great War"

(Reported by Mary McCrory Pierce, Rockford, Illinois)

The children read poems of the war in current magazines, newspapers and books. They selected the ones they liked best and read them to the class. Questions were asked about them and criticism made. In this way they collected several hundred poems. The class was divided into groups of four or five; one of each group was appointed leader, to read and talk over several poems. Many class periods were spent in this way. Each group saved the poems they liked best and discarded the poorest. We applied to every poem two tests—Is the thought enduring? Is it well expressed? They selected thirty-one poems to be made into a book. This book was printed by the pupils of a neighboring school in their print shop. The children were intensely interested in the making of books, their shape, size, material, preface, dedication, copyright.

The Board of Education paid for the printing materials, and sent a set of the books to every school in Rockford to be used as supplementary reading.

169. "Search for Poems Describing the Sea"

(Reported by Harriet Beale, State Teachers College,
Mankato, Minnesota)

The teacher read a poem descriptive of the sea to a class familiar with it from vacation experiences. The lack of response caused her to ask questions which brought out the explanation that her choice did not describe their favorite aspects of the sea. One after another described his favorite picture, and much diversity appeared. One pupil asked, "Do you suppose there is a poem describing 'the surf after a big storm'?" So a search was begun which gave an enriched appreciation of the ocean, as well as familiarity with library aids and methods and valuable training in reading to determine the experience realized by the poet and to judge his success in expressing it. They became interested in one another's search, so that the work was increasingly socialized.

170. "A History Play"

(Reported by Gertrude R. Lynch, Wells School, Boston,
Massachusetts)

One of my girls owned Miss Hubbard's *Little American History Plays for Little Americans*. One day she asked if the class might act some of the plays. I agreed, provided she took charge and the class was willing. They were delighted, so with a few helpers she copied the parts of "Columbus," since we were studying Columbus at the time. After a class discussion, the parts were assigned to appropriate girls. At the first rehearsal of the play the class offered suggestions for improvement in expression and action, which were gratefully accepted. Many plays were thus learned, and every girl in the room had a chance to act in more than one play. These were entirely class projects with little or no aid from me. The stage manager took entire charge of the 'stage setting,' arranging chairs, collecting rulers for guns, etc. Every child was responsible for a part and was kept busy and interested.

171. "A School Fair"

(Reported from Kansas City)

This fair was given in a school of 18 rooms, with three floors and a basement. A general committee decided what booths to have, where to place them, what room to make responsible for each one, what type of advertising to do, etc. This committee appointed sub-committees, one for each floor. The sub-committees decided on color schemes and general plans for the decorations on their floor, sizes of booths, etc. Booths were drawn and constructed by the Manual Training boys, and detailed plans for their decoration made by the different rooms. The general committee bought materials and carried out these designs. Price tags and signs were lettered and posters made. The general committee saw to the proper placing of the posters in stores, picture shows, etc. Handbills were mimeographed and sent around the district; the writing and arrangement of the handbill was a careful study in design. Invitations and programs were designed and decorated.

A continuous dramatic entertainment was carried on in the assembly room to which each room contributed some 'stunt.' The children made all scenery and costumes, and wrote all 'stunts' or plays, and even wrote the words of many of the songs given.

The amount of design and color work required was unlimited. The opportunities for drawing from nature, in connection with posters, were numerous. And the chance for studying the question of advertising, its methods, and its relation to modern public questions, was not neglected. Excursions to billboards, talks from advertisers, the question of the cost of advertising, and who pays it, were all part of the work. The social aspect of the project was emphasized all along the line. It was so successful that it had to be repeated three times, and its financial returns were astonishing; but we hope that its results as a lesson in co-operation, and its discussions of ethical advertising were of greater value.

172. "An Arbor Day Pageant"

(Reported by Agnes Cavanaugh and Lillian McNulty,
Albert S. Brandeis School, Louisville, Kentucky)

A bare avenue leads up to the Brandeis School. The school grounds, themselves, are beautiful. The children of the upper grades desired to set out an avenue of trees on Arbor Day, after having studied about trees in the science classes. They wished to have a ceremony on the occasion of the planting and settled upon a pageant as a fitting entertainment. The problems arose: (a) to select trees, (b) to plan the planting, (c) to prepare the entertainment.

First, a study of the shade trees of the neighborhood was made by the class to determine what trees flourished best. Next, the children canvassed the neighborhood to secure consent from the property owners to do the planting. Then a letter was written to the city for a permit to plant on the city streets. A survey of the street was made to ascertain the number of trees needed for the avenue. Then a trip was made by members of the class to the nursery of the State Department of Forestry to get the trees, which were 'heeled in,' in the garden, till needed. In the meantime, the class had made a study of the life, structure, care, use, and economic importance of shade and forest trees. The scientific facts so obtained were used as the basis for writing the pageant under the direction of the English teacher. The art department aided in providing opportunity for designing and making costumes and decorations. As the pageant was to end with the tree-planting, each room-group submitted a plan for the ceremony; the best was selected by the vote of the groups. Invitations were then written and delivered to all the people in the neighborhood. This has been the means of interesting the neighborhood in the school in a way hitherto impossible.

173. "A Hygiene Book"

(Reported by Jennie G. Ramp, Gastman School, Decatur, Illinois)

At the first meeting of the hygiene class for the term, a member suggested that it would be more interesting to find out things which

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would make Decatur a healthier city than to follow the regular lessons. So together the class listed topics for study. On looking into the book for suggestions it was found that the regular topics assigned to them would fit in well, so they were embodied in the list. Health of School Children, the Park System, Milk Supply, Water Supply, Cleaning of Streets, Junior Sanitation League, and Hospitals were among the topics chosen. At the next class meeting it was suggested that each pupil make a book treating and illustrating each topic. It was decided that each child should be free to arrange his book as he thought best, with regard to illustrations, clippings, chapters, and addition of topics. The class meetings were discussions of topics, in which the children contributed from experience, reading, and conversations with others, and in which questions were asked and answered. Periods were set aside for book work. Trips were taken to waterworks, etc. At close of the term the books were read and enjoyed by all.

174. "The Cleaning of the Lunch Room"

(Reported by Kate Hardin, Geo. D. Prentice School,
Louisville, Kentucky)

Suggestions from the children, both oral and written, were made as to how to make the lunch room attractive. Talks on sanitation were given to instruct the children about the importance of the subject and to awaken their enthusiasm to the point that they would be eager to do the work. The social aspect of the subject was emphasized in the need of sanitary surroundings as good citizens. A day was appointed, materials assembled, work assigned. The lunch room emerged transformed.

This project was carried into all their subjects: *e. g.*, in history, the cleaning up of Cuba and the Canal Zone; in geography, the location of these places; in mathematics, the cost of materials used in cleaning the lunch room; in science, the effect of different cleansers on grease and dirt; in language, their written work; in spelling, the new words used. We finished with an observation lesson by paying a visit to the Public Institution for the Blind and writing a letter of thanks for the courtesy extended to us.

175. "A Campaign for Good Diet"

(Reported by Mary McDermott, State Normal College,
Ypsilanti, Michigan)

For the purpose of seeing what sort of lunches the children would bring, they were told to bring a portion of their lunches from home. These were to supplement the school lunch, which was furnished. Many of them brought three and four thick meat sandwiches, one or two doughnuts and either a piece of pie or cake. It was also noted that a great many of the children did not care to eat vegetables.

When it was found that this combination made the lunches too heavy, they were told to bring from home only two thin bread and butter sandwiches or one thick one and some fruit, but nothing more. They were also told that they should eat whatever the kitchen matron provided for them.

Some of the children asked the teacher why they could not bring cakes and pie if they wanted them. The question led to a study of proper food for children of their ages. The lessons were grouped under three headings: what and how much to eat for (a) breakfast, (b) lunch, (c) dinner.

Some of the menus which they worked out were tried out in the kitchen by the children themselves. Recipes were collected from which language lessons were made. Lists of misspelled words were made and corrected. Arithmetic problems came from their work in the kitchen. The children had to buy the groceries. Interesting posters were also made by the children. Appropriate pictures and clippings were cut from magazines and arranged as menus—breakfast across the top, lunch in the center and dinner at the bottom of the poster. One had the heading, "Don'ts for Eating." Pictures of a number of things children should not eat and drink followed. Another had colored pictures of a few healthful foods with original couplets under each.

The results were: first, a better understanding of food values; second, an interest in the kind and variety of the foods they had to eat; and third, vegetables were not spurned as before.

176. "Popularizing the Shower Bath"

(Reported by Mrs. Harry R. Whiteside, Geo. D. Prentice School,
Louisville, Kentucky)

The institution of new shower baths necessitated arousing the children's desire to use them. We chose the sixth grade to inspire the entire school. The boys visited public baths and reported about them to the class. Each child reported baths typical of his own country (the school was in a foreign neighborhood): the Russian, the Turkish, the Hebrew, the American Y. M. C. A. Groups studied at the library, "Greek and Roman Baths," and reported on these. The class studied the physiology of the bath—hot, cold, etc., cleansing, tonic, etc. The sixth-grade children then went to the other grades of the school and gave them the benefit of their work, both written and oral. When the day came to open the showers, nearly every hand went up to be allowed to take a shower bath. Now it is quite the fashion.

177. "A Little Mothers' League"

(Reported by Mrs. Harry R. Whiteside, Louisville, Kentucky)

Many girls 'tended the baby' at home. After a talk with them, they decided to invite a trained nurse from the Louisville Public Nurse Association (who was willing to co-operate) to come each week and lead them in a Mother Craft Class. With actual demonstrations in washing, dressing, feeding baby, etc., they formed a "Little Mothers' League." Requirement for membership was the obligation to make an attractive booklet in which each week's lesson was to be reported. The content, English, penmanship, etc., was to determine whether the member at the end of the course was to receive a printed certificate, or little diploma, certifying that she was a member of the League and that she had completed the course satisfactorily. Their interest was intense and the result gratifying.

178. "Playground Arithmetic"

(Reported by Edith Cheney, Berkeley, California)

The bond issue had made possible the playground expansion for the Emerson School. The children were eager for larger and better

equipped grounds. The playground director was approached by the teacher and agreed to accept and use the ideas shown in the three best plans worked out by the class for equipping and arranging the playground. The children were eager to make plans acceptable to him. This involved a large number of problems which extended not only into arithmetic but into various other subjects. They found the size and value of the property, the cost of preparing and equipping it, cost for labor, gravel, etc.; they asked experts from Oakland and Berkeley to speak to them on various ways of equipping the playground; they wrote to Superintendent Wilson to ascertain how much had been allowed for equipping the Emerson playground; they sent for a Spaulding catalog, and as prices had advanced twenty percent, there arose the necessity of solving percentage problems; they sought information in their homes and visited numerous playgrounds to secure ideas. The subject matter involved might be classified as follows:

1. Arithmetic. Linear, square, cubic, liquid measures, board measures. Drawing maps of grounds and building to different scales thereby bringing in fractions and decimals. They found need for $\frac{1}{2}$ inch which the ruler did not show and this led to the comparison of $\frac{1}{2}$ " with $\frac{3}{4}$ ".
2. Language. Oral discussions relative to the work; letters asking for information; notes of acknowledgment to informants; invitations to classwork; information secured by the pupils from various sources and given to the class; stating problems.
3. Spelling. Words used in the written work.
4. Geography. In connection with surfacing; tracing the principal highways in California from map secured at the Ferry and ascertaining the type of surfacing used.
5. History of Playground. Very general; bibliography furnished by Mr. Hetherington, State Director of Physical Education.
6. Hygiene. Health value of playground; ascertained how nearly the rooms met the requirements of a model schoolroom as regards light surface and blackboards, according to Rapeer.
7. Penmanship. No remarks necessary.
8. Map drawing to a scale.
9. Line work.
10. Lettering. In the arrangement of the apparatus the playground directors gave 'pointers,' then the children cut from pasteboard to the scale of their maps, patterns containing the necessary square feet of each apparatus and placed them as they thought best. There was a variety, no two were exactly alike.

Ramifications into Informational Arithmetic

1. Bonds. (a) School (why not raise large amounts by taxes); (b) municipal; (c) commercial, U. S. bonds, and Liberty bonds.

2. Taxes. (a) school taxes; (b) personal; (c) real estate; (d) license—why necessary; (e) income; (f) inheritance; (g) poll—who abolished? (discussion pro and con).
3. Banking. (a) commercial accounts; (b) savings; (c) checks—how to write.
4. What is meant by foreign exchange.
5. Purchase of public property: Process; condemnation proceedings.

Letters were written to the principal comparing the textbook problem method and playground arithmetic. Each child stated which he preferred *and why*. Out of 44 pupils, all but two chose the playground work. They mastered the term's work and enjoyed it.

Types of Examples Derived from the Work

1. The school ground is 205' long on the west, 196' $\frac{1}{2}$ " on the north, 172'6" on the south, 205' on the east with a jog 22' long for sand piles on the girls' side; find perimeter of yard. How many yards around the yard? How many rods?
2. Find perimeter of acquired property?
3. Find square feet in school yard? In property purchased?
4. How many feet of lumber will be required to build a solid fence 205' long and six feet high using 12" boards. Find cost at \$54.00 per thousand feet?
5. How many cubic feet of crushed rock will be required to build a solid fence 205' long and six feet high using 12" boards. Find cost at \$54.00 per thousand feet.
6. One bbl. of oil, containing 42 gal. will spray 100 sq. feet. How many gals. will be needed for our school yard, which contains 37,617 sq. feet? Find cost at \$5.00 per gal.
7. Apparatus had advanced 20% since the issue of Spaulding's catalog. How can you get the right price?

179. "An Expenditure Card"

(Reported by L. C. Call, Emporia, Kansas)

A thrift card was hung on our wall upon which each child had a space to record all money spent for penmanship paper, scratch paper, drawing paper, pencils and erasers. These are the things that are bought too lavishly. At the end of six weeks, each child reported his total expenditure. A committee of ten found the room total to be \$30.08. Each child found the average per pupil, and if his expenditure was more than the average he made a special effort to buy with more care and use with economy. We know now where we can get the very best tablet for seven cents, and the most satisfactory pencil for five cents.

Our pencils are in better shape and we work with much less 'lost motion.'

180. "Care of the Feet"

(Reported by Zelpha E. Shumate, Rockford, Illinois)

The children were given a good idea of the general structure of the foot, by comparing it with the hand, etc. For this much good reading material may be had by writing any of the large shoe companies. Ours, through a local dealer, came from the Brown Shoe Company, St. Louis. From the Y. W. C. A., 600 Lexington, New York City, we received "Foot Charts," one on "Good and Bad Arches" and one testing the straight line of the foot from heel to toe. Each child made two impressions of each foot, according to directions on the chart, testing each arch and line and comparing them with charts. Many defects were discovered, most of which could be cured by corrective exercises, which were also obtained from the Y. W. C. A. This study led with interest to the proper care of the feet, which in turn led to a study of shoes. Comparisons of good and bad shoes were made through charts, pictures, and shoes.

181. "Philanthropic Efforts for Tuberculous Children"

(Reported by Ada G. Bache, Emmet Field School,
Louisville, Kentucky)

Two hundred fifty pupils in an elementary school (grades one through six) and the Parent-Teacher Association of a well-to-do residential suburb joined efforts to give sunshine to sixty-two children in a tuberculosis sanatorium. The Parent-Teacher Association raised several hundred dollars from business men. The automobile committee saw to all transportation. The philanthropy committee made reports to the association. The children had a class play and home "penny shows" to add to fund. A group of four adopted one child to whom it sent hand-painted cards, letters, clothing and presents on holidays and class booklets written about holidays. Sixth-grade children were bookkeepers and correspondents for the project, buying, wholesale and retail, cloth for gowns, bloomers, stockings, underwear and having shoes mended. The fifth- and sixth-grade girls did the sewing as well as the mending of old clothes, while the boys made and mended toys. Three groups

of twenty-five went, one with the Thanksgiving Party, a second with the Christmas Party, and a third with the Easter Hunt. The best descriptions of trips, etc., were read in the auditorium. The work resulted in the appointment of a business manager to care for clothing, etc., for the children at the sanatorium. This year the girls have asked to furnish materials and to make clothing for the babies in the Home of the Innocents.

182. "A Thrift Society"

(Reported by Jeannette Owens, Gavin H. Cochran School,
Louisville, Kentucky)

A program committee was elected. This committee, in turn, elected a chairman. The committee met on Monday after school in the schoolroom to arrange the week's program, which was given on each Friday at 10:15 a. m. The meetings were conducted in a corner of the room without any suggestions or supervision—the teacher took care to be otherwise employed. No one in the class could refuse to do what the committee requested. One aim was to get everyone to do something. The programs were live and effective, as is proved by the result. Original plays were written and produced; living pictures impressed the lesson desired; short talks were made; short papers were read on topics that aroused the interest of the hearers, and increased stamp buying; personal experiences on "How I Make My Money" were unique and inspiring. Every member of the class bought stamps. In sixteen weeks the class of forty bought \$1,067.69 worth of War Stamps and Thrift Stamps.

183. "Savings Deposits Earned by an Easter Party and Sale"

(Reported by Myrtle Sproule, Victor H. Engelhard School,
Louisville, Kentucky)

The registration of the school (something over six hundred) of whom one hundred and fifty were dependent children from orphan homes and fifty additional children from extremely poor homes, necessitated a plan to help thirty-three and a third percent of the school who could not otherwise hope to become depositors. The means adopted was an "Easter Party and Sale," the proceeds to

be divided equally among six hundred members of the school for their School Savings Bank.

The manual and drawing periods of the month preceding the sale were devoted to a study of basket designs and the making of cardboard baskets by fifth- and sixth-grade children. Sewing periods were used in these grades to cover baskets with crepe paper. Artistic color combinations were studied. The manual periods of third and fourth grades were used for similar work simpler in construction, and those of the first and second grades were devoted to cutting tissue paper grass and filling baskets with candy bought from manufacturer and novelties bought at wholesale. In arithmetic periods the work included measuring in construction of baskets, and in cutting paper for covering, marking novelties to sell at ten percent profit; figuring actual cost of basket and determining how many and what sized eggs could be placed so as to allow a gain of ten percent on each basket sold, totalling receipts, estimating profit, distributing the funds among six hundred children. A little program offered by different classes consisting of dramatizations, music, and folk dances, a baby show where dolls were babies and baskets were offered as prizes, added to the interest and fun, also to the profits of the occasion. Every child in school contributed some form of work, had a good time, added six cents to its school bank account, bringing up our school to one hundred percent depositors.

184. "The Play Store and Bank"

(Reported from the Marr Training School, Detroit, Michigan)

Requests having been made to have a bank, the topic was placed before the class for discussion, resulting in a decision that we must obtain money first and that this could be done by means of a play store.

Organization of the store was taken over by the children; committees were appointed to see that money was made, grocery packages brought in, price lists obtained, and other minor details attended to. The construction of a counter and shelves was taken by the boys to Manual Training and very carefully done, while the making of necessary signs as a means of advertisement was taken up in the Art work.

The actual class activity was of a two-fold nature: the store activity (use of money and store bill forms) and the class work on the problem most pertinent to the store work at that time (the children passing to and from the class and the store as their turn as the customer came). Simple accounts were kept by each child while the manager and store officials kept books (open to class inspection) and took a monthly inventory, at which time new officers were chosen.

This project, covering a term, carried out the entire course of study, using the textbook as a reference only to help when new problems presented themselves. Many of these came from the children (as a discount sale). This suggestion came from a newspaper advertisement and at once we gave a week to such a sale, referring back to our text for a study of discount. Others, such as giving the clerks a commission, determining buying and selling prices on the basis of gain and loss, were presented by the teacher. When such a problem arose, the store work was suspended and the problem taken back to the class as a whole.

As the store progressed, the children felt they were ready to organize a bank in which to place their extra funds. Visits were made to various banks, books and pamphlets read, and checks, entry blanks, deposit slips, etc., were obtained. Accounts were opened, checks endorsed, receipts made, and all forms of simple banking carried on.

185. "Making Blocks and a House for the Kindergarten"

(Reported from Kansas City)

The sixth-grade boys made building blocks, after the suggestion furnished by the kindergarten teacher, to supplement the sorts purchased. Grooved corner pieces, and grooved window and door frames were made, and light boards fitted into the grooves, so that, when built, it made a little house about three feet high to the roof, and large enough for three or four kindergarten children to get into. The lumber was very light, and the largest children could handle it with little or no help from the teacher. Grooved pieces were made for the roof, also. The project proved equally valuable

for the boys and for the kindergarten. The boys had to make their own drawings, plan all proportions, purchase material, etc., originating the whole detail of the building.

186. "Making a Stenciled Tray Cloth"

(Reported by Helen S. Patterson, Rockford, Illinois)

The class, after studying various ways in which design is applied to textiles, decided to stencil linen. They planned a linen tray cloth to fit a tray or top of a tea wagon. The stencils were made from cut leaf forms in two values and later cut from stencil board. The stencils were small and formed a pattern by repeating several times near ends of cloth. Dark tones in oil paint were used. Later the ends were connected across the cloth by 'running' stitches in embroidery silks, using two colors. A margin was left on each side and linen was turned back to edge of design and sewed by hand.

187. "A Book on Book Making"

(Reported by Helen Stockton, Trenton, New Jersey)

The children of Westfield, N. J., had been studying lettering in their art classes and had become intensely interested in the different types of letters and their derivations. Many of them had begun collecting examples of types from magazines and newspapers. These they kept in boxes or envelopes, according to individual taste. All felt the need of a container of some sort, so it was decided that a scrap book be made. A lesson was spent in a discussion of types of scrap books and content of such a book. During the discussion the idea of writing a book which would contain the necessary information upon lettering developed. The children were most enthusiastic and decided to write, bind, and own a book containing this desired information. They suggested numerous references and places where material relative to the subject might be obtained. The teacher supplemented this list, and work on the project began in earnest. Next followed a discussion of reference work done and selection and rejection of topics for the book. After much discussion, five topics were decided upon. These five topics were then divided into sub-topics, and each child chose one or more of them

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upon which to write. The compositions were then submitted for class criticism, and the best selected for the book. (Care was taken that something was selected from each contributor). The copy ready, the next step was a visit to the printers. The class journeyed to a near-by print shop and there witnessed a demonstration of modern printing. They were shown different styles of type and also various samples of paper. A discussion of papers and the manufacture of paper followed. The class thereupon decided to make paper. They organized themselves into groups, and each group was responsible for one process in the manufacture of paper. The paper was duly made and dyed, and each child given a sample. The proof was sent up from the printers, corrected, and returned to be printed. The question of a design for the cover of the book next claimed attention. Each child designed a cover. These designs were criticized by the class, and eight were selected to be cut of linoleum. The children worked together on the cutting, then each chose his color scheme and block-printed his cover. The books were then assembled and bound. Illuminated letters were placed at the beginning of each chapter and photographs of the class making paper and of the moulds and deckles made by the boys, and used in making the paper, were mounted in the books. A list containing the names of the contributors, which comprised the entire class, was then added.

188. "A Ribbon Sale for Drill in Fractions"

(Reported by Mary E. Icke, State Normal School,
Emporia, Kansas)

The children of the 6 B class knew, from the results of a fractions test, their weakness in multiplication of mixed numbers. They were shown the process again.

$$\begin{array}{r}
 84\frac{1}{2} \\
 .08\frac{1}{2} \\
 \hline
 11\frac{1}{2} \\
 4 \\
 \hline
 272 \\
 \hline
 2.87\frac{1}{2}
 \end{array}$$

They planned a play ribbon sale to provide for this need. The ribbon sale was chosen because yards provide halves, fourths, eighths, and thirds, with which to work, whereas the measures in the grocery store (also suggested) only include the fractional parts halves, fourths, eighths. The children secured paper from ribbon bolts, pasted strips of colored paper together and were given some material. They made a line on the counter of the school grocery and marked off inches and the half, fourths, eighths and thirds of yards. They fixed the prices of ribbon so that all had fractional parts— $\$1.87\frac{1}{2}$, $\$.66\frac{2}{3}$, $\$.06\frac{3}{4}$. The children selected two clerks by vote. The teacher offered them toy money ($\$50.00$ each) and asked that every penny be accounted for in the final reckoning. The children decided that they would need four days of this drill to become rapid and accurate in the multiplication of mixed numbers.

The following is a bill prepared by a child:

1 $\frac{1}{2}$ yd. cream ribbon @ 18 $\frac{1}{2}$ c
 $\frac{1}{2}$ yd. wide ribbon @ $\$1.87\frac{1}{2}$
 4 $\frac{1}{2}$ yd. pink plaid @ 9 $\frac{1}{2}$ c

The children revised their plan the second day, by electing five clerks instead of two. They decided to change the whole group of storekeepers the next day, so that all could be clerks in their turn.

The bills were noticeably longer (usually five or six items), and nearly all completed them at their seats before going to the store. They compared their work with the clerk's at every step. The teacher was called in when disagreement appeared.

It was found unnecessary to continue drill the fourth day. The time was spent checking accounts and returning money left over.

189. "Fixing the Bowling Alley"

(Reported by W. G. Cisne)

A class of sixth-grade boys decided they needed a return alley in their bowling game in their play room. They presented the matter to their teacher, who immediately saw opportunities for a practical lesson and encouraged them. As a group they made the required measurements, decided upon the width and thickness of the boards needed, made allowance for standards, and then with the

price of lumber from the local yard they counted the total cost, including ten cents extra for nails. The average cost was then computed and this amount collected from each member. The money was given to a committee, who went to the lumber yard and purchased the supplies. The required tools were secured from the manual training shop and the alley soon constructed. The entire class had come in contact with actual business procedure in finding cost of materials, estimating lumber, finding average cost, and in making change through collection. All the situations encountered were not only of great interest, but also real, in the sense that they were connected up with actual business.

190. "Making a Frieze Illustrating the Story of Miles Standish"
(Reported by Emma C. Juth, Berkeley, California)

From the interest which had grown up while making the booklets came the suggestion that they make a frieze for their room showing the story of Miles Standish. The class selected the quotations which seemed best to show the progress of the story. The fact that they had previously selected quotations for the booklets for the same purpose helped in this work. The frieze was a composite of the individual efforts put forth on the booklets. In this co-operative project they proceeded as follows; they described scenes which would best illustrate the quotations and listed the details which would be needed to make each picture in the frieze. In some cases these details were ships, trees, and costume figures; in others, the detail of the Colonial interiors. In order to get the information regarding articles which would appear in a Colonial home they referred to their histories and read extensively. They examined many pictures, also. They then practiced drawing the various articles or figures needed. This involved drill in the drawing of trees, figure drawing, etc.

The work of all children was saved, and when the principal things needed in a picture were ready, they were assembled and arranged by the class. The efforts of various children were selected on the following basis: fitness as to proportion, perspective, and merit.

When the frieze was finished, every child was represented in the work. The project extended throughout the semester and covered work in silent reading, appreciation in English and composition, proportion, and perspective in art. It was of such interest to sixth-grade children that the teacher's problem was to try to include all of the suggestions made by various individuals rather than to push the work. A lower class asked to be allowed to work on the project, although they were not, at the time, studying "Miles Standish."

191. "Helping the Humane Society"

(Reported by Jennie C. Bakewell and Cordelia Sims, Louisville Normal School, Louisville, Kentucky)

To help the work of the Humane Societies of America was a project undertaken by a class of children who resented the fact that the birds and squirrels of the neighborhood were being killed. Each child wrote to the national headquarters at Albany, N. Y., stating his reasons for writing and asking for literature, which came in abundance. The class divided itself into groups. One group undertook to find out about the organization in the state and city; another decided to collect noted pictures of animals by Landseer and Rosa Bonheur and also to report on the life and work of these artists. Another group wished to read and give oral reports on "The Bell of Atri" and "The Rime of the Ancient Mariner." The director of the humane work in Louisville was invited by one group to give an illustrated lecture. The school was invited to be present. The chairman of one group explained what had been done by the various groups and then introduced the speaker. The lecture was reported by one of the class for a daily paper. Every child in the class and many others in the school took the pledge required by the Humane Society. Interest throughout the neighborhood was aroused.

192. "A Sixth-Grade Orchestra"

(Reported by Frances Viola Newton, Rockford, Illinois)

A class in the study of violin is organized each year under the direction of Mrs. Eloise Spoor Morgan, violin teacher. Both class

and private lessons are given during school hours. As soon as a pupil is sufficiently advanced, he is admitted to the school orchestra. Last year the orchestra consisted of sixteen members; this year it is even more promising. Regular weekly rehearsals are held. A plan is being worked out whereby the school will purchase some of the instruments. The orchestra and the children study them, thus making it possible to have a better balanced orchestra than could be obtained otherwise. The orchestra is often called upon to play at entertainments given outside the school and in this way is of service to the community as well.

193. "Original Composition of Poetry and Music"

(Reported by Zelpha E. Shumate, Rockford, Illinois)

Choose the best two or three original poems written by the children in the fifth or sixth grades and have the boys and girls in the seventh or eighth grades compose original melodies for them. Select the best two or three; teach them, perhaps by rote, to the children in the fifth or sixth grades and let those in the higher grades work the melodies out by note. Sing the songs and enjoy them.

CHAPTER IV

NEW MATERIALS FOR THE JUNIOR HIGH SCHOOLS¹

INTRODUCTION

(H. G. Lull, State Normal School, Emporia, Kansas)

On the whole the following brief records of projects deserve high commendation. They indicate the beginnings of a new and vitalized course of study and improved methods of procedure in junior-high-school instruction.

The projects submitted from the junior-high-school grades are essentially like those submitted from the grades below. This is, no doubt, due in part to the fact that many of the projects came from seventh, eighth, and ninth grades which are not yet included in junior-high-school organization, and also to the fact that much of junior-high-school instruction still follows the traditional curriculum and methods of procedure of the seventh, eighth, and ninth grades not organized as junior high schools. This lack of change in harmony with junior-high-school aims is shown by the records of many of the projects, the assigned purpose of which is to provide motivation for the various subjects of the school. While such a project attitude is entirely appropriate for the primary grades, the situation should be, for the most part, exactly reversed in the junior high school. Here the projects should be the important matters and the several school subjects should occupy a position of secondary importance, except in so far as they are needed as tools in working out projects. A conservative statement of the matter would be something as follows: the outcomes of the project method of learning in the primary grades, and to a lesser degree in the

¹ On account of limitations of space nearly one half of the materials transmitted by Professor Lull have been omitted in the final editing. I have sought, however, to retain examples sufficiently varied in character to afford the reader an adequate idea of the scope and quality of the projects now in use in the junior high school. The projects omitted were, for the most part, similar to others that were retained or were descriptive of activities that are already in operation in many schools.—*Editor*.

intermediate grades, should require the development of by-products in the technics of reading, writing, spelling, numbers, etc. The projects of the junior high school, on the other hand, should require the use of the technics of reading, writing, language, number combinations, and the like, in working them out. The projects of the junior high school should, therefore, be more valuable in themselves and only indirectly valuable as means of securing by-products in the school skills. It follows, also, that the tendency for developing projects outside of school subjects should increase as the pupils pass from the lower grades to the junior-high-school grades. The records of many of the following projects do show a marked tendency to break over the boundary lines of the separate subjects and to find their setting in significant community life and extra-curricular interests.

Many of the records submitted do not fully meet the requirements of the project method of learning, but do indicate good subject matter for junior-high-school instruction. Some records exemplify the project method of learning quite well, but do not show a good selection of subject matter. A few of the records, however, are good in both subject matter and method.

The examples of projects for the junior high school show in general a need for two lines of improvement—(1) a better selection of subject matter, more in keeping with the outstanding aims of junior-high-school instruction, and (2) a better understanding of the procedures required by the project method of learning.

There seems to be a unanimity of agreement among those who have studied the question carefully regarding the great objectives or aims of the junior high school. These objectives may be stated briefly as follows: (1) the need for moral guidance and training, including personal morality and social morality, or citizenship; (2) physical development and health guidance and training, including personal hygiene and social sanitation; (3) vocational guidance and training; and (4) avocational and cultural guidance and training.

The curriculum should be made up in the first place of those common elements of knowledge and training which should become the social inheritance of all pupils. The first two objectives, above

stated, provide the organizing principles of this group. Those elements of guidance and training should constitute the constants of the junior high school. In the second place, the curriculum should be composed of those differentiated elements of knowledge and training for which the last two objectives, above indicated, provide the organizing principles. These elements should constitute the electives of the junior high school.

If these great objectives are to be reached, teachers must venture out boldly away from much of the traditional organization of subject matter. We are not confronted with the old problem of the correlation of the subjects as they stand, but rather with the problem of throwing the curriculum out into the life of society, and then utilizing such parts of the present curriculum as prove to be good instruments in working out the significant projects and problems of junior-high-school pupils. Of course, such a movement would not annihilate all of the present curriculum, but would retain much that has already been vitalized in the effort to reach the real objectives of the school.

Already the fields of subject matter included under the headings of civics, general science, geography, and hygiene, respectively, overlap in large areas. History is, more and more, coming to be historical civics, and it furnishes a perspective for present civic projects. Civics includes the elements of economics, government, and sociology. Teachers of the various subjects are being held responsible for English composition as an effective tool in their own work.

The project method of learning cannot be used effectively to any great extent in connection with the traditional organization of subject matter. This is true for the simple reason that the pupils do not find themselves vitally related to the traditional organization of the separate subjects, and hence they are unable to initiate worth-while purposes and plans. But pupil-purposing and pupil-planning are the unique requirements of the project method of learning. The teacher who persists in using the project method of learning will, and must, go in search of a course of study which is more significant in the lives of the boys and girls. We need a thorough-going series of social surveys as the first step in organ-

izing the curriculum of the junior high school. In this respect vocationalists have opened the door for us.

The records of projects submitted may be classified in a general way under the following headings: A, school activities and interests; B, community civic interests; C, general civic and patriotic interests; D, avocational and cultural interests; E, vocational interests; F, business interests; and G, home interests. Many of the projects have been placed under one or another of these classifications regardless of the fact that they were used by the teachers to motivate various school subjects. It is easy to see, however, that the pupils were interested primarily in the projects themselves and not in their use in motivating school subjects. These projects would have been of more value to the pupils if the teachers had considered them as having real values in themselves rather than as a means of learning portions of the separate subjects. In other words, the projects would have been more successful if the teachers had assigned the same values to them as the pupils did and had helped them to develop those values. Moreover, the development of the separate subjects would not have suffered, for they would have been brought into play even more than they were in the attempt to make the projects motivate them.

A. PROJECTS CONCERNED WITH SCHOOL ACTIVITIES AND INTERESTS

194. "A Civics Club"

(Reported by Ida von Donhoff, Monsarrat School,
Louisville, Kentucky)

Each class formed itself into a civics club, electing its own officers and committees. Two delegates were chosen to represent each class, and these delegates constituted the Civics Conference, or governing body. At the preliminary meeting of the conference they chose their offices and chairmen of committees. Among others, a welfare committee and complaint committee were formed. Suggestions for improvements were submitted to the chairman of the welfare committee; complaints were submitted to the chairman of the complaint committee. The president of the conference selected members of the conference for yard and hall duty. At the end of

each week a different group was selected for this work. Reports of their work were submitted to the conference at each meeting. The delegates of the various classes reported to the home-class the matters of importance that came before the conference. Those who broke the laws adopted by the conference and ratified by the various classes were warned by the officers on duty, and if a continued lack of co-operation was evidenced the offender was brought before the conference and given a trial by jury. We have especially emphasized the importance of the rights of others, the care of school property, the safety of all while on the play-grounds, and cleanliness and order in halls, rooms, and yard.

A spirit of mutual helpfulness, pride in the school, and efficiency in self-government were evidenced by the enthusiasm with which the children have taken up affairs where we dropped them at the end of last term. Through our Civics Conference our school is becoming unified in thought and action.

195. "Installing Electric Bells"*

(Reported by Louise S. Steinway, Western State Normal School, Kalamazoo, Michigan)

A science class had been studying electricity and its practical applications. The pupils noted that the people in the recitation rooms had no clocks, and classes were not dismissed promptly, so they suggested the installing of an electric bell system as a remedy for the difficulty. The pupils made out a requisition of the materials that would be needed, estimated the cost, and planned their work. The data were then submitted to the principal, who accepted the report of the committee and ordered the necessary material. After the bells were installed, the pupils decided they should be able to locate breaks in the circuit so that the system could be kept in working order. The teacher of the class broke the circuit at different times, and members of the class proceeded to locate the "trouble" and repair damages. Then someone suggested a switch so the current might be shut off completely, or only for the room not in use. The reason given for installing a switch was that by so doing the bat-

* Cf. Project 252.

teries would last longer. The push button was conveniently located near the teacher's desk. Later when a pupil assumed the responsibility for ringing the bells, the button was moved nearer to his seat.

196. "A School Magazine"*

(Reported by Floy Campbell, Kansas City, Missouri)

The class appointed an editor-in-chief and an art editor each month, and no pupil could hold the office twice in a term. The editor-in-chief appointed the rest of his staff. The entire work was done by hand. Only one copy was made for each month; but the last number, composed of the best work from all of the copies, was printed and sold. The advertisements for the last copy and the sale of it paid fully for all expense connected with it. There was a cover-design for every number of the magazine, at least one illustrated story, and several cartoons, news items about class members, comic incidents of the classroom, and all the usual school news. Every page was carefully margined, carefully planned, after study of the best models available. The writing was the best the class could produce, the drawings in ink, and the cover a poster in color. All the book designing of the year was done in connection with this magazine, and its publication was the event of each month.

197. "Printing a School Paper"*

(Reported by Josephine Maloney)

The printing of the first issue was done by a single boy by hand on a sheet of composition paper, and when finished was a most interesting piece of work. The head lines advertised the basketball game which was to be played the following Friday night. Then the most conspicuous place in the paper was given to a detailed

* Accounts of somewhat similar school magazines were reported by Alice E. Russell, State Normal College, Dillon, Montana; Vensan E. Gorman, Thomson School, Portland, Oregon; and Augusta M. Tappan, State Normal Training School, Westfield, Massachusetts.—*Editor*.

* A somewhat similar account of a paper written and published by an eighth-grade class is reported by Sterling A. Leonard, the Wisconsin High School, Madison, Wisconsin.

account of the game. These, with reproductions of other interesting activities of the school, an editorial, news items, jokes, etc., made up the paper. When finished, it was put on the bulletin board and the enthusiasm over it was as great as the enthusiasm over the most successful basket-ball game. The editor was so encouraged that he decided to continue his work. Realizing his responsibility, however, he concluded he must have help with the next issue. So he asked two of his friends to be his assistants. The following three numbers were printed by hand, but there was growth and improvement in each one. After the boys had printed the fourth copy, they thought it was so well received that they ought to have a "real paper." So they investigated and found that it would be possible to have the paper printed in the shop. The first copy consisted of only one page, but it continued to grow until it contained six pages. The paper was published once a week and closed the year with a Commencement Annual of sixteen pages. There were numerous by-products of this project. We covered all our work in composition, in the writing of stories, poems, descriptions, editorials, personals, etc. Careful punctuation, spelling, and sentence-structure were necessary. So we had to use our grammars. Arithmetic was also very essential, for careful bookkeeping was needed. Subscriptions had to be collected, bills sent out, contracts for advertising were solicited and followed up. Then, too, our art lessons were more interesting, for posters had to be made to advertise the paper, and cartoons drawn for it. It also brought us nearer the home, for parents were able by reading the paper to come more closely in touch with the activities of the school and were interested in seeing their own children's work in print. The greatest gain of all, however, was the fact that it gave the boys and girls something worth while to write about, made them enjoy composition, and stimulated them to do their best.

198. "A Monthly Paper"

(Reported by Agnes Snyder, Newark, Delaware)

The children read and discussed newspapers in class, learned what are the essential parts of a newspaper, and decided to run a monthly paper themselves. A committee was appointed to visit the printing office of the village newspaper and inquire into the

possibility of having their little paper printed there. The owner agreed to do this if the children could turn in such copy as could go to press and needed no supervision or correction from the foreman.

The class discussed the general appearance of the sheet, and agreed upon the size and number of pages of the paper, the size and spacing of print for titles, for columns, the width of margins, etc. Much calculation and measurement were involved in this.

The class also discussed the contents and finally selected the following: editorial column, school-news by classes, athletics, jokes, short stories and advertisements. Many newspapers were examined before this decision was reached.

At a business meeting they selected and voted for editor-in-chief and assistant editors, a staff of reporters, members of business committee. A vote was also taken as to what to charge for a single copy and what to charge a yearly subscriber.

During supervised study periods, the editorial staff composed editorials, the reporters worked up their news-stories, jokes were originated or recalled and written down, and short stories were composed and written.

In the discussion periods each committee presented to the entire class the work accomplished in the study period. The class rejected and accepted as it saw fit.

In the instruction period the children were taught those specific things that would aid them in producing the effects they were desirous of making. These instructions included the selection of a good topic, how to organize it into paragraphs, how to make each paragraph strong and effective by arrangement, sentence structure, diction and the like; how to write original stories or how to write good reproductions; standards for selection of good jokes; how to write jokes in the most effective way and the like.

199. "A Weekly Paper"

(Reported by Alice E. Russell, State Normal College,
Dillon, Montana)

The pupils look upon this work with great interest. The class chooses those who are best fitted for the different departments and

for the position of business manager. The many mechanical details are so well taken care of that very little supervision is needed by the teacher. New editors are chosen for the different departments each month. These editors in turn choose certain pupils to contribute articles. In this way each one in the class contributes something to each issue. Usually no editor is allowed to choose the same person to contribute to his department twice; thus practice is given to each one in the different types of work. The work of criticism rests chiefly upon the editors, but those in the lower classes sometimes hand in criticisms. The teacher finds in this paper all sorts of suggestions as to topics that have to be reviewed more carefully and type errors that must be eradicated. A sample index of contents will show the nature of the work.

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Number Four, Feb. 19, 1920.

Editorials

The New Band in Dillon.....	L. S.
Spelling Contest	J. W.
The New Klein Block.....	M. S.

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Two Deer	D. P.
An Unexpected Discovery.....	M. H.
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Society Notes

Shaw Family Left for Butte.....	G. P.
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Athletics

First Team Leaving for Butte.....	C. P.
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The Coming Game with Sheridan.....	B. G.
The Game with the Juniors.....	E. M.

Jokes

A New Name.....	L. B.
A Strange Being.....	L. B.

200. "An Assembly Program on the History of the School"

(Reported by M. L. Johnston, George W. Morris School,
Louisville, Kentucky)

The topic, "Morris School," was suggested to the class as one of general interest. A discussion was held and it was decided to find out the history of the building from its inception to the present day, the change in the character of the school population, the differences between the school activities of early days and of present days. Committees were elected and each group was to be responsible for a certain part. The only school records available were the registration slips of 1920 from which one group gathered information concerning the present school population, and from which the children worked out the percentages of foreign and of native-born children. A second group wrote letters to ex-principals, teachers, and former pupils of the school and asked for information concerning the building and the use to which it had been put during the Civil War. Another group visited a pupil of the first class which attended Morris School, and from her obtained much interesting data. After the papers were written, the class selected the papers which could be given in the usual thirty-minute assembly period. The work of collecting and preparing the data for the program was accomplished in two weeks.

201. "Christmas Celebrations"

(Reported by Alma R. Gold, State Normal Training School,
Westfield, Massachusetts)

The class organized a club at the beginning of the year and chose for their December work a study of Christmas celebrations in various countries. Each pupil, having made his choice of the country to be investigated, made search for material, books, pictures, etc., at his home, at the town library, and elsewhere, and then gave an illustrated talk to the club. The project was of special value in this class, composed largely of foreign children, since it gave opportunities for presenting first-hand knowledge, often supplemented by actual reminders of the celebration—costumes, sweetmeats, etc. The project was enlarged by the class selection of the most inter-

esting speakers to represent the room in a Christmas program in the assembly hall, where, on the day before vacation, these pupils, dressed in native costumes and provided with other illustrative material, gave vivid accounts of Christmas in those countries where they or their parents had lived.

202. "Class Day Exercises"

(Reported by Carrie T. Booker, Atlanta, Georgia)

The class was organized; officers were elected; college commencements were studied. A banquet, graduation with diplomas, and class exercises, with a bonfire, were decided upon. The class was divided into groups—one to finance, another to plan the banquet, another to arrange the literary part, and still another to take charge of the bonfire. After discussion, chairmen for the groups, class historian, poet, prophet, trophy orator, executor of the will, composer of class song, chaplain, pall bearers, and torch bearers were elected. The music was supervised by the teacher of that subject. A printing concern was visited by the teacher and finance committee to get samples and quotations on diplomas. The principal was consulted in regard to plans for raising the money; the Parent-Teacher's Association was consulted for the preparing of the menu, and a florist was visited regarding decoration. Invitations, and place cards for the sixth grade, and the school officials were made by the class. Everything was done by the class groups, supervised by the seventh-grade teacher, except the actual preparation of the food and the service at the banquet. The domestic science girls of the Normal School served. Accurate accounts were kept of all money spent; money was deposited in the bank by the committees; the bills were paid promptly after the class had verified each. A fund of two dollars and thirty cents was left in the treasury and willed to the next seventh grade.

203. "A Pageant of Spring"

(Reported by Clara A. Dobbin, Baltimore, Maryland)

In preparing a suitable spring entertainment for our Patron's Association, the following steps were developed in our seventh and eighth grades:

Step I. Class discussion of all types of entertainments that might prove satisfactory. All agreed finally upon a pageant having a "Spring Motif."

Step II. Children and teacher brought in for examination and criticism many plays, pageants, and books dealing with festivals and festival making. Among them were "A Flower Wedding." "Flower Wedding" was chosen for their play.

Step III. Discussion of plots based upon stories and plays read. A plot was adopted. A little girl is overcome with sleep in a garden, dreams she overhears the gossip among the wall flowers concerning a wedding they had just witnessed.

Step IV. Class discussion of flowers and shrubs that could be used as characters. This involved a trip to the woods and the identification of many common wild flowers. The following were selected:

Time, Four O'Clock; *Place*, Steeple Bush Church; *Bells*, Blue Bells; *Minister*, Jack-in-the-Pulpit; *License Clerk*, Solomon's Seal.

The Wedding: *Bride*, gowned in Lily White; *Groom*, Sweet William; *Train Bearer*, Baby Blue Eyes; *Matron of Honor*, Orchid; *Bride's Maids*, Pinks; *Mother*, Lavender.

Guests: Miss Daisy, Miss Phlox, Miss Ragged Robins, Miss Marche Neil, Miss Rose La France, Miss Blue-Eyed Mary, Master Johnny Jump-up, Miss Violet, Miss Black-Eyed-Susan, and Master Bleeding Heart.

Refreshments: Partridge (Berry); Flavors, Mint and Sage; Butter and Eggs; Sweet Peas, Snow Balls, Cherry Wine; *Waitress*, Bouncing Bet.

Gifts: Lady Slippers, Pitcher (Plant), Butter Cups, Arrow Head, Flags.

Step V. Class divided into committees, each responsible for the following items:

a. *Staging*—Worked out in manual training department; involved preparing drawings to scale to report to class before actual construction could begin. Many changes were worked out in original plans after such discussions.

b. *Composing the dialogue* for the various characters. Many lessons in English involved. Competitive prize offered for best verses submitted for use in play. Several good ones were accepted.

c. *Costuming the characters*. Involved study of the flowers. Making drawings to show design and coloring to class before actual

work on material was undertaken. Many of the parents came to the school daily to aid the girls in the actual work of seaming, stitching, and the like.

d. Songs to be used in the play. Many were presented, class made selections. These were taught under direction of instructor of music.

e. Program-Making. Folders bearing original or copied designs were submitted for class criticism. This led to adoption of some, rejection of others. Every child in the school wrote two (no printing presses were available), and these were tied in the folder for distribution to the patrons.

f. Booklet made by those children having cameras. These children took pictures of the stage, of the characters and of some striking scenes, arranged them in an attractive manner, and presented the booklet to the school.

204. "Earning and Spending Money for Graduating Expenses"
(Reported by Cora Campbell, Kansas City, Missouri)

It has always been the custom for the children of the seventh grade in the Bancroft School to leave a graduating present with the school and to pay for their own programs, ribbons, class party, etc. Last year they felt that they should not ask their parents to bear these expenses, so they decided to earn the money themselves. There were two rooms of graduates. One room appointed leaders who visited all the other rooms in the school, asked for reports as to stores of old papers they might collect for sale, when such papers could be called for, and what boys in the room had small wagons they would rent for the use of collectors. They wrote to the firm that purchases paper, and arranged for them to call at the school at 2 o'clock on a stated afternoon. The morning of that day they had all wagons engaged and ready, the district mapped out, boys appointed to make all calls, girls to take the papers in and sort them and tie into bundles, boys to weigh and stack, an accountant to keep tally, etc. At two, all papers were ready for the purchaser. The actual work took about three fourths of one day. The proceeds were about \$50.00.

The other room decided to give a play. A little girl who was a natural leader with a strong sense of the dramatic was appointed stage manager. The play was chosen from the volume of dramas written by Louise Alcott as a girl. The manager chose her cast, drilled them, arranged for the school orchestra to give the opening music and numbers between acts. The janitor and the manual training boys put up a stage in the kindergarten room, draped green curtains for the background, dressing rooms and stage curtains. The manager, with her helpers, saw to the costumes, drilled the players, and, with the cooperation of the room, and entirely without teachers' assistance, gave the play. There were two performances, one in the evening, one in the afternoon, so that pupils and parents could both come. The proceeds were about \$80.00.

The pupils designed book cases, one for each of the two rooms in question, to fill spaces available for such use. They estimated the amount of lumber necessary to build the cases, selected and bought the hardware, and the glass for the doors. The boys visited the lumber yards and personally selected the lumber. The manual training boys of the two rooms built the cases, which are now in use in the rooms.

The class appointed a committee to see the printer, and get bids on the programs for the graduating exercises. They planned, or selected, the make-up of the programs, and saw to distributing them. Committees of children attended to purchasing the class ribbons, and arranging for the decoration of the stage. The girls made their own dresses, which the custom of the school decrees shall be only a middie and a white skirt, with a tie of school colors. The dresses were made in the sewing classes. Each girl purchased her own material for her dress.

All the money remaining after the necessary expenses were met, was used for a class party and dance one afternoon shortly before graduation. The kindergarten room was cleared, the floor waxed slightly, and the school orchestra engaged for the afternoon. The girls had been conducting private dancing lessons for the boys for several months, as a former party, about Easter, had indicated a need for such training, and the physical director was willing to supervise the lessons. A committee ordered refreshments and an-

other committee served them. The entire management was in the hands of the pupils. A treasurer's report, turned in at the last class meeting, showed in detail all receipts from every source and all expenditures, with a perfect balance.

205. "Choosing and Hanging a Picture for the Hall"

(Reported by Floy Campbell, Kansas City, Missouri)

The class surveyed the halls to decide what spot most needed the addition of a picture. After selecting the wall, pieces of cardboard of various sizes and shapes were tried in place, to see which gave the best proportion for the space selected. The color of the wall was matched in watercolors, and the pupils made color schemes which they thought would look well in a picture, against that wall, and in the light that obtained there. These color schemes, while merely daubs of color, or arrangements of colored paper without form, were large enough to be seen at some distance. The schemes were next tried against the wall, and the class voted for the most agreeable ones. Some four or five were selected and several shapes and sizes were chosen, also. A committee was appointed to visit the art stores, and look over all prints in stock, and bring back to school those that most nearly fulfilled the requirements of size, shape, and color. When the pictures were tentatively selected by the committee and were delivered, they tried them out by hanging them on the spots of the wall previously selected, and those which seemed unsuitable were sent back. The two or three pictures thought to be good were left hanging in place for a week apiece, the class meanwhile finding out all they could about the painter and the meaning of the picture. At the end of the period the final vote was taken, and the picture chosen was permanently framed and hung.

206. "Decorating the Reception Room"

(Reported by Louise S. Steinway, Western State Normal School, Kalamazoo, Michigan)

The pupils noticed that the reception room was not attractive. It was a north room and the walls were decorated in a light grayish

green. Most of the furniture was green and the whole effect was cold and cheerless. The children decided it needed warmer color and draperies to make it more hospitable. Colors were discussed, and after several samples of cretonne had been examined, the class decided upon one which had a variety of warm colors. The cretonne was used in draperies for the windows and doors, and in combination with a neutral color, in making pillow covers, table scarfs, etc. Then the class discussed the value of putting a border on the wall to relieve the monotony. They examined the cretonne again, and using suggestions gained from this source, each child made a stencil pattern for the border. The class chose the design which they considered the best, and a stencil was cut. Then the members of the class worked at spare moments painting the border.

207. "Earning Money to Buy Pictures for the Schoolroom"^a

(Reported by A. Alice Nolan, Rockford, Illinois)

After much discussion on ways of earning money, the class decided to form a corporation known as "The Blake School Company." A meeting was held and officers and board of directors elected. As "it pays to advertise," sample candies were sent to each room one week previous to the sale. Following this, a study was made of the overhead expenses of a corporation, including insurance (fire, liability, and life), taxes (real-estate, personal, and income). The first sale was held when sugar was eleven cents a pound and other materials corresponding in prices. The sale netted a profit of 213 percent. All the candy was made under supervision by firm-members in the domestic-science kitchen. Drill in multiplication and division of fractions and whole numbers resulted. The treasurer deposited in a local bank the money earned, and this led to a study of banking. At the time of our second sale, the necessary money was withdrawn by the treasurer. Owing to rapid advance in costs, only about 70 percent profit was made. Two pictures were purchased, and each pupil received par value for his stock before the class entered the high school.

^a A similar undertaking is reported by Mabel Miller, Kansas City, Kansas.
—*Editor.*

208. "Comparing the School Marks of Boys and Girls"

(Reported by Drusilla Keller, Kansas City, Kansas)

Because of questions put to the class as to whether the boys or the girls were doing the better work of the class, it was proposed by a member of the class that a comparison be made of all the work being done. Each member furnished his portion of the necessary data. The percents of I's, II's, III's, IV's, and V's for each pupil were found and these percents were graphed. The interpretation of the graphs was made, and it revealed that the girls were doing the better work. The data were also used for word problems made by members of the class and used for practice in equation solving.

209. "A 'Better-Speech' Crusade"

(Reported by Katharine Gladfelter, Louisville Normal School,
Louisville, Kentucky)

This crusade was composed and staged by seventh- and eighth-grade classes as part of a school program in connection with "Better Speech Week." It was motivated by an attempt to eradicate the most glaring class errors and to portray in a forceful way the ideal of good English. The children first discussed the handicap of incorrect English in business or social life. They then selected their most glaring errors and pledged themselves to eliminate them. To accomplish this and to convince their school-mates of the necessity for waging active warfare upon the use of incorrect English, they decided to write a play. After discussion of several ideas the framework of the King Arthur stories, suggested by the teacher, was chosen. The six class errors, "I Seen," "I Had Went," and so on, thus became the villains of Bad Speech who were opposed by "I Saw" and "I Had Gone," the Knights of King Arthur, or Good Speech. The actual composition of the play was done orally by the entire class of twenty-one children. They first outlined the story and divided it into acts. The first act showed the departure of the Knights of Good Speech on their quests in search of Bad Speech; the second, the contest; and the third, the sentence imposed upon Bad Speech. The next step was the creation of a cast of twenty-

one speaking parts and the selection, by vote, of the children to play those parts. The play was then acted out; words and motions were fitted to the story as previously conceived. Each child was left free to create his own role, subject to the group criticism. Necessary costumes and stage properties were made by the children. Shields and helmets were made by all under the direction of the art teacher, while swords were made by the boys in the workshop, and dresses by the girls in the sewing class.

210. "A Play for a Halloween Party"

(Reported by Sterling A. Leonard, The Wisconsin High School, Madison, Wisconsin)

The ninth grade wanted to provide entertainment for a Halloween party and several suggestions were considered. The teacher proposed dramatizing Hawthorne's *Feathertop*, and read it to the class. Here the suggestion was the teacher's, because the class could not have provided it.

Scenes were at once planned, and the work divided so that several pupils wrote each one. Much of the dialog (chiefly monolog) in the first was already in the story, and so for the street scene and the final, brief catastrophe. But most of the dialog of Justice Gookin's house had to be imagined, and several pupils' efforts were combined for this. The play when completed had in it something from each one in the class, contributed in writing or discussion, and each pupil had written at least one scene, in length from two or three pages to ten or twelve. Early in rehearsal a boy who had previously done poor work in English carried the hero's part by acclamation. But understudies practiced for each place, and in some cases contested it hotly, till the final rehearsal. No one told any actor a gesture, word, or inflection; but the query: "What sort of person was he?" or "How did he probably say or do that?" was frequent, and various suggestions were made and tried. The performance was thus wholly the pupils' cooperative attempt to interpret ideas they formed of characters, costume, and setting. Their gain was through trying to make the details fit the time and idea of the story and the enunciation distinct for an audience of

their friends; the spirit of the whole was genuine and fine. Every one had at least a line in the street scene, as well as work on property, stage, or costume committee.

This play was adapted from Chapter IX of *The Teaching of Literature and Reading* (forthcoming), by permission of The J. B. Lippincott Co.

211. "A Study of Stories"

(Reported by Florence Bamberger, Johns Hopkins University,
Baltimore, Maryland)

Step I. A study of interesting short stories. Teacher told or read several. The following assignments were made. "Bring to class those stories you like. Be ready to read or tell them to the class." The class enjoyed several periods in this way. Finally the pupils asked if they might tell stories to other classes. Arrangements were made for this to take place. Some of the children visited the primary classes and found they had no stories of interest for the young children. They returned and asked their teacher "What kind of stories do little primary children like?"

Step II. A study of children's stories was made which resulted in a selection of ten to be tried out on the children themselves. Great success attended this second attempt. The eighth-grade children then decided to write a story for the first-grade class, put it into book form and present a copy of it to each pupil of that grade.

Step III. Helen Bannerman's story of *Little Black Sambo* was selected as a model. The entire class made a careful study of its plot, the climax of the story, the selection and arrangement of details, the animals interesting to children it contained, the actions and words of the little boy hero; and the many attractive repetitions occurring throughout the story which make so strong an appeal to the little ones.

Step IV. A series of supervised study lessons in which the children attempted to invent original plots using the model as a guide, to weave a story around the plot, to secure good diction. Discussions followed each study period. The children submitted their ideas as to plot, arrangements, and the like. The class finally agreed to accept certain parts and weave them into the class story.

As a result, a most ingenious little story entitled "Golden Haired Letty," was evolved. This is a real story with a plot, a most original climax, many quaint and interesting repetitive phrases, and a little girl heroine, who has terrifying experiences in which animals appear. While it bears a strong resemblance to its model in plot, the situation and climax are distinctly original.

Step V. Committee work. Children with a talent for art painted water-color illustrations in the book and on the cover. Others wrote the story in the book. Enough copies were made to distribute one to each first-grade pupil. These were placed at the foot of their Christmas tree and formed a much desired gift.

212. "Dramatization of 'The Pied Piper'"

(Reported by Miss Nelle Warden, Portland School,
Louisville, Kentucky)

After class discussion, the pupils, under the direction of the teacher, wrote a scenario of the entire play. Then followed the dialogue, suggested by pupils, chosen after criticism and discussion, written by the teacher on the blackboard, and lastly, copied by the pupils. As the scenes were finished, each one was tried out by the pupils, and altered if necessary. The pupils of the seventh grade wrote the words to the song for the play; the teacher of music taught them the song. The boys in the workshop made a "Ben Greet" screen to serve as a background; they also made some of the furniture. The play was presented at the school for the purpose of defraying the expenses of a social given at the end of the term. It was accepted by *Popular Educator*. The money is to be given to the Victrola fund.

B. PROJECTS CONCERNED WITH COMMUNITY CIVIC INTERESTS

213. "An Americanization Club"

(Reported by Laura E. Ryan, Rockford, Illinois)

This club was organized by the class for the purpose of studying the civic life of the community. Officers were elected and committees appointed to carry on the work—one committee to investi-

gate the Americanization work of other communities, one to interview the heads of various civic organizations, and one to make a general survey of our own district. Letters were written to Chambers of Commerce and Directors of Americanization in various parts of the country. The vast amount of Americanization material received was preserved in a large scrap book and formed the basis of the work. In the classroom the committees gathered to exchange information, discuss community problems and their solutions, and to propose ways in which the Americanization club might help.

Heads of various civic organizations and city officials addressed the club from time to time, outlining plans in which the club could be a power for good in the community. Children were made responsible for actual labors to be performed. They furnished Americanization pamphlets, books, and papers for the foreign homes of the district, participated in the naturalization ceremonies at the Court House and observed every national holiday throughout the year in a manner most suitable to the particular significance of the day. The club provided ample opportunities for practicing citizenship and became a power for good in the community.

214. "The Government of Our City"

(Reported by Katherine C. McGaughey, Youngstown, Ohio)

On account of the great number of nationalities represented in Youngstown, Americanization is a great and ever-increasing problem. Of all the agencies at work, the public schools seem to come nearer to the heart of the situation. Because of these facts, we chose to make the "Government of Youngstown" the project upon which to build our Civic Course. Working through the Public Library, the officials of the public buildings and court house, the local members of Congress and Legislature, the children were able to obtain an immense store of information. This was applied first to the early history of the city and its industries, their growth and development, and in making comparisons with the present conditions, giving reasons for the same. The local form of government was studied; committees of pupils made frequent visits to the City Council, courts, police station, waterworks, parks, Butler Art

Gallery, and wherever practical, actual reproductions of these departments were dramatized in the classroom, for example, the Council and Jury Trial. Comparisons were made from time to time between the work of the branches of the various departments of our city government with those of other cities. The practical side of this was carried through a system of student control by means of which pupils assisted materially in the school government. This plan was found to work so well that it has been considerably extended this present year. On the completion of the city government the pupils found it an easy step to that of the State and Federal Government, which was taught by comparison with what they already had of local affairs. The pupils took the initiative in all, as far as possible; the teacher only assisted in organizing the work and in making necessary suggestions.

215. "Earning Membership in the Junior Red Cross"

(Reported by Jennie C. Bakewell, Louisville Normal School,
Louisville, Kentucky)

It was decided by this eighth-grade class that enrolling as members in the Junior Red Cross Society was a question to be brought before its Civic Club for discussion and settlement. Since a monetary fee as well as certain work must be pledged, the Club decided that an entertainment to raise the necessary amount must be given. Two minute speeches and original verses on the theme of the "Junior Red Cross" were written by the English class and used to help advertise the entertainment. A committee from the Club submitted for class criticism its program consisting of a play and tableaux. The play had been dramatized several weeks before by the class from a story emphasizing service to country. The tableaux represented the Red Cross posters and illustrations found by the class in the *Red Cross Magazine*. Committees were formed to look after each detail—tickets, door keepers, ushers, stage properties, costumes, lighting, and so on. The result was enough money to give the school a one hundred percent membership in the Junior Red Cross Society and quite a large sum left over. The Club was confronted now with a problem—more money than it needed. The

members decided it should be used to enroll another school. A letter was written to the superintendent asking information about the various schools. The club acted upon recommendation of the superintendent, and sent the money to the school he suggested. The initiative and cooperation shown by this group of eighth-grade boys and girls was one of the chief values of this piece of work.

216. "Our Park System"

(Reported by Jennie C. Bakewell and Agnes Cavanaugh, Louisville Normal School, Louisville, Kentucky)

This study grew out of a discussion among the children of the way they had passed their leisure time during the summer vacation. Questions asked by the children concerning the supervision and "up keep" of the parks finally led to a profitable study of the "Park System of Louisville." The class, after suggesting topics to be investigated, divided itself into small groups for the work. Each group chose the topic in which it was most interested. The park commissioners were interviewed through writing. Older people in the neighborhood were consulted. Newspapers and magazines were searched. All the information was assembled in book form and presented to the library at the end of the study. Various groups visited the different parks and reported to the class on the things of interest, as trees, flowers, birds, animals, fountains, bridges, statues, shelter houses and recreation grounds. Original nature myths as well as nature poems were written. The class realized the advantages to be gained from the city parks and were ready to do their part toward making further improvements in the park system.

217. "A 'Stay-in-School' Campaign"

(Reported by Jessie M. Law, Springfield, Massachusetts)

This experimental class was composed of lads who had found the conventional high-school subjects so difficult that they had failed in one or more and were obliged to stay an additional half year in the Junior High School. The boys, however, furnished the best kind of material for a group with which to discuss live problems,

because in the capacity of newsboys, errand boys in large factories, or telegraph messenger boys, they had come in contact with the business world and were more worldly wise than their teacher upon certain business tactics. Among the subjects considered were dignity of labor, conservation, and the H. C. L., business ethics, capital and the trusts, labor and the unions, cooperation and profit sharing, personal and family budgets, public office and the franchise. The project method was pursued throughout the semester.

In the spring of 1920, Springfield, Massachusetts, conducted a "Stay-in-School" campaign by movies, pamphlet propaganda, sermons and lectures. The class chose this campaign as a subject of study. In order to eliminate snap-shot judgments each boy was given the following questions upon which to ponder over night:

1. Why do boys of fourteen leave school?
2. What places are open to boys of fourteen to sixteen?
3. What work is open to senior-high-school graduates?
4. What positions await college graduates?
5. What must a boy consider in choosing his life work?

The lads knew perfectly the motives which led their mates to leave school. The chief one was the lure of high wages, they all agreed. They opined that in some cases the money was actually needed by the family, but they felt that in many instances the boy wished more spending money for recreation. More than one of the class thought there was a distinct advantage in starting early to learn such a trade as printing or plumbing. The teacher at this point got the class to discussing the dangers of 'dead alley' jobs. One lad ventured the opinion that some fellows found school prosy, but honest expression brought out the fact that this particular group found in the curriculum rather more oases than plain desert sand. In the consideration of the openings for the high-school graduate, the old platitude that the lad of eighteen has to start upon the same earning basis as the grammar-school boy was brought up. Fortunately, Dr. Piexotto's tests of the New York situation furnished adequate answer to the earning capacity of the comparative groups. When the class arrived at the discussion of the managerial and professional work open to college graduates, the boys took fire. Like

Caesar, they were all "ambitious." Each man saw himself a future Rosenwald or a Dr. Mayo. The training necessary for expert work was considered from the standpoint of kind of work, time, money, and effort. Then the members of the class swung very naturally into this line of thought: "What must I consider in choosing my life work?" The discussion evolved these points: training for future ability rather than for immediate compensation, the joy of doing a thing well, better standards of living, thrift, service to the community. These recitations were punctuated by illustrations of such personal nature that they would never have passed the censor and in a vernacular that would have shocked the purist.

Of course, the obvious criticism of this whole lesson is that it is an inadequate treatment of so large a subject, but the answer is that several lads admitted to their principal that they had remained in school because of this same course in "social economics."

218. "A Cleanliness Campaign"

(Reported by Florence G. Billig, State Normal School,
Emporia, Kansas)

The fact that several pupils had been coming to school in an untidy condition had been noted by many of the boys and girls. As a result, in one of the science classes the question arose: "What can we do to make everyone come to school clean and tidy?" After some discussion, the class laid the situation before all the members of the junior-high-school grades and asked their coöperation. After a general discussion of the situation, it was agreed by every member of the school that each pupil should come to school with his person and dress clean and tidy. A committee consisting of members from each class drew up general rules which were posted on the bulletin board for one week in order that each boy and girl might study them. At the following school assembly, the rules were accepted without a dissenting vote. The committee also planned that a program should be given every other week in the regular assembly period in which topics as the following should be considered: the care of the teeth, hands, hair, and clothing; the value of soap, and the making of soap. The members of the general committee were

elected to hold office for six weeks. When new officers were installed, the outgoing officers gave a summary of the work which the class had performed. At this time, also, the new officers stated what they hoped to accomplish. The work was conducted by the various committees during the entire year. By the close of the year's work a health-index card had been worked out by the pupils. Copies of this card, made by the State Printer, were filled out by the members of the committee at the opening of the school term. Many posters emphasizing cleanliness were made. Many rhymes were written and used on the posters. From time to time articles and rhymes relating to the work of the "Clean Up Committee" were published in the school paper. Pupils spoke in Parent-Teachers' meeting regarding the work. The plan of the campaign for cleanliness, which was made and carried out entirely by the pupils, not only served its purpose during the year, but was continued and expanded the following year.

219. "The City's Water Supply"

(Reported by Eva T. Mason, George Rogers Clark School,
Louisville, Kentucky)

The school is located near the filter house. The question arose as to why a city should have pure water. It was found that the class did not have the necessary information to answer the question satisfactorily, so a letter was written to the chief engineer asking for literature on the subject and permission to visit the plant. Another committee was formed to visit the City Health Office and get data on the health situation in the city before and since the installation of the filter. The class divided itself into eight groups. Each group was made responsible for a certain phase of the work and gave it to the class through its reporter and artist.

220. "The City's Milk Supply"

(Reported by Elizabeth D. Zachari, Louisville Normal School,
Louisville, Kentucky)

The class selected the project: "How Louisville attempts to have the city provided with a pure milk supply." The class pre-

pared an outline which included the proper care of milk from the milking until received by the consumer. The class then divided into groups and began work on the topics. In some instances individuals worked out a topic. Groups of individuals reported on (1) visit to a certified dairy farm; (2) packing and care of milk in shipment; (3) experiments or demonstrations by those reporting, on (a) temperatures at which bacterial growth ceases, and (b) pasteurization. These experiments were decided upon after the class had visited a large dairy and had watched the process of pasteurization. Another group studied the work of the Health Department in analyzing the quality of Louisville milk. The group then made a graph of the results. Questions from the children led to a study of the food values of milk compared with other beverages. Experiments were sought which disclosed the composition of milk. One group collected data for a graph showing the comparative fuel value of milk, cocoa, tea, and coffee. A program, which consisted of a summary of the project, was planned by the class and given.

221. "A Health Play"

(Reported by Jennie C. Bakewell and Gladys Wyatt, Louisville Normal School, Louisville, Kentucky)

The class had suffered during the recent epidemic of "Spanish influenza." They had studied causes and the means of controlling such epidemics. As a civic duty, they expressed a wish to show the community that the rules of the Board of Health should be strictly enforced during times of communicable diseases. Their problem was to choose the best medium, and after consideration of possible ways, they decided to write a play. The plot of their story was outlined and separated into four divisions. The first act was then developed and written as a class exercise—the children dictating and criticizing. The class next divided itself into three groups; each group assumed the responsibility of one act. When the whole play was written, the chairman of each group submitted his part for class criticism. When finished and accepted by the class, the title "The Costly Party" was agreed upon. Shakespearean dramas were consulted for form; government pamphlets

and bulletins issued by the Board of Health were studied; physicians, district nurses, and lawyers were interviewed; and a trial in the common pleas court was witnessed in order to verify the subject matter and stage procedure. The English classes of the department were the critics during the rehearsals. The play was given three times: first, to the English and science teachers of the city; second, to the children and teachers of the public schools during the Spring Health Pageant; and third, to the school nurses and members of the Board of Health.

222. "An Exercise in School Hygiene"

(Reported by Louise S. Steinway, State Normal School,
Kalamazoo, Michigan)

The exercise consisted in determining whether the classroom occupied by the pupils had sufficient floor space, air space, and lighting surface. Practical measurements, approximate and actual were the important by-products of this project. In the civics class the question of crowding in schools was discussed. This led to the question of the conditions in their own schoolroom and whether or not those conditions met the accepted standards. A committee of the class reported the number of square feet of floor space, the number of the cubic feet of air space there should be on an average for each child, and the ratio between the floor space and the surface of window glass. The pupils then saw the need of gaining certain room measurements. No yard stick was immediately available, and the question of approximate measurements was raised and discussed by the pupils. This led to the discussion of measuring one's pace or measuring with the arms extended. (The distance between finger tips with arms extended horizontally is about equal with a person's height.) The pupils discovered that the height of a room could be judged by comparing the height of a person who stood close to the wall with a total height. Several lessons were spent in making actual and approximate measurements and the value of each kind was noted.

223. "City Health Graphs"

(Reported by Julia M. Bayha)

Various statistics were collected by the pupils from various sources, chiefly the city health department. Special attention was given to the death report of children. The idea of a scale was taught and then used in the preparation of graphs. Each child selected a list of statistics most interesting to him, and by using the scale, prepared a graph. These graphs were used as material for a lesson in hygiene, and afterwards were posted in conspicuous places for the pupils of other places to observe.

224. "Acquiring Habits of Good Posture While Studying"

Reported by Louise S. Steinway, Western State Normal School,
Kalamazoo, Michigan)

The class discussed the importance of straight bodies and well-developed lungs as a means of keeping well. This led to a realization of the need of sitting in good position when working. They decided it was difficult for a person to find out for himself if he were sitting in a healthy posture, so the Physical Training teachers were invited to come in and watch them at work. The pupils did not know when they were being observed and as a result assumed their customary postures. The next day the pupils were taken individually and told their weaknesses and how to correct them. Certain defects in posture were common to many members of the class. They discussed the evil results of these incorrect postures, and a campaign to rectify them was planned. Individual troubles were again discussed privately with the teacher of the room, and a method of correcting the difficulties was formulated and carried out by the pupils individually with the help of teacher and friends.

225. "A Supplementary Text for Community Civics"

(Reported by Sarah Mark Imboden, Decatur, Illinois)

A text for use in home geography has been written by the pupils in Grades V to VIII, inclusive, of the schools of Decatur, Illinois.

The book contains eleven chapters of 192 pages. The table of contents is:

- I. History of Decatur
- II. Decatur as an Educational Center
- III. Institutional Decatur
- IV. Industrial Decatur
- V. Decatur's Transportation Facilities
- VI. Public Buildings
- VII. Churches and Civic Organizations
- VIII. Decatur Department Stores
- IX. Government of Decatur
- X. Beautiful Decatur
- XI. Future of Decatur

The information was gained through observation, study and research. Where it was impracticable to visit a factory, the necessary data were gotten by the pupils by writing letters to the heads of concerns, listing questions that they wished answered, or as in many cases, inviting the person to talk to them. In many classes English and geography were thus motivated for a period of three months. All of the art work, which includes cover design and tail pieces to chapters, was done by the pupils of the junior high school. One hundred copies were also hand-bound by the same pupils. Two thousand copies of the book were published at the cost \$1,300. In a vigorous four-day campaign, 1,200 copies were sold to children, parents, and citizens at \$.75 per copy.

226. "The School Service Club"

(Reported by Alberta Rowell, George Rogers Clark School,
Louisville, Kentucky)

The 8-A class has been organized as a club for two years. Officers are president, vice-president, secretary, treasurer, and business director (teacher). At the suggestion of the director, the club undertook four kinds of services for the term (community, school, patriotic and charitable). As a community service, a committee volunteered to assist smaller children across two dangerous corners near the school. As a school service, the boys undertook to see that the playground was in readiness each day for directed games. They removed grass, marked off and lined three volley courts, they put up and take down nets daily and see the balls are placed on triangle,

corner, scrimmage, end-ball and volley courts. The club appointed a committee of girls who provide our assembly room with cut flowers and plants. The girls volunteered to act as waitresses at Parent-Teacher luncheons. They addressed post cards to parents of the entire enrollment inviting them to Parent-Teacher meetings. As a patriotic duty, the club decided to show respect to the American flag and national hymn on all occasions. As a charitable duty, the members of the club contribute weekly from their allowance to the school milk fund for providing indigent children of a neighboring school with daily milk. The girls are making scrap books and joke books for the Children's Free Hospital and the Children's Ward of the City Hospital. All of these duties are still being actively performed.

227. "Establishing a Quiet Zone Around the School Building"

(Reported by Irma B. Spangler, Emporia High School,
Emporia, Kansas)

The class in Community Civics had completed the study of the city and had drawn plans for an ideal city with a civic center, well-located school buildings, hospitals, restricted zones, quiet zones, and other features which make a city safe, convenient, and beautiful. For several days the class had been disturbed by heavy trucks passing the schoolhouse. To the class it seemed as if the noise interrupted the recitation and distracted study for several minutes daily. Finally, one day, one of the pupils exclaimed: "I don't think this school is well located." "Why not?" was asked. "Because it is so noisy here all the time." The class then discussed what could be done about the situation. Several remedies were suggested, until one boy said that he couldn't see why a quiet zone would not be placed around the high-school building. The class thought this a valuable suggestion. Then arose the problem of the method by which to secure such a zone. A petition was suggested, and the class undertook for the next day to find out how a petition should be written and to whom it should be addressed. Each member of the class was then to submit a petition. This was done, and a committee elected to read the petitions and select the best one. The committee reported the best ones, but the class was not satis-

fied. The petitions seemed weak because there were no facts upon which to base definite statements. A pupil suggested that the class find out just how much the time lost cost the tax payers in money. Accordingly, committees were appointed. Some who had watches were appointed to keep account for a week of the time actually lost each day. Another committee was to interview the superintendent and learn how much each child cost the school. The third committee was to take these two sets of facts and discover how much the time lost per pupil cost the city in a whole year. Still another committee was to find out how many and what signatures were necessary to the petition. The committees all reported on the same day. The petitions were then rewritten and a committee selected the best one. This was typewritten by two members of the class and given to another committee to secure signatures. When this had been accomplished, the petition was presented to the mayor by three members of the class. This project, by allowing the pupils to use their newly acquired knowledge and by stimulating them to seek further knowledge, made Community Civics a subject alive and of active interest to the class. By working upon the petition, the children realized the right and duty of every citizen to be interested in his city and make helpful suggestions. By carrying the project to completion the pupils learned the process provided by a democratic government by which a citizen may in a peaceful and lawful manner take steps to remedy laws or conditions which are obnoxious to him.

228. "An Election"

(Reported by Irma B. Spangler, Emporia High School,
Emporia, Kansas)

The class had been studying nominations and elections and were confused as to the function of the primary election.

In working out plans for the two elections the class discovered that there were many things it would have to know before it could carry out the project. Therefore, committees were appointed to report concerning the registration of voters, nomination by petition, form of ballot, officers and conduct of elections. These committees reported the following day, when election officials were appointed,

ballots made; aspirants for office secured signatures to their petitions, and registration took place. On the third day both the primary and general election were held. In working out and carrying through this project the students realized the need of the different steps in the nominations and election procedure which became actualities to them rather than mere definitions. By taking part in both elections the pupils understood clearly the function of the two elections.

**C. PROJECTS CONCERNED WITH GENERAL CIVIC AND
PATRIOTIC INTERESTS**

229. "An Historical Museum"

(Reported by Francis Forsaith, Boston, Massachusetts)

While studying the early history of Boston my pupils made a really valuable collection of material relating to that period, consisting of pictures, magazine articles, brochures, etc. Besides soliciting from relatives and friends, they wrote to several banks and business houses of the city, from which they secured many interesting contributions.

We found this an excellent method of correlating history and English. The pupils came to realize (some, possibly for the first time) the importance of being able to produce a courteous, well-written letter.

230. "An Assembly Program on Famines"

(Reported by Pearl A. Yocum, Gavin H. Cochran School,
Louisville, Kentucky)

After somewhat intensive studies in geography and science of the physical features, resources and existing conditions in many countries of war-torn Europe, as well as special studies, such as wheat of the United States, Cochran girls and boys proposed a program on "Famines" for the benefit of an audience of several classes. They planned to present the program mainly as a tableau, supplemented by discussions and advice as to how America should aid in the problem of reconstruction. The class was divided by the class president into four committees to present bread, meat, butter, and

sugar conditions of the world, to stress world needs, and to show the nations that should come to the rescue. Each of these committees secured loaves of bread, grocers' advertising meats, such as hams and bacon, butter on dishes, and sugar in bowls to make the situation vitally interesting and concrete. One committee prepared the slogans, diagrams, graphs, and maps of famine areas. The entire class eagerly searched newspapers and magazines for reports regarding the famine stricken countries and provided some valuable information for the occasion. One of the articles of great interest was on the potato crop of 1918-19. The presentation met with marked success and true class satisfaction.

231. "How to Help Starving Children in Poland and Armenia"
(Reported by Louise S. Steinway, Western State Normal School,
Kalamazoo, Michigan)

Much interest was aroused by hearing a lecture by Jane Addams on the suffering of the children in the war-stricken countries of Europe. The pupils decided something must be done by them to alleviate this suffering, and a committee was appointed to interview Miss Addams and ask advice. Her suggestion led to the pupils' writing to their congressmen at Washington requesting that they do what they could to get our government to provide relief for the suffering and starving people in Europe and contiguous countries. The class decided to raise money to send to Mr. Hoover, who was in charge of the distributing of the funds raised for the starving children. In the course of the next six weeks many letters were written to Mr. Hoover, Miss Addams, and others. The pupils raised the question: "To what countries shall we send our funds?" Poland and Armenia were chosen. The decision was based upon knowledge gained in classes in current events and geography and upon the feeling that the Poles and Armenians were friends of the United States. Several lessons in geography resulted from a desire to know more about the countries to which the money was to be sent. This knowledge was afterwards used to good advantage in a stereopticon lecture given to earn money. The interest in current events was materially stimulated. Practical work in mathematics

resulted from their efforts to raise money. Graphs were kept to show the progress of the three teams which had been organized to increase interest. Lessons on thrift resulted from a desire to see how much could be saved from allowances. The children studied methods of keeping accounts of money received and spent. Methods of sending money were discussed. Business experience was gained from buying and selling pencils and post cards designed by the teacher of art. They learned how to finance a play and a stereopticon lecture.

One of the means of earning money to send to the starving children in Poland and Armenia was the giving of a play. Choosing a play stimulated the work in reading. Many stories were read in the effort to find one that could be dramatized successfully. The class finally chose "The Courtship of Miles Standish." The poem was studied, dramatized, and produced. The pupils assumed practically all of the responsibility. The art periods were used in making posters to advertise this play and also to advertise the candy sales and the stereopticon pictures. The scenery was also made in the drawing classes. A knowledge gained in classes in cookery was applied in making candy for the candy sale. The printing group made tickets. The typewriting class wrote some of the letters and notices. Many lessons in ethics resulted leading to discussions in the following questions: (1) "Is it right to help your enemies?" (2) "Should children be allowed to suffer for the wrong doing of others?" (3) "Is getting money from people who can afford to give and don't as worthy as getting it from one's own manual labor?" (4) "Is it honest to sell something for more than its real value, if you are giving the profits to a worthy cause?" (5) "Is it fair to use social disapproval to make a slacker in your group do his share?" (6) "Is it necessary to be able to tell just how much you received from people solicited?"

232. "Civil Service vs. the Spoils System"

(Reported by Clella Stufft, State Normal College,
Dillon, Montana)

Pupils suggested the kinds of positions locally which are a part of this department, civil service. The pupils wrote these on the

board as suggested, and volunteer groups, or sometimes pupils in rows, acted as committees to investigate personally the postoffice department, mail carrier's department, mail clerk's work on passenger trains, and forest service office. Some worked in groups to secure material on the Indian reservation work in the state, while others worked to show how the government work was handled under the old system and to show why the new method was an improvement over the old. The group chose members to give one report, and after all the reports were given, several pupils summarized the points necessary for the conclusion of the project. The materials were organized and put in good English. Friendly and helpful criticisms and group responsibility developed.

233. "A Pageant Representing the Pioneer Period in Wisconsin"

(Reported by Louise W. Mears, Normal School,
Milwaukee, Wisconsin)

The entire work was performed and planned by the pupils. The materials for the pageant were furnished by the members of the class and discussed daily by them for several weeks.

The work was motivated by a contest in pageant-writing, conducted by the Wisconsin State Teachers' Association. The best Wisconsin pageants were to be presented at the meeting of the State Teachers' Association.

234. "A Pageant of Old St. Louis"

(Reported by Cornelia A. Forbes, Ben Blewett Junior High School,
St. Louis, Missouri)

This pageant grew out of interest aroused by reports given on "What my grandparents remember about St. Louis," gathered from personal interviews made by members of the civics classes. They then went to work to give these pioneers a glimpse of St. Louis before their time. This led to the pageant.*

*Details of procedure were similar to those described for other pageants reported in this volume.—*Editor*.

235. "The Making of Americans"

(Reported by Mrs. John A. Baird, Eastern Departmental School, Louisville, Kentucky)

Each child in the class related all information available as to when, whence, where, why, and how the ancestors of both parents came to America. Pictures of different races of Europe were exhibited; nativities of ancestors were located on maps of Europe; manners and customs of foreign nations and their effect upon American life were considered. Graphs showing how their class, composed of one hundred percent Americans, derived from many different races, were prepared by the children. Under the topic of "Americans by Choice," the lives of the following naturalized citizens were reviewed: Alexander Hamilton, Albert Gallatin, Stephen Girard, Edmund Genet, Carl Schurz, John Ericsson, Louis Agassiz, Andrew Carnegie, James Hill, Jacob Riis, S. S. McClure, Edward Bok, Mary Antin, Theodore Thomas, Mme. Schumann-Heink, Nazimova, and Anna Howard Shaw. Copies of first naturalization papers were obtained from the Customs House and were made out by the children. Some of the children displayed the second papers of their forebears. Pictures, newspaper clippings, and magazine articles dealing with immigration and Americanization were put in note-books and discussed by the class. Maps showing proportion of foreign elements in the United States, and diagrams indicating the line of increase or decline of immigration since 1820 were prepared and explained. After study of the immigration problem, themes were written on the following topics: "How I Came to be an American," "The United States, the Melting Pot of the World," "The Old and New Immigration," "Desirable and Undesirable Immigrants," "The Soviet Ark," "Our Immigration Laws," "How to Become a Naturalized Citizen," "Ellis Island, the Front Door of America," "The Immigrant at Ellis Island," "Present Congestion at Ellis Island," "Where the Immigrant Goes and Why," "The Yellow Peril," "Why so Few Post-War Immigrants Come to Louisville," "Our Interest in the Immigration Problem," "The Promised Land," "Immigration and Labor," "Americans by Choice," "America, the Land of Opportunity."

236. "Our American League"

(Reported by Ida M. Bennett, State Normal School,
Trenton, New Jersey)

The idea of what constituted a real American arose in a class discussion one day. The class then decided to form an American League. This league project required the use of several subjects. The following points indicate only a few of the many ways by which the idea was carried out.

1. *Opening Exercises.* Rules for self government worked out, American ideals discussed, independence in managing of program.

2. *History.* Study of real Americans both past and present. What made them real Americans.

3. *Art.* Working out of American posters and slogans, choosing of class colors, block printing for materials for room, designing of programs for American festivals, costumes for a play, "America First."

4. *Industrial Arts.* Making of booklets to be sent to soldiers, making of articles needed in room, garden work.

5. *Nature study.* A good American must be strong: How can we become strong. Good health posters.

6. *English.* American League Pledge, writing of play of "America First," planning of programs for American Holidays, planning to entertain our friends (other grades) and our parents.

7. *Music.* American songs, National and Folk songs. The class learned some of the Negro Christmas melodies as well as some of the folk songs of the foreign born.

8. *Reading and Literature.* Reading of classics for grade, individual books read and reports made by class. Readings from current magazines. For the literature we not only had many of the early American folk stories, but also stories about the making of the foreign-born into real Americans. Of course, the children were much interested in talking over the *Promised Land* and many other stories by Americans by adoption.

237. "Dramatization of the Constitutional Convention"

(Reported by Cornelia A. Forbes, Ben Blewett Junior High School,
St. Louis, Missouri)

Each member of the class impersonated a prominent member of the convention. Groups representing each state made badges, banners, etc., to designate their respective states. Each representative formulated his opinions on each point discussed in the convention from his reading "Madison's Journals of the Constitutional Convention." Individual references to Journals, committee plan-

ning, etc., were accomplished during two recitation periods of the week; the last was taken up with the dramatization of the convention. The three features stressed by dramatization were the Compromises on Representation (which took two dramatization periods), the Presidential discussion and Compromises, and the Report of the Committee on the writing of the Constitution, together with the Signing. The teacher was consulted only on the most difficult problems of selection from the Journals and in giving the previous drill for parliamentary procedure. The class afterwards engineered the working out of a school self-governing code of laws.

238. "History Booklets on Kansas"

(Reported by Zoe A. Thralls, State Normal School,
Pittsburg, Kansas)

"Why is Kansas an attractive state for home-seekers?" With no textbook and only a few reference books, the class decided to make a book of Kansas and work out the material as they went along. Each pupil got two note-books, one for rapid notes in class and the other for permanent record, and a map of Kansas.

The first project which the class worked out was: "Why is Kansas an attractive state for home-seekers?" In working this out the class covered the geography of Kansas through climate, soil, water, surface advantage of location, etc. Then the class turned to the history, tracing out the early Spanish and French explorations and their influence in making Kansas known to the world. They also compared their accounts of Kansas with conditions as we know them to-day. The old trails were of special interest. The Santa Fe and the Oregon were traced, and reasons were given for their location and stories of the trail told. Important incidents of the state as a territory and its struggle to become a state, and incidents in its statehood were collected. Usually the class selected incidents that marked Kansas as a leader, as, for example, the prohibition movement, women's suffrage, and the industrial court law.

After completing the historical side, the class returned to the geographical. The pupils wanted to know Kansas' rank among other states among agriculture, mining, and manufacturing. So the

different products were studied, and product maps were made. The final work was on the cities of Kansas. Each member of the class selected one of the larger cities and was responsible for an advertising booklet on his chosen town, which he made and presented to the class. Some of the booklets would have given excellent suggestions to a Chamber of Commerce.

239. "A Pageant of the States"

(Reported by Margaret J. Long, Rockford, Illinois)

An original pageant entitled "Our Union of Forty-eight States," was worked out and staged by the pupils. Banners, posters, and sashes lettered with the names of the states were designed and made by the pupils under the supervision of the art teacher. Appropriate costumes were designed and made, or secured by the pupils assisted by the teachers. The special stair platform was made in the manual training department by the boys, and the tickets were printed by the boys in the print shop. The pageant was a blending of story, song and poetry in such a way as to make a pleasing and lasting impression of the history, growth and development of our country into forty-eight states, with a brief tribute paid to Washington, Lincoln, and Our Flag. More than one hundred dollars were raised for school purposes.

240. "The Sailing of the Mayflower"

(Reported by S. E. Lovell, Lowell, Massachusetts)

A play was written and staged by the class entitled "The Sailing of the Mayflower," from "The Courtship of Miles Standish." The object was to celebrate the Pilgrims' Tercentenary. (Details omitted as similar in spirit to other projects here described.)

D. PROJECTS CONCERNED WITH AVOCATIONAL AND CULTURAL INTERESTS

241. "The Arithmetic of the Sport Page"

(Reported by Mary A. Ruth, Horton, Kansas)

The keen interest felt by the boys concerning the outcome of the world series was turned into mathematical channels by using

the various figures given as the basis for much interesting work in beginning the study of literal equation. We figured the standing of the teams in the various leagues, the batting average and the fielding percentage of the various players, first working out the formula and then using the figures obtained from the newspapers.

242. "A Pantomime Written and Staged by the Class"

(Reported by Louise S. Steinway, Western State Normal School, Kalamazoo, Michigan)

The class was unexpectedly requested to participate in the celebration of Shakespeare's birthday. The class contribution was to be a unit in itself and was to consume not over twenty minutes. The acoustic properties of the hall were bad. The audience was to be large, and the pupils had only four days in which to prepare a program. After discussing all of these phases of the problem, the class divided itself into groups of six each and planned a line of action. Reports were then given and the best plan was chosen and carried out. The pupils decided to give a pantomime because it would be impossible for most of them to make themselves heard, and they would not have time to learn speaking parts. They chose the Fairy Scene from "Midsummer Night's Dream" which had been read in Lamb's *Tales from Shakespeare* a few weeks before. They adapted this part to meet the needs of the occasion, then selected the actors and actresses, and chose the best reader in the class to read the story. The costumes in the school property room were supplemented by the children and their older friends. The physical training teacher taught the fairies a very simple dance. The latter part of the program was a musical selection, Mendelsohn's *Overture to Midsummer Night's Dream*. After the reader had given a few words of explanation about this selection, he played it on the Victrola. This composition had already been studied by the class in connection with the reading of the play and the short talk about it was a result of this work.

243. "Organizing a Reading Table"

(Reported by Jane Holm, Atchison, Kansas)

Most of the pupils in these classes knew very little about any kinds of magazines except the *Farm and Fireside* and *McCall's Weekly*. The teacher presented some attractive copies of new magazines to them and immediately their curiosity was aroused about the contents. Just before this, the classes had organized by electing a president, secretary, and treasurer, and they had learned the order of business. Accordingly, the pupils decided to use this organization in carrying out the reading table project. They voted to pay dues every two weeks, each one paying ten cents the first time and any convenient amount later. They further voted to use this money to purchase magazines. In order to have this reading matter where it could be used, one boy brought a good-sized reading table, which was placed in the front of the room with two chairs near. The first lot of magazines included: *Geographic Magazine*, *The Outlook*, *Popular Mechanics*, *Asia*, *Travel*, *Review of Reviews*, *Baseball*, *Current Opinion*, *American Boy*, *World's Work*, *Kansas City Star*, etc. Following this, almost everyone purchased a new magazine or reported that they were going to subscribe for some magazine of their choice. We use this reading material every day in our class work. At the passing periods the reading corner is crowded and quiet. On Friday afternoons the Social Science Club uses some of this material for current events. Some pupils have asked the teacher to nominate them as members in the National Geographic Society. Others have mentioned other magazines in which their parents were becoming interested. Most of the homes from which these pupils come had very little if any reading matter in them before this project was undertaken.

244. "Illustrating Life in Egypt by the Use of the Sand Tray"

(Reported by Alice Corwin, Monsarrat School,
Louisville, Kentucky)

Egypt was studied intensely. Much outside reading was done. Numbers of pictures were collected and studied very carefully. The class was then divided into groups. For several days at recesses

these groups met for work. Each group was responsible for all necessary material. Pyramids, obelisks, and a sphinx were made out of plaster of Paris. Plasticine was molded into caravans, natives, wells near the oases, etc. A complete irrigation system was shown. The whole was assembled upon the sand tray as artistically as possible. The finished product was displayed in a class period when each pupil told the history or use of his contribution and its bearing upon Egyptian life. This was voluntary outside work in which the teacher played no part at all, except to suggest reference books or to decide a question of perspective or something similar.

245. "A Reading Club"

(Reported from the State Normal Training School,
Westfield, Massachusetts)

In order to promote an interest in outside reading that shall continue beyond grammar-school life, especially in the case of those whose course ends with the grades, the pupils of the eighth grade are formed into a club (with a name of their own choosing) for reading ten of thirty books in a list selected and published by the principal. The course is to be finished in one year, and its completion brings the reward of a certificate signed by the principal and the room teacher and presented with the graduation diploma—a certificate by no means lightly earned, since it stands for some sort of written commentary on each book read, and a more formal and comprehensive examination when the course is finished.

The club meetings are held monthly and their conduct is modeled on accepted forms. The pupils learn parliamentary procedure, and, under the teacher's careful supervision, they make and carry out their own programs. One book makes the subject for each meeting. A roll call, briefly responded to by each member, gives information as the program demands, of the author's life or some other pertinent topic. The one or two chief speakers are, of course, those who have chosen to read the book assigned for the day. Their

* One of the projects omitted from this section describes plans for stimulating the use of good books for home reading. It was submitted by Louise Steinway, Kalamazoo, Michigan.—*Editor*.

talks are often supplemented by readings and dramatizations based on the text. Occasionally, two pupils prepare a conversation upon the book with the object of thus acquainting the others with its contents.

The project is still young, but it is confidently believed that it will be most effective in developing a lasting love for good reading.

246. "A Kaffir Village in Miniature"

(Reported by Bertha King Mason, David Prince Junior High School, Jacksonville, Illinois)

The class was studying Africa and I wanted them to get a clear idea of the life of the people in a primitive village. The pupils secured pictures of the people and homes of the natives of Central Africa, and I procured a book at the Public Library giving a description and pictures of a Kaffir village. Interest in this work led the pupils to ask to be allowed to make the Kaffir village in miniature on the sand table. All of the members of the class contributed material and a group of pupils carried on the work. They made circular huts of cardboard covered with clay, and roofs were covered with corn husks for thatch. Kettle-shaped containers were made of cardboard covered with bark. These held the grain for the tribe. The entire village was arranged in the form of a circle, with a circular enclosure in the middle for the live stock of the tribe. One palisade inclosed the live stock, and another inclosed the village. The water supply for the tribe was a spring at a little distance from the village. It was made on higher ground, and a lake made with a small mirror was just below the spring. A forest made of twigs of trees surrounded the village outside the palisade. I assisted by giving suggestions as to the proportions and materials used and by blackboard drawings. I also helped the class make the proper arrangement of their village.

247. "The Tales of the Wayside Inn"

(Reported by A. L. McGregor, Washington Junior High School, Rochester, New York)

The pupils were seated in seven rows. Each row read one of the following poems from Longfellow: *Paul Revere's Ride*, *The*

Falcon of Sir Federigo, The Vision Beautiful, Robert of Sicily, The Birds of Killingworth, The Bell of Atri, The Monks of Casal-Maggiors.

The meeting at the Inn was then dramatized. One pupil represented the landlord, and seven represented the guests who tell the stories. Each row was allowed to choose its own representative to tell the story read by that row. When all stories had been told the pupils voted upon the most interesting story and this story was read to the pupils.

248. "A Robert Louis Stevenson Program"

(Reported by A. L. McGregor, Washington Junior High School, Rochester, New York)

Interest was created in this project by showing a copy of the St. Gaudens bas-relief of Stevenson writing while propped up in bed. The class read "Treasure Island." Individual pupils read the "Master of Ballantrae," "Kidnaped" and "Dr. Jekyll and Mr. Hyde," reporting upon them to the class. A committee of three pupils searched Stevenson's essays for quotations giving evidence of the optimistic spirit. Another committee selected and read letters from the "Vailima Letters." One pupil prepared and presented an account of Stevenson's life, bringing out its heroic qualities. A committee of ten read selections from the "Child's Garden of Verses." The class memorized the "Prayer at Morning" and the "Requiem." A Stevenson program was given before another class as a culmination of the study.

249. "Enlarging Vocabularies"

(Reported by Louise S. Steinway, Western State Normal School, Kalamazoo, Michigan)

As a result of reading some excellent descriptions and of trying to entertain the class by giving one, a group of pupils suggested that one spelling period in every two or three weeks be given to the study of new words, that their vocabularies might be made adequate to their need. The pupils suggested that the words be taken from daily reading or from words heard in conversation. When a pupil

saw or heard a desirable word he wrote it in a note book. The day before the lesson, about eight words were written on the board by the pupils, the teacher having previously decided what words should be chosen from the many submitted. Each pupil was responsible for teaching the class the word he wished added to their vocabularies. He gave the word in a sentence, its meaning and derivation when it could be linked with something already understood, the part of speech and an explanation of any difficulties in pronunciation or spelling. Other pupils were then asked to give sentences using the word. At the close of this lesson or at the next one each pupil was asked to put all the words in sentences. Dictionaries were frequently used to settle discussions and doubts.

250. "A Lesson at the Zoo"

(Reported by P. Crecelius, St. Louis, Missouri)

The class made a trip to the "Zoo," which is located in a park near the school. This was in the nature of a general observation lesson; the pupils were permitted to wander about at will, stopping to observe anything that interested them. The following day the class was divided into four groups, each group to study one animal that had seemed particularly attractive. The animals finally decided upon by the children were the lion, the Polar-bear, the Virginia deer, and the elephant. Each group chose one of its members to act as leader. The following outline was planned in class with the aid of the teacher, and each pupil carried a copy to refer to when the class returned to the Zoo the next day.

1. Form.
 - a. What is his general shape?
 - b. What is the shape of his head?
 - c. Describe his footprints.
 - d. Describe his eyes (size, color, expression)
 - e. Can you see his teeth? What use does he make of them?
2. Color.
 - a. What is his chief color?
 - b. Has he any special markings? Can you describe or draw them?
3. Movements.
 - a. Describe his walk?
 - b. Can he run fast? What makes you think so?
 - c. Can he jump?
 - d. How does he move when he eats?
 - e. How does he move when he is frightened?

4. Odor.
 - a. Has he any distinguishing odor?
 - b. Does this help or hinder him in any way?
5. Food.
 - a. What does his keeper feed him?
 - b. What does he eat in his native haunts?
6. Care of Young.
 - a. How does he care for his young?
 - b. How does he protect them from enemies?
 - c. Does he provide a home? Can you find out what it is like?
7. His Value.
 - a. Is he worth anything to man?
 - (1) Good to eat?
 - (2) Furnish fur or leather?
 - (3) Can he do work?
 - (4) Does he protect man in any way?
 - (5) Should man protect him?
 - b. Is he harmful to man?
 - (1) Is he dangerous?
 - (2) Does he destroy plants or animals that are necessary to man?

After the second trip to the Zoo, the pupils were encouraged to resort to books for information which they could not get by observation. Each group then organized the information for the final report which was made to the class by the leader.

251. "A Winter Bird Study"

(Reported by P. Crecelius)

The pupils were asked to observe the birds for a week and keep a list of the birds they saw in the vicinity of their homes. In case they were unable to recognize the bird, they were told to look for some distinguishing feature such as the color, unusual size or shape, topknot, etc. They were able in most cases to establish its identity with the aid of a bird-guide. From the number reported in this way, the four which were named oftenest were selected for study. They were the English sparrow, crow, jay, and junco. Each pupil in the class chose the one he wished to learn about, and in this way the class was arranged in four groups, each of which chose its leader who would act as spokesman for the group when the pupils were ready to make their final report. The following outline was planned by the pupils under the teacher's guidance to help them

in their study. For a week the subject was laid aside in the classroom while the pupils were making their observations.

1. Form.
 - a. What shape is he? Make sketches.
 - b. Is he large or small?
 - c. What kind of bill has he? (Long, short, slender, strong, etc.)
 - d. Describe his feet.
2. Color.
 - a. Does he seem to be all one color?
 - b. Has he special markings?
 - c. What color can you see when he flies?
3. Food.
 - a. What did he eat?
 - b. What else can he eat?
4. Where found.
 - a. Keep a record of all the places where you have seen him, such as in tree, shrub, on a fence, in street, etc.
 - b. Does he usually spend the winter in St. Louis?
 - c. Can you find his nest?
5. Flight.
 - a. Does he fly high?
 - b. Does he fly in a straight line?
 - c. Does he fly in a zigzag line?
 - d. Does he fly in short jerky flights?
 - e. Does he fly slowly and gracefully?
6. Song.
 - a. Did you hear him sing?
 - b. Did you hear him call?
 - c. Did you hear him make any other sound?
 - d. Can you imitate him?
7. Habits.
 - a. Is he quarrelsome?
 - b. Is he noisy?
 - c. Is he vicious toward other birds?
 - d. Has he any peculiar habits?
8. Value.
 - a. Does he do any good?
 - b. Does he do any harm?
 - c. Should one protect him? How?
 - d. What can we do for him in winter?

When the pupils were ready to make their reports, stuffed specimens from the Educational Museum were at hand to give every pupil an opportunity to observe the bird at close range. For additional information the pupils used the *Bird-Guide*, Jackman's *Bird Life*, Mrs. Comstock's *Handbook of Nature Study*, Burrough's *Winter Sunshine*.

This study proved so interesting that the pupils frequently asked to have the work in bird study continued.

252. "Repairing the Electric Bell"^a

(Reported by P. Crecelius)

The class studied the problem of the door-bell in order to learn how to repair one. The pupils were led to see that they would need to understand the construction and installation of an electric bell before they could attempt any repair work. They examined the bell system in their homes and read what they could find in the books available. When they got this far they had a number of questions which puzzled them. These questions were put on the board and left to be answered by the teacher if the combined efforts of the pupils failed to bring out the facts. A few of them are given to show what puzzled the boys:

1. "When the bell fails to ring, where should one begin to look for the trouble?"
2. "When the bell fails at intervals and works at other times, what is wrong?"
3. "What makes a bell keep on ringing when the finger has been removed from the push-button?"
4. "Is it better to use wet or dry cells?"

Three of the boys volunteered to act as a committee to demonstrate the working of an electric bell by setting one up in the school-room where the others could trace the circuit and see every part clearly. They put diagrams of the various parts upon the board, which they used in explaining to those boys who were not able to understand as readily. A fourth boy made an electro-magnet with a couple of iron nails and some copper wire and with this succeeded in demonstrating the principle of the electric bell very well. When they had completed their study, they put in their note-books, under the supervision of the teacher, a drawing of a bell circuit, a list of the important features, a list of possible causes for trouble, and a set of suggestions for the best way to remedy each. This project was tried in the same way with a class of girls and proved to be

^a Cf. Project 195.

just as interesting to them as it had been to the boys. The books used were:

Fall—*Science for Beginners.*

Elhuff—*General Science.*

Clark—*An Introduction to Sciences.*

Millikan and Gail—*A First Course in Physics. (Revised Edition)*

253. "Making a Fire-Extinguisher"

(Reported by P. Crecelius)

During a study of the subject of fire prevention a group of boys undertook to find out how a modern fire-extinguisher worked and to explain it to the class. They decided to make and demonstrate one. With the aid of an old tin can, a small bottle, a piece of rubber tubing, and some sealing-wax they made a fire-extinguisher which worked well enough to put out a small fire which had been built on the demonstration table. Before the lesson they put on the board these questions which they undertook to answer:

1. What does a fire-extinguisher contain?
2. Why must it be turned upside down?
3. What is it that puts out the fire and how can it do this?
4. Can a fire-extinguisher be used more than once without refilling?

Their information was gathered from the following general science texts: Van Buskirk and Smith, *Science of Everyday Life* (pp. 25-27); Elhuff, *General Science* (pp. 57-58).

254. "Dissections and Demonstrations by Seventh-Grade Pupils"

(Reported by Jennie Hall, Francis Parker School,
Chicago, Illinois)

The following account is transmitted as it was prepared and written by two seventh-grade boys:

"Yesterday James gave a report on the body. He has been dissecting for a while and has found out many things. About a week ago he dissected a sheep's head in front of us and showed us where the brain and a lot of other things were. Then he showed how the eye worked by the light coming in from the front and through the lens, which is a little oblong mass. This takes a picture of an object upside down on the retina; thus we see.

"On every tongue in the world there are little knobs which are called taste buds: some taste salted food, others sweets, and every kind of a taste is tasted there. James showed us taste buds.

"You hear by the sound coming through the hole in your ear which makes the ear drum vibrate, causing us to hear. We saw the parts of the sheep's ear.

"James also dissected a frog and a rabbit. When the heart was out of the frog it still kept beating, like a chicken moving with its head off. When he dissected the rabbit he showed me where the heart, the liver, and the lungs are placed. Then he carefully took apart the rabbit's joints in his front legs and found them to be like ours. But the rabbit's front leg is not attached to the skeleton at all. Only muscles hold it to the body.

"Muscles are the tools that make you move. They seem to be like cords that are fastened to the bone. When these are pulled you move. We saw fine working muscles on the rabbit's foot. Leif and James found two pairs. By pulling one they opened and spread the toes. By pulling its mate they closed and bent the toes into a sort of fist. The other pair threw the whole foot forward and backward. It was very strange to see a dead foot move as a boy pulled the strings. Leif was playing the part of the rabbit's brain.

"Your finger nails and hair are made up of the same substance, which is hardened skin which is very queer, I think. And did you ever know that a man has ten ribs and a woman eleven? All this is most miraculous and inconceivably wonderful."

255. "A Music Contest"

(Reported by Edward B. Birge, Director of Music, Public Schools, Indianapolis, Indiana)

A list of fifty representative musical compositions was approved by a citizens' committee. The list was printed and distributed to the pupils of the high schools. Every opportunity was utilized to have the pupils hear these selections in school, at home, at concerts, and at the movies. After several months of this preparatory effort, preliminary contests were held in each school, and a team of ten students was chosen to represent the school at the final contest. The Rotary Club offered a banner to be contested for annually and held for one year by the winning team. Individual cash prizes were offered by various musical organizations. At the contest, the principal chamber music organization of the city played parts of twenty selections, chosen from the list. The contestants wrote the title and name of the composer. While the judges were conferring, the audience sang. The superintendent of schools awarded the prizes.

The project was successful in arousing interest in music study and we shall repeat the contest this year.

E. PROJECTS CONCERNED WITH VOCATIONAL INTERESTS

256. "Vocational Questionnaire"

(Reported by Cornelia A. Forbes, Ben Blewett Junior High School, St. Louis, Missouri)

The inability to secure up-to-date material for study in vocation classes led to the pupils' taking the initiative in collecting this much needed material for the school library. Each pupil volunteered to obtain personal interviews from at least five prominent persons in the professions, trades, commercial lines, management, manufacturing, or farming, and to report these to class for discussion. A series of questions was agreed upon by the class. Committees were formed to take charge of each type of interview, as lawyers, physicians, etc., and to work over material collected and formulate one comprehensive report on its vocation. Each one became a member of the committee representing work he or she was most interested in. One member of each committee received contributions of pictures, magazine clippings, and references contributed by the class and arranged these in folders. The spirit of active cooperation was here very marked. Contributions were exchanged daily. At this point several classes doing the same work agreed to combine their respective reports for the final report for file and arranged for general "show day" for all. The chairmen of each class met weekly for this summary.

The result was a folder filled with pictures, clippings of successful careers, references, and a well-rounded tabulation of a questionnaire on fifty different live lines of work that a girl or a boy might choose from, all properly labeled to be turned over to the school library. The prime value lay in the doing, and in the fact that it brought out local conditions, that the information was up-to-date and not an average struck from conditions all over the country.

257. "The Bulletin Board"

(Reported by J. L. Burns, Boston, Massachusetts)

One noon a boy came to me early and said: "Eight of us boys from the class belong to a club at the church and we want a bulletin

board. Could we make one? Of course we want to pay for the lumber." I said, "Yes, if you will do it all." And before they were through, they discovered that doing it all meant more than paying for the value of the lumber and the actual work of making the board.

The first question that came up was: what kind of lumber should they use? This meant a study of the different kinds and the kinds best suited for individual things. Then they became curious about where these trees grew, and their geographies were consulted. Some wondered what the "sweet gum" and the "tulip" trees were like, and these went to the nature books.

One boy found it convenient to go to the lumber yard to inquire the price of two or three kinds of lumber and he returned with his mind full of things he had seen and of expressions he had heard with which he was unfamiliar. After his report, the boys began reading up about the process of logging and milling and inquiring the meaning of "board feet," "dressed" and "rough" lumber and other expressions he had brought back with him.

There was a real live lesson in arithmetic when they determined how many board feet they needed, and another in composition when they wrote out their order to the dealer, in a business-like letter.

Then the problems in proportion, contour, printing and spacing were solved by the aid of their instruction in drawing and manual training.

They wanted each boy to do the part on the board that he could do better than anyone else, so that they might have a fine board and the zeal exhibited every day in thoughtful, careful work was very great, for each wanted to show what a good workman he was.

The result of their labors was finally borne away in triumphal procession, not to be the possession of any one boy, but a prized possession of the whole club—a thought which in itself made its slight contribution to good citizenship.

258. "Study of the Spring Canker Worm"

(Reported by Florence G. Billig, Kansas State Normal School,
Emporia, Kansas)

The spring canker worm was destroying many beautiful trees of the town. During a general discussion of the situation by the class, many questions were asked. After various suggestions had been made by the members of the class, one pupil stated the general question as follows: "Why are people banding and spraying the shade trees?" After further discussion by the class, the following attack was made and carried out by the pupils. An excursion was made to examine trees which had been banded and sprayed. Many egg colonies, larvae, and adults which had wings and some which did not have wings were found. While none of the pupils had seen the adults emerge from the ground, one pupil reported the fact that the adults do come from the ground. After a study of a circular from the State Department of Agriculture giving information regarding the spring canker worm, a careful study was made of the insect in its various stages of development. Specimens of the different stages in the life history of the insect were collected, preserved, and added to the school museum. All available information in the library and in the community was obtained. Other excursions were made to study the banding of trees. The class visited one man who was engaged in banding his trees and another who was spraying his trees. Some of the pupils assisted the man in banding his trees. Many of the pupils helped their fathers band trees. The advantages and disadvantages of both banding and spraying trees as methods of control of the spring canker worm were discussed. Reports of the study were made in the school assembly in order that everyone in school might be informed regarding this pest of the shade trees.

259. "Cleaning a Vineyard and Planting Trees"

(Reported by Maude M. Myers, Kansas City, Missouri)

The School Board of Kansas City, in buying ground adjoining a school building, acquired a piece of land containing an abandoned vineyard. The boys of the sixth and seventh grades were allowed

the grapes if they would clear the ground of the undergrowth and small trees, mostly elms. They dug a line of holes on two sides of the school yard where there were no trees and planted the trees which they dug up in the vineyard. As yet they have had no grapes to market, since this year's crop was damaged by frost. Under the direction of the school gardener they were shown how to take out the trees without injury, how to trim, how to sight and plant in straight rows, how to determine the best trees for transplanting. A study of the different kinds of shade trees and their use was afforded at this time as well as the study of the grape and wine industry of California and southern Europe.

260. "Railroad Salary Increases"

(Reported by Mary A. Ruth, Horton, Kansas)

Since ours is a shop town, the question of railroad increases in salary is rather vital. We first discussed the increases in the different departments represented by the fathers of pupils in the class, figuring rate of increase by the hour and by the day. As interest developed, we were able to secure a list of comparative figures from the C. R. I. & P. store house. This list gave us the number of men employed in the various shop projects, their hours of labor, and the rate of payment per hour at different periods during the last few years. This gave us a fund of material for work in the fundamental operations, and the various phases of percentage.

261. "Raising Potatoes"

(Reported by W. G. Cisne, State Normal University,
Carbondale, Illinois)

The boys of the Junior High School decided to try raising potatoes. They secured a plot of about an acre from a farm near the school. A contract was made with the farmer to the effect that he would plow the ground, work it down in good condition, and furnish the seed. The boys were to do the planting, tending, and harvesting and were to get half the crop. This contract was made under the usual conditions. Many of the boys knew nothing whatever about growing potatoes. The field was measured accurately

and was found to contain .92 of an acre. A surveyor's chain was used in the regular way in this measurement. There were 42 rows of potatoes and 28 boys. Two boys were assigned to a certain three rows and were made responsible for the condition of these rows during the entire season. In order to make the work interesting, contests of various sorts were organized and small prizes given. Certain points were given for absence of weeds in the entire three rows, for loose dirt between the hills, for absence of bugs, etc. The time spent in labor was carefully tabulated. Extra cost, such as spraying material and the expense of a team for plowing when the ground became hard, was noted. At the opening of the fall term the crop was harvested, divided according to contract and the boys' part sold in huckster style. They then computed the amount per hour each received for his season's work. The money was turned over to the Junior Red Cross.

The whole experience was of much value to the boys, both from a social and business standpoint. They will not forget how to measure land nor the approximate size of an acre. They now realize more fully the items that go to make up the total cost of production and the vital influence of climatic conditions. They came in contact with this experience in such a way that the impression will be lasting.

262. "The Care of Gardens During the Summer"

(Reported by Florence G. Billig, Emporia, Kansas)

Near the close of the school year the question arose: "How can we care for our gardens during the summer?" Since the products were not all mature, and since several members of the class expected to be out of town during the vacation period, various plans for the care of the school gardens were discussed. The other gardening classes of the school were invited to cooperate in the undertaking. A member of each class, together with four members of the seventh grade, composed the general committee of the school which adopted the following plan. A sale day was planned on which each person unable or not desiring to care for his garden plot might sell it. General posters announcing the sale were made by the art classes.

Individual posters announcing the good points and indicating the selling price of the gardens were made. Each person desiring to buy a garden had ample opportunity to visit the plot, to estimate the value of the growing crop and to estimate the gain which might be derived from a second planting. Business was transacted in the presence of some member of the committee. The buyer and two witnesses signed the following contract which was then sent to the supervisor of the garden work. Her endorsement signified her approval of the transaction.

Garden Contract

I, the undersigned, hereby promise that during the summer of I will faithfully take care of my garden and in payment for this ground I will help keep the paths and side lines free from weeds. If I violate any of the above provisions I will forfeit my garden to some one designated by the overseer.

Signed:

.....

Witness:

.....

.....

Approved:

.....

After the sale, the land owners met and elected one of their number to act as "overseer." His chief duty was to make certain that the obligations of the contract were observed. Each land owner was requested to keep an accurate account of the amount of time which he spent on his garden and the value of the produce which he grew. During the summer, the gardens were visited regularly by the various workers. In some instances, the gardens were not properly worked, and after two notifications from the "overseer," were forfeited. As soon as the first crop was mature, the ground was cleared, and a second crop was planted. When school opened in the fall, the gardens were visited and found to be in good condition. Many of the products had been gathered; most of the gardens had been cleared and were ready for the fall plowing. The overseer then made a detailed report of the work to the members of the school. The report indicated that the undertaking had been a profitable one. This work was conducted entirely by the gardeners, *i. e.*, the pupils, with advice from the instructor when it was asked.

263. "Building a Bungalow"

(Reported by Minnie A. Muttfeldt, Rockford, Illinois)

An interesting discussion among the pupils arose regarding the character of a good house, kind and cost of materials, etc. The boys laid off the lot on the school grounds, and the corners of the house were staked out by the use of the carpenter's tape line. They decided to make the lot 50' by 150' and the house 28' by 38'. The pupils went out into the city to investigate for themselves the various stages in house construction. Instructive talks with contractors and carpenters followed. Pupils brought in plans and pictures of houses for inspection. Each pupil drew a plan of his own. The best plan was chosen by the class and placed on the blackboard. All pupils copied the plan to the exact scale of $\frac{1}{4}$ " to 1'. At this point the manual training teacher became interested and agreed to have the boys build the house under his supervision, as the various problems were worked out in class, *e. g.*, problems of excavation, concrete work in walls and floors, brick work for foundation, lumber, roofing, etc. The house, on the scale of 1" to 1', was built in every way exactly like a real house. The house was painted and electric lighted, and the girls of the domestic science classes made the curtains under the supervision of the domestic science teacher.

F. PROJECTS CONCERNED WITH BUSINESS INTERESTS

264. "Starting a Business"

(Reported by Jennie M. Ferguson, Forest Park, Illinois)

The boys pretended that they started business with a capital of \$2,000. They wrote to several firms for catalogs, and from these secured prices for machines and all necessary supplies for a small shop. They kept the accounts for all the work done by the print shop with different departments of the school: the office, the newspaper, and the English, Art, and Practical Arts Departments. This involved many problems in arithmetic, as they had to figure the price of paper for each piece of work, and the cutting of it to advantage, the cost of labor by the hour or by the job, the necessary percentage for overhead expenses, etc. At the end of two months,

their balances showed that they had paid all running expenses and had made a small profit.

265. "A Clearing House"

(Reported by Drusilla Keller, Kansas City, Kansas)

The children desired to know how checks cashed in Kansas City, Missouri, reached the bank in Kansas City, Kansas. The teacher took two boys and three girls who had time for it to a Clearing House on Saturday morning. They then planned a clearing house for the next week's work. Each aisle was a bank from which a clerk and messenger was appointed. A president of the clearing house was elected; each aisle had one vote. Checks were written and were cashed in banks other than those on which check was written. Pupils who had visited the clearing house instructed clerks and messengers as to their duties, furnished the clerks with the sheets which had been given them at the Clearing House, and directed the work so that it was done as they had seen it done, even to placing a fine for those who made mistakes in addition. The pupils know how checks reach their makers, and the work of returning them when books were balanced was not taken up at this time.

266. "Teaching Thrift by a Thrift Bank"

(Reported by Emma Hyde, Agricultural College,
Manhattan, Kansas)

Thrift week was being emphasized by talks on how and why thrift was advisable. The temptation to spend could be overcome if the money was out of reach or if a special object was kept in view. A Thrift Bank was organized and operated for the class by class officers, directors and employers. Deposits of one cent up were taken. Deposit slip and pass book were made by each pupil, and the money kept in the school vault. Deposits were saved from picture shows, car fare and Hersheys. The books were audited once a month by members of the class, when the cashier and bookkeeper were changed. Principle of debit and credit methods of opening an account with a bank, and of writing checks were taught. The largest amount saved by one pupil was \$2.67. Combined deposits

in real banks increased during this period from \$625 (including bonds) to \$1,175.80.

“Reorganizing a Bank”

Later the thrift bank ‘failed’ and was reorganized. Shares of common stock, of preferred stock, and so many \$1,000 bonds were issued and sold by class brokers, below par. Receipts and brokerage were calculated, everything being paid by draft or check. Yearly expenses were calculated and deducted, surplus decided upon, and the rest invested in oil stock at the current price. At the end of two months holdings were sold at a good profit. Capital stock was deducted; interest on bonds and preferred stock was computed and paid. Dividend was declared and paid. Examination on Stocks and Bonds very satisfactory.

267. “The Finances of a Cafeteria”

(Reported by Helen M. Eckstein, Wichita, Kansas)

The Alexander Hamilton Intermediate School Cafeteria furnished fine material for many project lessons developing accuracy in arithmetic and algebra. Graphical problems were motivated and made interesting by submitting to the pupils the checks issued in payment for the various articles used in our cafeteria from September 22, 1919, to March 1, 1920. The checks were grouped by the pupils and the amount expended obtained. From this material furnished by the principal, graphs were made. The daily receipts furnished the basis for other projects. Accuracy was stimulated, as correct graphs depended upon correct addition. The invoice of groceries on hand, amounting to \$166.98, also furnished material for other problems.

268. “Forming a Mercantile Company”

(Reported by Maude M. Myers, Marlborough School,
Kansas City, Missouri)

The class formed a mercantile company. Each pupil was permitted to buy a limited amount of stock. Bonds were sold to those who preferred them to stock. A supply of school materials, such

as pencils, pens, tablets, rulers, erasers, etc., was bought by pupils who acted as buyers for the company; the teacher acted as adviser. A bookkeeping department was established, and when the selling price was determined upon, some pupil became salesman, being on duty between 8:30 and 9:00 A. M. The girls made pencil cases, candy, and several other articles to sell to the company. The directors of the company determined what articles should be purchased. Dividends were declared when profits justified. Each stockholder received his profits. In this case there were no overhead costs.

269. "Harvesting and Marketing the Hay of the School Yard"

(Reported by Maude M. Myers, Kansas City, Missouri)

The school yard contained five acres of fairly good hay. The same pupils who constituted the Cooperative Mercantile Company just described harvested and marketed the hay. They figured on the cost of gathering and marketing and employed some one to cut and rake the hay. Since there was no place for storage, the hay had to be sold green. The crop was insured. In bargaining for the gathering and the selling of the crop the pupils consulted the teacher and their fathers. There was little chance for a loss; on the contrary, a profit for the stockholders was realized.

270. "An Alphabet Game of Products"

(Reported from Buffalo, New York)

The pupils of the seventh grade, with very little help from their teacher, have compiled two lists of products, one for New York state, and the other for the world.

The game is played in this manner. One pupil starts to name products beginning, say with "s," and continues until he makes a mistake. In every case when he names a product, he must give the location where found or manufactured.

The list for New York includes aeroplanes, apples, automobiles, beans, bicycles, books, boots, bottles, brass castings, brooms, butter, cannon, canned goods, carpet, car wheels, cheese, cigars, china ware, clothing, cotton cloth, dairy products, deer, electrical supplies, engines, fire arms, flour, furniture, glass, gloves, graphite, hay, hats, hops,

hosiery, iron, knit goods, kodaks, limestone, lumber, matches, milk, oil, optical instruments, phonographs, pianos, peaches, potatoes, cement, pottery, salt, sandstone, scales, ships, silk, silver ware, starch, steel, talc, typewriters, upholstery, wagons, wire, woolen cloth, yachts, yarn, yeast.

The pupils have not only enjoyed the game, but have added materially to their knowledge of geography thereby.

G. PROJECTS CONCERNED WITH HOME INTERESTS

271. "Furnishing an Apartment"

(Reported by Martha Bucher, Kansas City, Kansas)

A man with six hundred dollars capital was supposed to rent and furnish a small apartment. First the apartment was chosen, a committee of children interviewing local real estate agents. The apartment was then furnished room by room. A list of the articles purchased, the names of the dealers from whom they came, and the cost was kept. The expense of the furnishing for each room was estimated. The amount owed to each dealer was paid by check, whereby a study of banking was introduced. As some of the pupils found it necessary to borrow money, this was also studied.

272. "The Home Budget"

(Reported by Mary A. Ruth, Horton, Kansas)

These pupils secured and planned budgets for their homes, based upon the salaries earned by their fathers. Budgets were worked over in the class, compared, discussed and changed if the class found them to be faulty. Later the budgets were compared with model plans worked out by economic experts. Much valuable work in keeping accounts, percentage, interest, and a great variety of problems developed, since some parents were buying homes upon the payment plan, others carried large amounts of insurance and in fact each budget had its individuality. Care must be taken in this type of work to avoid becoming too personal, and this was the teacher's chief work. From the home budget we went to the system employed by our local school board and city administration. This material was obtained by the pupils from the offices of the school superintendent and city clerk.

273. "The Fireless Cooker"

(Reported by P. Crecelius, St. Louis, Missouri)

The class was making a study of the modern conveniences found in the kitchen. A group of girls undertook to make a study of the fireless cooker and to present the results of their work to the class. With the help of the other pupils they drew up a set of questions, twenty in all, which they agreed to answer when they had completed their study. The following samples are given to show the kind of questions asked by the class:

1. "What makes it cook?"
2. "Why does not the food burn?"
3. "How long will it cook?"
4. "Who invented it?"
5. "Is it anything like a Thermos bottle?"
6. "Are there different kinds?"

The girls read all they could find on the subject in the general science books at their disposal, carefully examined and tried out a fireless cooker in the home of one of the girls, interviewed a dealer in the neighborhood as to the merits of the various makes, and finally reported the results of their study to the class. They referred to Elhuff, *General Science* (p. 108); Clark, *Introduction to Science* (p. 30); and Clute, *General Science* (p. 88).

274. "Fitting up a Bedroom"

(Reported by Katherine Morrison and Hazel Steibling, Kansas State Normal School, Emporia, Kansas)

A committee reported to their class-fellows the following needs of their practice house bedroom: pictures, dresser cover with color if possible, dressing-table accessories, clean woodwork, floors, windows, and rugs, and a well-made bed. The need for suitable pictures led them to visit the librarian to ask for discarded magazine covers to frame in industrial art. The need for a dresser cover finally developed a desire for an inexpensive bedroom set of unbleached muslin, appliqued in fabrics dyed to harmonize with the color scheme of the room. The need for dressing table accessories suggested the collection and decoration of small boxes which lent themselves readily to enamel decoration. With great satisfaction

one child contributed a pair of glass candlesticks to be enameled ivory as a part of the dressing table appointments. A desk set for the table was also designed and constructed. The need for cleaning the woodwork and floors led to a study of the effect of various cleaning agents on enameled, oiled and varnished surfaces, followed by a lesson on practical cleaning and bedmaking. The art side was carried on in the industrial art classes and the housewifery was carried on in the household arts classes. The teachers cooperated to the extent of interchanging and combining class hours as the needs of the project demanded.

CHAPTER V

NEW MATERIALS FOR SPECIAL CLASSES

INTRODUCTION

The purpose of the special class work is to teach pupils to become useful members of society. This type of child usually leaves school early. He should then have had proper health habits established and should then know what kind of work he can do as well as where he can get a job.

Everything in this child's life should lead toward fitting him for some useful work. The subjects to be taught should be those that would arouse the individual will and the impulse to do. He should be encouraged to produce what he has seen, heard, or experienced.

Much (if not all) of this child's school work could be made to revolve about some center. As the child's interest at all times should be encouraged, the center or purposeful activity should be something that will contain his experience, work that will hold his interest, while the work is being executed, and give him satisfaction when completed.

The following projects or purposeful activities are some that have been used with subnormal children.

275. "Hand Work and Arithmetic for Adolescent Subnormal Girls"

(Reported by Blanche M. Towne, Michigan State Normal College, Ypsilanti, Michigan)

The purpose was to make money to buy a sewing machine, by making rag rugs. The cost of the warp for one yard of a rug was determined, and also the waste between the rugs was measured and the cost ascertained. A fair price was added to this for labor. Then a few friends were told about the plan. They sent in their rugs. The borders were carefully planned. When the rugs were finished, the price was found. Then the girls made the deliveries and collections.

276. "Hand Work for Pre-Adolescent Children"

(Reported by Blanche M. Towne)

They desired to make something for one of the pupils who was sick at the hospital. After many suggestions, a scrap book was decided upon. A friend donated eight yards of dark green cambric which was divided and cut into leaves. The kind of pictures, size, arrangement, and theme were discussed. The pictures were cut from magazines secured from home, neighbors, and friends. These were carefully sorted, pages planned by laying the pictures on them, then they were pasted into the books. Two of the children then visited the hospital and took the book to their little friend.

277. "Arithmetic for Pre-Adolescent Subnormal Children"

(Reported by Blanche M. Towne)

"Can't we play store?" was answered in the affirmative by the teacher, provided the children would make the store. Boards were obtained from the manual training room and a counter constructed. Clean, empty cartons were brought from home. Then newspapers and storekeepers were consulted from time to time to get present-day prices. Money was made from pasteboard. Shopping lists were made next, and the articles purchased at the store. An itemized bill of each purchase was made and often these were totaled only once a week, when payment was made.

278. "Lesson in Decorating for Pre-Adolescent Subnormal Children"

(Reported by Blanche M. Towne)

The children desired a Halloween party and were asked if they thought the room was pretty enough for a party. They decided to decorate the room. All the ideas that they had seen or could get from pictures were brought together and discussed. It was decided that they needed corn stalks, pumpkins, and autumn leaves, also that owls, bats, cats, witches, squirrels, etc., should be hung from streamers at the windows and put around the room for a border. The children brought the corn stalks, pumpkins, and

autumn leaves from home, some of them even saving their pennies to buy pumpkins. The teacher was asked for patterns for most of the bats, cats, etc., and out of a box of various and sundry patterns, those that would best fit the spaces were chosen. The exact number needed was counted, and the number of sheets of each color of paper was estimated. The children put up the border and arranged the other material, criticising and changing their own work until the desired effect was obtained.

279. "Adolescent Subnormal Children Cooking Noon-Day Meal"

(Reported by Blanche M. Towne)

The children planned to serve a meal to the teachers in the building in order to obtain money to buy a piano. Properly balanced menus were made by the girls; prices of foods were ascertained, and advertisements in the newspapers were studied to find the best places where they might buy. The cost of each meal was figured, and the price to be charged was then determined. The girls prepared the food, set the table, and served the meal. Then they put away the food, and washed the dishes. Afterward they washed and ironed the table linen. At the end of each week the profits were figured and the girls themselves made the payments upon the piano.

280. "Reading Signs by Pre-Adolescent Subnormal Children"

(Reported by Blanche M. Towne)

The children desired to know what certain signs, as "Take One," "Forest Ave.," etc., said. A walk was taken to see the signs; then, to remember them, several of the children wrote them on pieces of paper. It was decided to make signs like those which were seen, so they could be kept in the school room. This was done with rubber stamped letters on cardboard. The children also suggested that they could make their own reading books and some games with the words. Pictures were drawn or cut out of old magazines wherever it was possible to use them. The writing in both the book and the games was practiced before it was written in the books.

281. "Adolescent Subnormal Girls' English"

(Reported by Nellie R. Olson, Faribault, Minnesota)

In story-telling hour, a girl told the story of Rip Van Winkle. Someone immediately asked if the class might make a play out of the story and see what good English they could use. The teacher said that if they did real well, the class might give the play at the High-School Auditorium. Immediately they set to work. They planned the names of the acts, and then the acts themselves. One girl planned and secured the improvised costumes. Then the class divided into groups of three and each group wrote the words for Act I, "The Home Scene." A day was given each group to practice their parts. Then each group presented its act to the class. The best work was selected, as well as the most suitable actors. In the first act, meal time was shown. The table linen and dishes were brought from home. Table etiquette was discussed. As the play was being practiced, the other members of the class were on the lookout for places where the English could be improved. The places, as they were improved, were noted in their English note books. Then the other acts were similarly prepared. Finally, the whole play was given. The play was also written and put in booklets, properly decorated with pictures. These booklets were kept to be shown at the school exhibit. As the play progressed, the girls decided to invite their mothers to see the play when it was complete.

282. "An English Exercise for Adolescent Subnormal Boys"

(Reported by Nellie A. Olson, Faribault, Minnesota)

A boy brought an army booklet. Someone said, "Can't we be an army?" The teacher, after finding out if the class wished to do this, asked how this could be carried out. The class divided into companies, each in charge of a corporal, who was appointed by the captain. The captain had been selected by the class, by balloting. The teacher was appointed by the captain as his assistant. The captain was to have charge of the class for two weeks. Each corporal was responsible for the work of his own company and at the beginning of each day reported to the captain the results of the previous day's work, which was shown in individual graphs.

The winning company had the stars and stripes placed in front of their company. The next captain was the corporal of the company who had had the flag the greatest number of times. The class decided to salute the captain each time they recited. The captain appointed an inspector, whose business it was to keep a record of the daily inspection of the "soldiers'" faces, teeth, hair, shoes and clothes.

The following things necessary to the making of a good American soldier were studied by the class:

1. How to become an American.
 - a. Experiences of parents were told.
 - b. Teacher told of her visit to Ellis Island. Pictures were shown.
2. The training that a soldier must have.
3. Learned and gave the "Flag salute" each day.
4. How we could become good Americans.
 - a. Have good habits.
 - b. Associate and talk to good Americans, on topics of interest and value as—
 - (1) What I am going to be when a man.
 - (2) News items.
 - (3) Inventions.
 - (4) How to improve our city.
 - (5) Short debates.
5. Select and read good newspapers and good magazines.
6. Select, read and report on good books.
 - a. Visited the city library.
 - b. Prepared a small school library containing books and magazines. (One boy acted as school room librarian.)
 - c. Teacher told parts of good books.
 - d. Decided on a brief book-review outline.
 - e. Gave book reviews.
 - f. Stories dramatized.
7. Prepared the spelling of words Americans ought to know.
 - a. Lists of fifty words foreigners ought first to learn were prepared by the class, each making his own list and seeing if the other members of the class could spell his words.
 - b. Words needed in different kinds of business.
 - c. Election Day words.
 - d. Armistice Day words.
8. Ability to write good letters.
 - a. Friendly letters to 'shut-ins' and friends.
 - b. Business letters.
 - (1) Ordering a good boy's magazine for the class.
 - (2) Wrote to the *Youth's Companion*, and ordered it for the teacher.
 - (3) Sent for some catalogue, or booklet about trapping, farming, electricity, etc.

9. Improved the penmanship.
 - a. Special drills, where needed, were given.
 - b. Samples of pupil's penmanship for each month were collected and kept.
10. Stories were read and told, which would help pupils to become good Americans.
11. Improved the English at all times.
 - a. New words were collected and used.
 - b. Errors in speech were corrected. Certain errors were corrected each month.
12. "Good Americans" posters were made showing:
 - a. Errors and how to get rid of them.
 - b. American soldier pictures.
13. Pictures were collected at all times.
14. Good American games were made and played.
15. Suitable poems and memory gems were studied.
16. Jobs for the members of the class were studied and discussed.
17. Studied thrift.
18. Made ballots and voted in the schoolroom on election day.

283. "Arithmetic Exercise Based on Street Paving for Adolescent Subnormal Boys"

(Reported by Nellie R. Olson)

Sand piles and paving machinery occupied the street near the school building. Questions like these were asked by the children: "What are they going to do with the sand?" "How do they make cement?" "Who pays the workmen?" "How do they mix cement?" "Who pays for the cement?" "Can the city get money to pay for the paving?" "Does it pay to spend so much money to pave the street?" The last question became the project, and the class set about to solve the different points that had to be considered, such as the expense of the paving to the city, and to the owners of homes along Fourth Street, how the cement is made, the money paid the men, the effect of the paved street on the value of the homes, and on the rent of the homes. They also found the saving to the city in the amount paid for sprinkling, oiling and street repairs. When difficulties in the arithmetical processes arose, the class stopped and drilled on that difficulty. Work was collected in a "Paving Booklet." Pictures of paved and unpaved streets and drawings of paving machinery were collected. The class were fully convinced that it had more than paid to pave Fourth Street.

**284. "Arithmetic Exercise for Adolescent Subnormal Girls
Based on Home Building"**

(Reported by Nellie R. Olson)

The first day of school the teacher and the girls discussed the kind of homes they would like to have some day. The teacher showed the class a picture of the home that she liked. The class decided each to bring a picture of a house plan that he liked. They then decided each one to work out everything that needed to be thought of in starting a home of his own. The following things were done:

1. Studied cost of lots in different parts of the city.
2. Went through procedure of buying a lot.
3. Found the cost of digging and making the basement and foundation.
4. Found and decided on a house plan suited to a family of four.
5. Some drew the house plan. Others made pasteboard models of the house.
6. Wrote contractors' sealed bids, giving estimates of the cost of building.
7. Opened the sealed bids on a certain date. Selected the most sensible and economical bid.
8. Found the amount of lumber, kinds of lumber, and wrote the bills. (Visited a house being built.)
9. Studied kinds and cost of wood for flooring.
10. Found how many square yards of plastering were needed and the cost. (Visited plasterers at work.)
11. Found the cost. Decided to tint the walls as it was cheaper.
12. Found the cost of different kinds of windows and purchased them.
13. Found the cost of finishing the floors. Practiced finishing a small section of a floor.
14. Found the cost of the heating plant, plumbing, electric wiring, and lighting. Showed on the drawings of the house plan exactly where the wiring and plumbing would be placed.
15. Bought curtains and furnishings for each room of the house. Found where discounts were given, and made use of the discounts in their purchases.
16. Wrote payrolls for the laborers employed.
17. Found the total cost of the home. Decided whether the contractor made any profit.
18. Found the cost of clothing for the family for one year.
19. Figured the grocery and meat bills for one year.
20. Decided where and what the men in each family earned a year.
21. Decided how the salary should be used—what percent for each expenditure—how much saved.
22. Decided how to invest the savings.
23. Figured how much would be had in five years, if savings were placed in a local savings bank.
24. Figured the teacher's and pupils' savings accounts.

This work was kept in individual booklets. Each child had his own book and a composite booklet made for the teacher. This work gave the girls a greater realization of how to use money intelligently and gave them a larger respect for honesty, intelligence, and good management.

285. "Arithmetic Exercises for Adolescent Subnormal Boys
Based on a 'Farm Book' "

(Reported by Nellie R. Olson)

All were interested in farm work and had worked on farms. The first day of school they discussed their own farm work. They finally decided that each one would make a 'Farm Book' showing a real farm and the transactions involved in farming. The lessons from day to day were shown in this book. Interesting pictures were also added. Original problems arose in connection with the following points which were suggested by the pupils:

- | | |
|---|--|
| <i>Problems and Discussions on:</i> | <i>Some of the Drill Work as It Came Up:</i> |
| 1. Size of the farms in this community | 1. Comparison of size of 320 acres with 160 acres and 40 acres |
| 2. Location of farms where boys had worked | 2. Size and drawing of a township, a section and quarter section |
| | 3. Realization of fractions and their values as: |
| | $\frac{1}{4}$ section = ? acres |
| | $\frac{1}{2}$ section = ? acres |
| | 1 section = ? acres |
| | $1\frac{1}{2}$ section = ? acres |
| 3. Value of farms in this vicinity and where boys had worked | 4. Multiplication of numbers as |
| | $320 \times \$120$ |
| | $160 \times \$100$ |
| | $80 \times \$115$ |
| | $40 \times \$150$ |
| 4. Comparison of values of different farms | 5. Drill on needed tables as of 2's, 5's, etc. |
| 5. Decide on having a 320-acre farm. Each one laid out his farm into grains, orchard, garden, pasture, barnyard, farm-house with yard, etc. | 6. Short way to multiply by 10 and 100 |
| | 7. Subtraction and multiplication |
| | 8. In drawing the farm, careful reasoning was needed in deciding length and width of farm so that the farm would be 320 acres in size, as: |
| | 20 by 16 |
| | 4 by 80 |
| | 8 by 40 |

- Problems and Discussions on:**
6. Building farm buildings, as barn, granary, hoghouse, chickencoop, farmhouse, garage, etc.
 - a. Excavating for basement
 - b. Lumber
 - c. Plastering
 - d. Concrete work
 - e. Painting
 - f. Plumbing
 - g. Electricity
 - h. Heating
 - i. Laying of floors
 - j. Furnishing the farmhouse (one room at a time)
 - k. Payroll of workmen
 7. Buying and upkeep of machinery
 8. Buying and keep of horses, cattle, chickens, etc.
 9. Planting and harvesting
 10. Farm labor problems
 11. Banking
 12. Drawings were made. Paper and pasteboard buildings were constructed. Pictures were brought
- Some of the Drill Work as It Came Up:**
9. In apportioning the farm into parts as it is in this community. Seeing that all parts added would make 320. This gave practice in addition and reasoning
 10. Fractions and percents were also taken up with the apportioning of the parts of the farm
 11. Finding the amount of lumber needed (board measure)
 12. Writing lumber bills
 13. Drawing plans to an agreed scale. Comparison of values of numbers, as: "If the length of the barn is 40 ft. and the width 30 ft. or 20 ft., how long ought the lines be drawn?" Much reasoning was here demanded
 14. Cubic measures were needed in the excavating
 15. Square measure was needed in the plastering, painting, etc.
 16. Need for multiplication and division often arose. Pupils knew where to look for tables when in need of them. Often some tables needed special drill by the whole class
 17. Buying at a discount. Sensible and usable percents were decided on and learned
 18. Writing of bills, checks, notes, etc.
 19. Payrolls furnished much drill in multiplication and addition
 20. Discounts offered by machine shops in this city were considered. The amount saved was estimated
 21. Profit and loss considered in connection with cattle, chickens, etc.
 22. Profit and loss of farming
 23. Farm accounts
 24. Saving's Account, problems solved Practice in percentage was here needed

By the end of the year each boy felt that he knew more about a farm than ever before. Information and problems were gotten from farmers, the agriculture teacher, boys' fathers, arithmetic books, farm papers, and the boys themselves. Each boy's book was proudly taken home at the end of the year.

CHAPTER VI

A BIBLIOGRAPHY OF THE PROJECT METHOD IN THE ELEMENTARY SCHOOL, THE JUNIOR HIGH SCHOOL, AND THE HIGH SCHOOL¹

WILLIS H. KERR, Librarian
JESSIE LUTHER, Reference Librarian
ANITA HOSTETTER, Research Secretary

Kellogg Library, Kansas State Normal School, Emporia, Kansas

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¹The bibliography by Herring and the list by the U. S. Bureau of Education, both cited below, have been used freely, although sometimes adapted and frequently re-arranged. The advice of Dr. H. G. Lull, Director of Training, Kansas State Normal School, is acknowledged.

An error in the enumeration of the references in the original manuscript brings the numbering ten units too high in items following the 179th. This error was unfortunately not detected until too late for correction. The total number of references is, therefore, 394 instead of 404.—*Editor.*

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68. Parker, S. C. Problem-solving or practice in thinking, 4 parts: 1. Problems of everyday life. *El. Sch. J.*, 21:16-25, Sep. 1920. 2. Actual lessons illustrating problem-solving in school. *El. Sch. J.*, 21:98-111, Oct. 1920. 3. How skilled problem-solvers think. *El. Sch. J.*, 21:174-88, Nov. 1920. 4. Rules for training pupils in effective problem-solving. *El. Sch. J.*, December 1920 (†—not yet published at date of this entry).

69. Snedden, D. The project as a teaching unit. *Sch. and Soc.*, 4:419-23, 1916.—Discussion of various units: the question and answer, the lesson, the topic, and the project. Characteristics, definition, history, and classification of projects. (Herring)
70. *Teaching*, No. 45, February, 1919. Examples of project-problem instruction, by H. G. Lull and others. (Out of print.)—Treats of the definition, stimuli, processes, relations to the study period, the recitation, the teacher, facilities, and examples of projects. Contains an adequate and detailed manual of practice. Twenty pages are devoted to the reproduction of children's notes, plans, revisions, outlines, and expositions of projects in geography, English, arithmetic, and science. An attempt to define certain details of procedure implicit in Dewey's philosophy of education. (Herring)

II. SPECIAL APPLICATIONS AND EXAMPLES

5. Curriculum and Program

71. Bigelow, G. I. The course of study and the program in the project method. (Horace Mann studies in primary education.) *Teach. Coll. Record*, 21:327-36, Sept. 1920.
72. Bonser, F. G. *The Elementary School Curriculum*. 466pp. 1920. Macmillan, N. Y.—Ch. 6, The project method and the curriculum. Ch. 7, Illustrations of two types of project organization.
73. Columbia University. Teachers College. Speyer School. *The Speyer School Curriculum*, by the staff and supervisors of the experimental and demonstration school of Teachers College. 180pp. 1913. Teachers Coll., Bur. of Pub., Columbia Univ., N. Y.—The interrelation of the content of the subjects of the curriculum, with projects and sources of data. Projects and sources accompany each grade curriculum. Projects are found most frequently with the subject of industrial arts. Rich in concrete suggestion from the kindergarten through the eighth grade. Excellent lists of books needed by children and teachers. (Herring)
74. Lull, H. G. Relation of project-problem instruction to the curriculum. *Sch. and Home Educ.*, 38:114-15, 1919.—The boundaries between subjects. Drill subjects and use subjects (applied technique) in elementary and junior high schools. Acquisition of the technique of subjects of the curriculum. (Herring)
75. Stevenson, J. A. The project and the curriculum. *Sch. and Home Educ.*, 38:146-51, 1919.—Some principles of curriculum making. An analysis of a first-grade project: making a flower garden. "Projects need not cut across subjects of the curriculum." Project as the basis of curriculum organization. (Herring)

6. Dramatization

76. Charters, J. A. The problem method of teaching ideals. *English J.*, 8:461-73, Oct. 1919.—The problem must grow out of some interest which the children already have. Emphasizes dramatization; many subjects, such as civics, history and literature, lend themselves to dramatization. (U. S. Educ. Bur.)
77. Clark, A. B. Experiment in problem teaching. *English J.*, 6:535-38, 1917.—Describes the writing and production of a play in one year

- by seventeen high-school pupils. Preliminary writing of plots and plays; earning money to see Forbes-Robertson; interviewing the great actor; conversations with miners and mining experts; community suggestions; type-writing, producing, and printing. A long, complex, but well-sustained problem-project. (Herring)
78. Cook, H. C. *Play Way; an Essay in Educational Method*. 367pp. 1917. Stokes, N. Y.—Unique, undoubtedly possessing style, full of epigrammatic wit and pedagogical wisdom. Discusses principles and methods of education; as play, self-government, "littleman lectures," a play town, acting, and play making. Easily skimmed for its kernels, yet sustained in quality. "The basis of educational method is regard for the interests of children," suggests a dominant attitude. (Herring)
79. Weller, Mrs. H. Finlay-Johnson. *Dramatic Method of Teaching*. 199pp. 1912. Ginn, Boston.—History, geography, arithmetic, composition, nature study, and manual arts taught through plays written or adapted to purpose by the pupils. (Herring)

7. Elementary Education

80. Batchelder, M. I. Materials and activities in the second grade. (Horace Mann studies in elementary education.) *Teach. Coll. Record*, 20:205-10, May 1919.—A typical day's program is described and an account given of activities in an experimental room largely dominated by the spirit and method of the project. (Herring)
81. Bonser, F. G., ed. Studies in elementary school practice. *Teach. Coll. Record*, 12:1-59, Jan. 1911.
82. Brady, A. M. Motivation in primary work. *Kinderg. and First Grade*, 5:155-56, April 1920.—Children make butter for a party.
83. Branom, M. E. Value of the problem-project method in elementary education. *El. Sch. J.*, 18:618-22, Apr. 1918.—Treats of four steps and nine advantages. The teacher can no longer afford not to be master of the method. The illustrative material is excellent. (Herring).—Discusses plan as worked out in the St. Louis schools. (U. S. Educ. Bur.)
84. Burke, A. First-grade materials and stimuli. (Horace Mann studies in primary education.) *Teach. Coll. Record*, 20:118-25, March 1919.
85. Detraz, M. J. Materials and activities in the third grade. (Horace Mann studies in elementary education.) *Teach. Coll. Record*, 20:210-18, May 1919.—Tells of the social difficulties in a self-directed group, of which the teacher is an influential member, and of their solution by the group. The narrative is vivid, dignified, and convincing. The curriculum content is given. (Herring)
86. Dewey, J. Prospective elementary education. In Rapeer, L. W., ed., *Teaching Elementary School Subjects*, pp. 552-69. 1917. Scribner, N. Y.—Such topics as pragmatism and intelligence, former theories, the new theory of mind, thinking, method, subject matter, occupation, and values are presented from the point of view of education through purposeful activity. (Herring)
87. Dobbs, E. V. Transformation of the primary school. *Kinderg. and First Grade*, 2:313-15, Oct. 1917.—Address given before the International Kindergarten Union, Boston. The factors necessary to transform a school of the old type into one of the new type, and the chief features of the old and the new type. (U. S. Educ. Bur.)

88. Freeland, G. E. *Modern Elementary School Practice*. 1919. Macmillan, N. Y. Ch. 2, The problem method; ch. 3, The project.
89. Fritz, J. A. How a project was worked out in a 1 B room. *Kinderg. and First Grade*, 4:20, 1919.—A good illustration of the rise and leads of a simple project. (Herring)
90. Fritz, J. A. Motivated Christmas work in the first grade. *Kinderg. and First Grade*, 2:423, 1917.
91. Garrett, L. B. *Study of Animal Families*. Bulletin No. 2, Bureau of educational experiments, 70 Fifth Ave., N. Y.
92. Good health project. *Pop. Educator*, 38: 194, Dec. 1920.
93. Grout, E. B. Power of the project. *Prim. Educ.*, 22:212-14, Apr. 1920.
94. Herr, L. A. Making a merry-go-round, a Christmas project. *Indus. Arts Mag.*, 9:476-79, Dec. 1920.
95. Imboden, S. M. A co-operative community study. *El. Sch. J.*, Nov. 1920.
96. Jenkins, A. U. Project teaching in the elementary school. *Pop. Educator*, 38:136-7, Nov. 1920.—Outlines four types of projects, with suggestions for their application.
97. Jennings, H. S., and others. *Suggestions of Modern Science Concerning Education*. 1917. Macmillan, N. Y.—Rather general application to the project in the elementary school, but the following parts are especially suggestive: H. S. Jennings, Biology of children in relation to education; J. B. Watson, Practical and theoretical problems in instinct and habits.
98. Kendall, C. N., and Mirick, G. A. *How to Teach the Fundamental Subjects*. 1915. Houghton Mifflin, Boston.—Project in the sense of making the work practical.
99. Kilpatrick, W. H. Theories underlying the experiment. (Horace Mann studies in elementary education.) *Teach. Coll. Record*, 20:99-106, March, 1919.—What children are to learn of common affairs, of social ideals and skills, of self-reliance, and of school arts; learning to do by doing; the child's method; child doing under teacher guidance. A presentation before patrons of the Horace Mann School of the theories of a significant experiment. (Herring)
100. Krackowitzer, A. M. *Projects in Primary Grades*. 221pp. 1919. Lippincott, Philadelphia.—A presentation from the point of view of the Dewey philosophy; play, construction, social ethics, nature, and the formal subjects are all treated as "purposeful activity." Discussion of problem and project, and of criteria. Rich with illustrations of projects for the primary grades. A type of book bound to appear more and more frequently. (Herring)
101. Linke, E. A. An experiment in teaching in response to children's questions. *Teach. Coll. Record*, 21:55-67, Jan. 1920.
102. McKee, J. W. Primary experiments. *Kinderg. and First Grade*, 5:95-98, March 1920.
103. Mackie, M. Story of the Pilgrims, a fourth-grade project. *Prim. Educ.*, 28:547-49, Nov. 1920.
104. McMurry, F. M. *Elementary School Standards*. 218pp. 1914. World Bk. Co., Yonkers, N. Y.—Interesting, searching, qualitative criticism of a school system in the light of four standards, which are standards for problem teaching; provision for motive on the part of pupils, consideration of values by pupils, attention to organization by pupils, and

- initiative by pupils. The book will long be vitally pertinent (Herring)
105. Meadowcroft, F. M. Specimen activities of the first grade (Horace Mann studies in elementary education.) *Teach. Coll. Record*, 20:106-18, March, 1919.
 106. Miller, I. E. *Education for the Needs of Life*. 1917. Macmillan, N. Y.—Ch. 5, Principles of method, is particularly on the project.
 107. Minor, R. Project teaching in grade six. *El. Sch. J.*, 20:137-45, Oct. 1919.—The rise of problems; lists of problems and of pupil activities; titles of compositions; relationships among subjects of the curriculum; results; how the work of the grade as a whole was handled. Concretely helpful. (Herring)
 108. Moore, A. E. Use of children's initiative in beginning reading. *Teach. Coll. Record*, 17:330-43, 1916.—The purpose of the experiment was to "see what could be accomplished in beginning reading through self-directed individual effort," and to select those reactions which were most effective. A most promising first-grade project, with a list of pictures, apparatus, and books used. (Herring)
 109. Morris, M. Third-grade project. *Central Normal Bulletin*, 15:1, 1919.—Valuable as suggesting that teachers who move to new fields may put their new pupils into communication with their former ones. Leaver of timber trees, peanuts on the stalk, cotton, etc., were exchanged and utilized as drives for letter-writing, spelling, and geography. (Herring)
 110. Parker, S. C. *General Methods of Teaching in Elementary Schools*. 1919. Ginn, Boston.
 111. Patri, A. *A School-Master in a Great City*. 1917. Macmillan, N. Y.
 112. Powell, F. A. Projects for primary grades. *Prim. Educ.*, 28:480-83, 546-7, 622-23, Oct., Nov., Dec. 1920.
 113. Project in an English school, by a London Teacher. *Prim. Educ.*, 28:484-86, Oct. 1920.
 114. Rapeer, L. W., ed. *Teaching Elementary School Subjects*. 569pp. 1917. Scribner, N. Y.—A symposium of more than a score of leaders of thought and practice in education. Each author treats of a subject of the curriculum. In numerous places the content is related with projects. (Herring)
 115. Rich, F. M. Projects in plant study; autumn term. *Pop. Educator*, 38:200-201, Dec. 1920.—For Grades 1-8.
 116. Russell, L. Christmas disorganization, a remedy. *Pop. Educator*, 38:138-40, Nov. 1920.—A project to restore morale when attention has been away from the regular round of study.
 117. Stone, C. R. Some illustrative silent reading lessons. *El. Sch. J.*, Sep. 1920.
 118. Storm, G. E. Project for the second grade: pt. 1, Trimming a bird's Christmas tree, a bird study unit; pt. 2, A morning assembly based on a bird study unit. *Prim. Educ.*, 28:550-52, 620-21, Nov. and Dec. 1920.
 119. Sweeney, E. L. Problem-project method in primary grades. *Kinderg. and First Grade*, 5:177-79, May 1920.
- See also following section, Kindergarten, and entry No. 78, above.

8. Kindergarten Education

(Note: Project is here interpreted rather generally as any activity leading to self-expression. Hence considerable general material on kindergarten theory is included.)

120. Aultman, E. M. Odds and ends of hand work. *Kinderg. and First Grade*, 5:204, May 1920.
121. Bailey, C. S. Summer constructive play. *Kinderg. and First Grade*, 3:246-48, June 1918.
122. Banta, C. M. Individuality developed through self-expression and free play. *Kinderg. and First Grade*, 2:14, June 1917.
123. Barbour, C. W. The free period as an educational factor. *Kinderg. and First Grade*, 3:133-39, Apr. 1918.—Some of the values resulting from the free period. (U. S. Educ. Bur.)
124. Bureau of educational experiments. *Catalogue of Play Equipment*. (Bulletin No. 8.) 70 Fifth Ave., N. Y.
125. Bureau of educational experiments. *Experimental Schools*. (Bulletins 3, 4, and 5.) 70 Fifth Ave., N. Y.
126. Bureau of educational experiments. *Playthings*. (Bulletin No. 1.) 70 Fifth Ave., N. Y.
127. Chambers, W. G. Childhood education. *Kinderg. and First Grade*, 1:334-38, Oct. 1916.
128. Crawford, S. W. Some problems of industrial art worked out by children. *Kinderg. and First Grade*, 2:166, Nov. 1917.
129. Dixon, E. D. An experiment illustrating spontaneous group work. *Kinderg. and First Grade*, 3:13, Jan. 1918.
130. Dobbs, E. V. *Primary Handwork*. 1914. Macmillan, N. Y.—Suggestive guide to use of sand table, scissors, clay, cardboard, etc. Outlines methods tested by actual practice and organizes them for the use of untrained teachers with a view to the limitations of a small-town school. (A. L. A. Booklist.)
131. Ellis, E. Comparison of results of the kindergarten and Montessori methods. *Kinderg. Rev.*, 26:209-14, Dec. 1915.—Given before the Boston Froebel club. Frankly and enthusiastically in favor of Montessori. (U. S. Educ. Bur.)
132. Faddis, J. R. Relation of the kindergarten and elementary grades. *Kinderg. and First Grade*, 1:66-72, Feb. 1916.
133. Greenwood, B. Development of the curriculum. *Kinderg. and First Grade*, 1:117-21, March 1916.
134. Griffiths, N. W. Four-year-old child and the project method. *Kinderg. and First Grade*, 5:187, May 1920.
135. Hegner, B. H. Home activities in the kindergarten. Reprint from *Kinderg. Mag.*
136. Henley, F. Spontaneous group work vs. organized group work. *Kinderg. and First Grade*, 3:10, Jan. 1918.
137. Hetherington, Mrs. C. W. Demonstration play school of the University of California. *Kinderg. and First Grade*, 2:59, Feb. 1917.
138. Hill, M. D. Educational values which the child carries over from the kindergarten into the primary grades. *Kinderg. and First Grade*, 1:371-75, Nov. 1916. Also in *Kinderg. Prim. Mag.*, 29:53-56, Oct.

- 1916.—Plan for basing early first grade work directly upon last work done in kindergarten.
139. Hill, P. S., ed. Experimental studies in kindergarten theory and practice. *Teach. Coll. Record*, 15:1-60, 1914. Also in separate pamphlet, same title, 1914, Bureau of Pub., Teachers College, Columbia Univ., N. Y.
140. Hill, P. S. Kindergarten of yesterday and tomorrow. *Kinderg. and First Grade*, 1:331-33, Oct. 1916. Also in *Kinderg. Prim. Mag.*, 29:4-6, Sep. 1916.
141. Holmes, E. G. Plan for Kindergarten course of study. *Kinderg. Rev.*, 26:148-65, Nov. 1915.—An outline for a kindergarten course which is suggestive of project method.
142. Hoxie, J. L. A child's garden. *Kinderg. and First Grade*, 1:164-65, Apr. 1916.
143. International kindergarten union. Proceedings (of the annual meetings).
144. International kindergarten union. Sub-committee on curriculum of the Bureau of Education committee. The kindergarten curriculum. (U. S. Educ. Bur., Bulletin, 1919, No. 16.) Govt. Pr. Office, Washington, D. C.
145. Krackowitzer, A. M. Social enterprises of little children: gardening. *Kinderg. and First Grade*, 5:142-45, Apr. 1920.
146. Loeb, J. An experiment in a public school kindergarten. *Kinderg. and First Grade*, 5:58-63, Feb. 1920.—Results of an experiment to ascertain just what kindergarten children would do with as little interference and as few suggestions from the teacher as possible. (U. S. Educ. Bur.)
147. Moore, A. E. Report of I.K.U. committee on minimum essentials in kindergarten and primary grades. *Kinderg. and First Grade*, 2:283-90, Sep. 1917.
148. National council of primary education. Report of second annual meeting at Kansas City, Mo., Feb. 27, 1917, and of the third annual meeting at Atlantic City, N. J., Feb. 26, 1918. (U. S. Educ. Bur., Bulletin, 1918, No. 26.) Govt. Pr. Office, Washington, D. C.
149. National council of primary education. Proceedings of the fourth annual meeting, Chicago, Ill., Feb. 25, 1919. (U. S. Educ. Bur. Bulletin, 1919, No. 69.) Govt. Pr. Office, Washington, D. C.
150. National education association, Department of kindergarten education. Reports of addresses, in *N. E. A., Proc.*, any year.
151. Paine, M. D. Suggestions for fall nature study. *Kinderg. and First Grade*, 1:348-55, Oct. 1916.
152. Robinson, B. H. A building project with large floor blocks. *Kinderg. and First Grade*, 3:373, Nov. 1918.
153. Sargent, W. Beginnings of art for little children. *Kinderg. and First Grade*, 2:370, Nov. 1917.
154. Schaffer, L. I. Christmas in the kindergarten. *Kinderg. and First Grade*, 2:316, Oct. 1917.
155. Scott, C. A. Self-organized groups. *Kinderg. and First Grade*, 2:316, Oct. 1917.
156. Shute, M. C. Practice of democracy in the kindergarten. *Kinderg. and First Grade*, 3:89-94, March, 1918.—Training "in freedom" trains

- child "for freedom" and for responsibility. Method is evidently project. See also entry No. 267.
157. Sies, A. C. Problems in sensory-motor education involving the selection of play materials and apparatus for small children. *Kinderg. and First Grade*, 1:49-55, Feb. 1916.—Specific sense-training through play to form habits which will be useful in life.
 158. Smith, M. Report of the experiment in primary education in the School of childhood of the University of Pittsburgh. *Kinderg. and First Grade*, 1:288-90, Sep. 1916.
 159. Temple, A. The kindergarten-primary unit. *El. Sch. J.*, 20:498-509, 618-27, March and April 1920.—An account of what the school of education has done... "to bring the work of the kindergarten into organic relationship with that of the rest of the school." Discusses language activities in the kindergarten-primary period. (U. S. Educ. Bur.)
 160. Temple, A. *Survey of Kindergartens of Richmond, Indiana*. 1917. Univ. of Chicago Press, Chicago.
 161. Tupper, H. B. A farm project. *Kinderg. and First Grade*, 5:249-50, June, 1920.
 162. Wall, A. D. What are we going to do with the war in the kindergarten? *Kinderg. and First Grade*, 3:320-22, Oct. 1918.—A unit of work developed through the project method. (U. S. Educ. Bur.)
 163. Watkins, C. Industrial arts in the kindergarten. *Kinderg. and First Grade*, 1:160-62, Apr. 1916.
 164. Watson, J. B. The pre-kindergarten age; a laboratory study. *Kinderg. and First Grade*, 5:14-18, 68-72, 105-109, Jan., Feb., March 1920.—Report of various experiments to test reflexes.
 165. Wells, H. G. *Floor Games*. 1912. Small, Boston.
 166. Wilson, C. O. Problem method of attack. *Kinderg. and First Grade*, 2:200, May, 1917.
 167. Wolford, B. W. Individual and group play. *Kinderg. and First Grade*, 1:380-84, Nov. 1916.
- See also the preceding section, Elementary Education, and entry No. 78 (Cook, Play way).

9. Library Correlation

168. Kerr, W. H. Problem method and its library correlation, a librarian's reaction. *Libr. J.*, 42:686-87, Sep. 1917.—The writer approves the problem method of study and plans generously to adapt library methods to the needs of children who use the method. (Herring).—Written as discussion of Lull's paper, entry No. 170, below.
169. Lauler, L. F. A practical project in library work. *Pop. Educator*, 38:196-98, Dec. 1920.
170. Lull, H. G. Problem method of instruction and its probable correlations in library service and administration. *N. E. A. Proc.*, 1917:562-66. Discussion, pp. 566-72. *Same article*, abridged, *Libr. J.*, 42:683-5, Sept. 1917.—Problem instruction requires the pupil to seek information from a variety of sources, of which the library is one of the most important. Writer discusses how the necessary library facilities may best be supplied. (U. S. Educ. Bur.)

10. *Measurements and Tests*

171. Herring, J. P. Measurements of some abilities in scientific thinking. *Journ. of Educ. Psych.*, 9:535-58, 1918, and 10:417-32, 1919.—Intimate relation of project method and scientific method; definition of certain phases of scientific method; a test composed of 33 problems designed as measures of defined aspects of scientific ability; aim, history, and limitations of the test. The text of the test is presented, and a scale is developed. (Herring)
172. Lull, H. G. *Observation and Score Card, Project Method of Learning*. Revised 1920. Kansas State Normal School, Bur. of Educ. Meas. and Tests, Emporia, Kansas.—Three excellent cards presenting an elaborate analysis of project-problem abilities in five parts: IA and IB, Pupil activities and teacher activities in the recitation period; IIA and IIB, Pupil activities and teacher activities in the supervised study period; III, Drill projects. (Herring).—*See also*, Lull's handbook to accompany these score cards, entry No. 62, above.
173. McCall, W. A. Measuring the Horace Mann Elementary School. *Teach. Coll. Record*, 19:472-84, 1918.—Reports measurements in an experimental school where the project method is used in several rooms. (Herring)
174. McCall, W. A., and others. Experimental measurements. (Horace Mann studies in elementary education.) *Teach. Coll. Record*, 20:218-28, May 1919.—The measurement of experimental groups using the project method and of control groups not using it justified the conclusion that the project method secured the conventional "intelligences" of the primary grades almost as well as the older methods. The project method, being new, it is suggested, may or may not later outstrip the more formal methods in the intellectual requirements of minimum essentials, and may or may not outstrip them in certain as-yet unmeasurable qualities. (Herring)
175. Thompson, C. J. Study of the socialized versus the academic method of teaching written composition. *Sch. Rev.*, 27:110-133, 1919.—An experimental and a control group are compared through measurements, with the conclusion that the method which utilizes the social elements of the composition and group stimuli gives decidedly better results. Recommendations as to procedure are included. (Herring)
—*See also* entry No. 271.

11. *Socialization*

176. Burks, J. D. Environment of the school. *Teach. Coll. Record*, 3:273-91, 1902.—The environment is that of the Speyer School. This article admirably illustrates one kind of knowledge needed in education through projects. (Herring)
177. Burns, H. F. Group socialized recitation. *Education*, 39:176-81, 1918.—Develops somewhat elaborately a plan of discussion in small groups as preparation for recitation. The plan is reported as having been warmly approved by certain high-school pupils, who say that it is broadening, it is interesting, it develops coherent expression and cooperation, and that it provokes thought. (Herring)
178. Chicago Normal College students. Suggestive outline for project-problem teaching. *Chicago Schools J.*, 2:17-20, 1919.—Questions to stimulate interest and bring out the suggestion by the group that a club be

formed to study Chicago's achievements and needs. The plans made by the group are presented, including the organization of a dramatic club.

1. Dewey, E. *New Schools for Old: the Regeneration of the Porter School*, 337pp. 1919. Dutton, N. Y.—A solution of difficulties typical of rural education through means typically accessible in the country. The things done in the school were done with an eye to the education of the community. School and community interest were made one. (Herring)
1. Dewey, E., and Dewey J. *Schools of Tomorrow*. 316pp. 1915. Dutton N. Y.—A contemporary source of current thought on purposeful activity in education, as related to natural development, freedom, individuality, play, education through industry, and democratic education. Certain "schools of tomorrow," now famous, are here described. (Herring)
1. Fell, E. E. Socializing the school and the community. *Moderator Topics*, 38:453-55, 469-71, 1918.—Describes the organization, subsequent management, and benefits of clubs for parents and teachers. (Herring)
2. Francis W. Parker School, Chicago. Morning exercise as a socializing influence. 198pp. (Francis W. Parker School Yearbook, v.2, 1913.)
3. Francis W. Parker School, Chicago. Social motive in school work. 139pp. (Francis W. Parker School Yearbook, v.1, 1912.)
1. Lull, H. G. Socializing school procedure. *Amer. J. of Sociol.*, 24:681-91, May 1919.—The free-play ways of children utilized in teaching. Two assignments are presented, one that hampers the free purposeful attack of pupils and one that furthers that attack. Stenographic report of class conversation. Application of the project way to discipline and planning. (Herring)
5. Newby, M. I. The socialized recitation. *Sierra Educ. News*, 15:70-2, 1919.—A school magazine published by pupils, debating clubs for oral language, imaginary ownership of real estate, and oil prospecting are used to socialize the curriculum. Suggestive of projects possible in most communities. (Herring)
6. Quick, H. *Brown Mouse*. 310pp. 1915. Bobbs, Merrill, Indianapolis.—Fascinating fiction of a farmer lad with a country education, who was inveigled to teach the country school and who quasi-instinctively based his procedure upon an informal survey of community needs. A book that makes its own educational appeal on a basis of common sense and plain humor. The ways of the novice here strikingly suggest the project method. (Herring)
7. Roberts, A. C. An experiment in socialization. *Sch. Rev.*, 26:25-34, 1918.—Details an experiment in the adaptation of high-school education to certain purposeful community demands. (Herring)
8. Scott, C. A. *Social Education*. 298pp. 1908. Ginn, Boston.—Describes certain atypical schools, such as the George Junior Republic and the Dewey School. Discusses self-organized group work. (Herring)
9. Scott, C. A. Social significance of self-organized group work. In King, I., ed., *Social Aspects of Education*, pp. 377-93. 1912. Macmillan, N. Y.—Presents a method of initiating the project plan in a school room to which it is new, and describes a number of projects. Socialization is seen intimately related with project. A most interesting, vivid, and frank narrative concerning certain difficulties and solutions in socialization. (Herring)

12. Study, Thinking, Learning

200. Dearborn, G. V. N. *How to Learn Easily*. 221pp. 1916. Little-Brown, Boston.—One of the how-to-study books from which one may take helpful suggestions for his own method in its general aspects. (Herring)
201. Dewey, J. *How We Think*. 224pp. 1910. Heath, Boston.—A main source of the philosophy and psychology of education through problems, with much specific advice as to procedure in the school. (Herring)
202. Dewey, J. Reasoning in early childhood. *Teach. Coll. Record*, 15:9-15, 1914.—The improvement of reasoning power is perhaps impossible through teaching, but the conditions which permit its development may be provided. Three constant conditions of thinking: end, means, discovery. A writing of importance as showing through what means reasoning capacity may grow and through what means it will not. (Herring)
203. Earhart, L. B. Experiment in teaching children to study. *Education*, 30:236-44, 1909.—Can fourth-grade pupils be taught to study a reading lesson independently? The question is answered affirmatively, and a detailed account of the method of investigation is presented. Very useful on the problem side of the project method. (Herring)
204. Earhart, L. B. *Systematic Study in the Elementary Schools*. 97pp. 1908. Teachers College, Columbia Univ., N. Y.—Treats of the usual lack of effective study by children and of its possibility, of the recognition of problems, collecting data, scientific doubt, verification, memorizing, and of recognizing individuality. Illustrative material is included. An excellent analysis of the educational situation as to children's study, and of valid methods. (Herring)
205. Earhart, L. B. *Teaching Children to Study*. 181pp. 1909. Houghton Mifflin, Boston.—Treats of the inductive and deductive methods of study, of the textbook in study, of children's abilities for study, and of present attainments. Very useful on the problem side of the problem-project method. (Herring)
206. Earhart, L. B. *Types of Teaching*. 277pp. 1915. Houghton Mifflin, Boston.—See especially ch. 14, Training children to study. Treats of finding the aim, judging of hypotheses, collecting and evaluating data, organizing data, suspending judgment, testing conclusions, and thoughtful memorizing. Valuable for the problem aspect of the problem-project method. (Herring)
207. Jones, W. H. S. *How We Learn*. 64pp. 1916. Putnam, N. Y.—The psychology and practice of scientific method as employed by boys. Induction, deduction, examples of scientific discoveries, the method of discovery, analogy, fallacies, learning, and authority. The illustrative material is well developed. (Herring)
208. Kitson, H. D. *How to Use Your Mind*. 217pp. 1916. Lippincott, Philadelphia.—One of the how-to-study books from which one may take helpful suggestions for his own method in its general aspect. (Herring)
209. Lull, H. G. University how-to-study class. *Sch. and Soc.*, 4:961, 1916.—How the author in co-operation with instructors in the engineering department of a university taught engineering students how to study. Suggests a type of work probably much needed in many schools. (Herring)

210. McLaughlin, K. How to study. *El. Sch. J.*, 15:22-24, 1915.—Three common difficulties are presented and remedies proposed. (Herring)
211. McMurry, F. M. *How to Study and Teaching How to Study*. 324pp. 1909. Houghton Mifflin, Boston.—Nature of study; provision for specific purposes; supplementing thought; organizing ideas; judging soundness and worth; memorizing; using ideas; tentative attitudes; individuality. An important early contribution to the project method, with special emphasis on the problem. (Herring)
212. McMurry, F. M., and others. Symposium on study in the elementary school. *Education*, 30:242-44, 311-15, 1909-1910.—Opinions of a score of educators in response to pertinent questions. (Herring)
213. Merriman, E. D. Technique of supervised study. *Sch. Rev.*, 18:35-38, 1918.—Very helpful, detailed, concrete outline for this phase of problem study. (Herring)
214. Miller, I. E. *Psychology of Thinking*. 298pp. 1910. Macmillan, N. Y.—Useful as an analysis of the physiological and psychological bases of thinking. Includes many specific suggestions as to procedure in guiding children in their thinking. (Herring)
215. Borem, S. O. Supervised study as a school project. *Junior High School Clearing House Bull.*, 1:23-24, April 1920.
216. Sandwick, R. L. *How to Study and What to Study*. 170pp. 1915. Heath, Boston.—A how-to-study book that repays reading. Discussion; pithy summary; positive recommendation; analysis of process, aspects, types, and factors of study. Good for junior- and senior-high-school students and for adults who feel the need of help on the technique of their study habits. (Herring)
217. Whipple, G. M. *How to Study Effectively*. 44pp. 1916. Public Sch. Pub. Co., Bloomington, Ill.—Clear, sound, detailed directions for guidance of study in the elementary school, high school, and college. Contains much that will help many an adult. (Herring)

15. Teacher Training

218. Kelly, F. J. The problem method applied to teachers' institutes. *Teaching*, No. 39, Oct. 15, 1917, pp. 5-10.
219. Miller, H. L. University of Wisconsin plan for the preparation of high school teachers. *18th Yearbook, Pt. 1*, pp. 7-165.—A vigorous, suggestive presentation of the plan of preparation through participation, in which the project method is central, and from which one may learn much of the actual working of the method in one school and almost sense how it feels to learn to teach well. The earnest daily reports of the college seniors who are preparing to teach are illuminating. (Herring)
220. Nolan, A. W. Project methods in teacher training in vocational agriculture. In *N. E. A. Proc.*, 1918:276.
221. Taylor, W. S. Project methods in teacher-training courses. *Sch. and Soc.*, 8:487-90, Oct. 26, 1918. Same *N. E. A. Proc.*, 1918:276-78.—Instruction in agriculture in the secondary school was lifeless until projects were used. The beneficial results and the criteria of the method in agriculture are discussed. (Herring)

III. SUBJECTS OF INSTRUCTION

14. Agriculture

222. Association of Land Grant Colleges. Teaching by the problem method was the theme of the 34th annual meeting of the association, at Springfield, Mass., Oct. 19-22, 1920. Secretary, J. L. Hills, Burlington, Vt.
223. Bawden, W. T. Agricultural education through home projects: the Massachusetts plan. *Voc. Educ.*, 3:86-105, Nov. 1913.
224. Bennett, C. B. Study of the wheat industry in the fifth grade. *Teach. Coll. Record*, 12:50-54, Jan. 1911.
225. Benson, O. H. Project demonstration. *J. of Educ.*, 82:125, 129, Aug. 19, 1915.
226. Bricker, G. A. Home projects. In his *Agricultural Education for Teachers*, pp. 147-53. 1914. Am. Bk. Co., N. Y.
227. Carris, L. H. Vegetable gardening as a school project. *Atlantic Educ. J.*, 12:146-51, Nov. 1915.
228. Cook County, Illinois. Public instruction dept. Achievement course. (School-home project outline 1918, Cook County schools.) 19pp. 1918. Chicago.
229. French, W. H. Home projects in agriculture for Michigan schools and school credits. (Bulletin No. 17, Michigan Agricultural Coll., East Lansing.) 15pp. 1916.
230. Gibson, H. H. Relating the work in agriculture to home and community problems. *Midland Schools*, 31:146-48, Jan. 1917.—Poultry work; home project work. (U. S. Educ. Bur.)
231. Hawkins, L. S. Plans and records of home project instruction. In *Nat. Soc. for the Promotion of Indus. Educ., Proc.*, 1916:312-24.
232. Heald, F. E. *Lessons in Poultry for Rural Schools*. (Bulletin 464. U. S. Agric. Dept.) 34pp. 1918. Govt. Printing Office, Washington.
233. Heald, F. E. The project in agricultural education. *Gen. Science Q.*, 1:166-69, March, 1917.
234. Heald, F. E. *School Credit for Home Practice in Agriculture*. (Bulletin 385, U. S. Agric. Dept.) 27pp. 1916. Govt. Pr. Office, Wash.
235. Indiana. Public instruction dept. Supervised home project and club work. (Indiana. State Board of Education. Educational Bulletin No. 39, Vocational Series No. 19.) 61pp. 1919. Indianapolis.
236. Indiana. Public instruction dept. Supervised home project work. (Indiana. State Board of Education. Educational Bulletin No. 19, Vocational Series No. 15, Jan. 1917.) 12pp. 1917. Indianapolis.
237. Indiana. Public instruction dept., Vocational division. Courses in agriculture on the home basis. (Indiana. State Board of Education. Educational Bulletin No. 27.) 395pp. 1917. Indianapolis.
238. Lane, C. H., and Heald, F. E. *Correlating Agriculture with the Public Schools in the Northern States*. (U. S. Agric. Dept. Bulletin 281.) 42pp. 1915. Govt. Pr. Office, Washington.
239. Massachusetts. Education board. *Agricultural Project Study*. (Agricultural education service, Bulletin, 1912, No. 4.) 38pp. 1912.
240. Massachusetts. Education board. The part-time and project method necessary to an effective system of agricultural schools for Massa-

- chusetts. In its *Report on Agricultural Education*. January 1911, pp. 41-61. Boston.
241. Massachusetts. Education board. *Project Study Outlines for Vegetable Gardening*. (Agricultural Education Service, Bulletin, 1912, No. 5.) 30pp. 1912.
242. New Hampshire. Public instruction dept., Division of institutes. Home projects in horticulture and field crops. Requirements for standard (N. H.) schools. (New Hampshire. Department of Public Instruction. Institute circular, series 1917-18, No. 83.) 18pp. 1917. Concord, N. H.
243. New York (State). Education dept. Home project work in agriculture. In its *Schools of Agriculture, Mechanic Arts, and Homemaking*. (University of the State of New York, Bulletin 543, May 15, 1913.) pp. 11-16. 1913. Albany, N. Y.
244. Nolan, A. W. *Home Projects for School Agriculture*. 37pp. 1913. Agricultural College, Univ. of Illinois, Urbana.
245. Selvig, C. G. The home project as the center vs. the home project as the outgrowth of agricultural instruction. *School Education*, 35:4-5, Feb. 1916.
246. Spanton, W. T. The home project method of instruction in vocational agriculture. *Ohio Teacher*, 41:12-15, Sept. 1920.
247. Stimson, R. W. Effect of rural continuation school on agricultural efficiency. In *N. E. A. Proc.*, 1918:291-93.
248. Stimson, R. W. *Massachusetts Home-Project Plan of Agricultural Education*. (U. S. Bureau of Education. Bulletin, 1914, No. 8.) 104pp. 1914. Govt. Pr. Office, Washington.
249. Stimson, R. W. *Vocational Agricultural Education by Home Projects*. 468pp. 1919. Macmillan, N. Y.
250. U. S. Vocational Education, Federal board for. The home project as a phase of vocational agricultural education. (Bulletin 21, Agricultural Series, No. 3.) 43pp. 1918.
251. Use of the home farm in agricultural teaching. *Sch. Science and Math.*, 16:584-94, Oct. 1916.
252. Watson, C. W. School home-garden project. *Nebraska Teacher*, 20:293-97, 1918.—Presents the organization and results of a project involving the co-operation of boys and girls of a state. (Herring)
253. Welles, W. S. Home-project work too small; something bigger needed; a substitute in operation. *N. E. A. Proc.*, 1918:283-5.
254. Wilson, G. M. Home project work in agriculture. *Midland Schools*, 30:14-17, Sept. 1915.

15. Agriculture—High Schools

255. Barrows, H. P. *Home Projects in Secondary Courses in Agriculture*. (U. S. Agric. Dept., Bulletin 346.) 20pp. 1916. Govt. Pr. Office, Washington.
256. Dennis, L. H. Home project work in secondary-school agriculture. *N. E. A. Proc.*, 1916:622-26.
257. Doughty, W. F., and others. Project work. In their *Courses in Agriculture for Secondary Schools of Texas*. (Joint bulletin of the Texas State Department of Education, University of Texas, and Agricultural

- and Mechanical College of Texas, No. 1, Oct. 1, 1914.) pp. 24-5. 1914. Austin, Texas.
258. Hummel, W. G. Utilization of land by high schools teaching agriculture, pt. 2, Home projects. *Univ. of Calif. Chronicle*, 17:309-19, July, 1915.
259. Lane, C. H. Aims and methods of project work in secondary agriculture. *Sch. Science and Math.*, 17:805-10, Dec. 1917.
260. New York (State) Education dept. Home projects. In its *Agriculture in the High School*. Univ. of the State of N. Y., Bulletin 563, March 15, 1914.) pp. 7-21. 1914. Albany, N. Y.
261. Selvig, C. G. Home project work vs. laboratory and school garden plot work for high school students. In *Agricultural Teaching: Papers presented at the fourth annual meeting of the American association for the advancement of agricultural teaching*. (U. S. Bureau of Educ., Bulletin, 1914, No. 27.) pp. 8-17. 1914. Govt. Pr. Office, Washington.—Discussion by W. R. Hart, pp. 17-29.
262. Snedden, D. New type of school for farming. *Sch. and Soc.*, 10:281-84, Sept. 6, 1919.
263. Snedden, D. Two important current problems of agricultural education. *Sch. and Soc.*, 9:347-51, March 29, 1919.

16.—*Citizenship, Civics, Ethics, and Religion*

264. Davidson, P. E. Educational reform and the manly virtues. *Sch. and Soc.*, 8:361-67, 1918.—Discusses Flexner's *Modern School*, raising questions regarding modern education, particularly regarding the relation of interest and effort to preparation for life. The author feels the need of a legitimate compromise between interest and effort. (Herring)
265. Jilek, Annie L. Project method in teaching civics. *El. Sch. J.*, 21:216-19, Nov. 1920.
266. Kilpatrick, W. H. Education of adolescents for democracy: a general view and evaluation of present methods. *Relig. Education*, 14:123-35, 1919.—A contribution of the very first importance as proposing that we agree upon criteria and proceed to evaluate the organizations in which our adolescents are educated. Phases of educational psychology are related; criteria are proposed; a long list of institutions such as the Boy Scouts, high schools, technical schools, Y. M. C. A., and school fraternities are evaluated and ranked. (Herring)
267. Shute, M. C. Practice of democracy in the kindergarten. *Kinderg. and First Grade*, 3:89-94, 1918.—Usefully suggestive discussion of the problems of democratic education, *e. g.*, that of the individual and society. (Herring)
268. Simpson, J. H. *Adventure in Education*. 207pp. 1917. Sidgwick, London.—An interestingly written and carefully analytic description of an experiment in the educative effect of self-government in one of the lower forms of Rugby School, England. (Herring)
269. Smith, G. C. Citizenship pageant as a school project. *Normal Instruc. and Prim. Plans*, 29:28-9, Nov. 1920.
270. Tallman, L. New types of class teaching. *Relig. Education*, 12:271-80, 1917.—Discussion of project method. Illustrative material. Emphasis on real life situations, and upon natural method and socialized activity. Bearing of project method upon religious education. (Herring)

271. Upton, S. M., and Chassell, C. F. Scale for measuring the importance of habits of good citizenship. *Teach. Coll. Record*, 20:36-65, 1919.—A scale in which certain virtues important in project method find prominent place. (Herring)
272. Valentine, P. F. How can we teach citizenship? *Sierra Educ. News*, 14:129-32, March 1918.—School project plan and the importance of motivation in the teaching of citizenship. (U. S. Educ. Bur.)
273. Young, J. T. Problem method in the teaching of social science. *Pennsylvania, Univ. of, Schoolmen's week*, 1916, pp. 271-73.

17. English

274. Clark, A. B. Problem method in teaching English. *Education*, 40:371-78, Feb. 1920.
275. Gaston, C. R. Social procedure in the English classroom. *English J.*, 8:2-7, 1919.—Reports work done by a socially active group, the advantages for teacher and pupil, and a number of questions to be used as criteria for this type of work. (Herring)
276. Green, J. L. An English project motivated by history. *English J.*, 9:557-69, Dec. 1920.
277. Ziegler, C. W. Problem-project method in English teaching. *Pennsylvania Sch. J.*, 65:520-24, May 1917.

18. English—Elementary Schools

278. Bolenius, E. M. *Elementary Lessons in Everyday English*. 1920. Amer. Bk. Co., N. Y.—A systematic application of the project.
279. Johnson, A. Written composition in the fourth grade. *Central Normal Bulletin*, 15:7-8, 1919.—Through group criticism and incidental teaching of minimum essentials in composition, high standards in paragraphing are attained. (Herring)
280. Parker, E. P. A sixth-grade English unit. *El. Sch. J.*, 15:82-90, Oct. 1914.—Excellent practical example of project method of organizing subject matter. Description of pupils' work. Topic, "Ships and shipbuilding."
281. Wilson, H. B., and Wilson, G. M. Motivation of language and composition. *Motivation of School Work*, pp. 71-100. 1916. Houghton Mifflin, Boston.

19. English—Junior High Schools

282. Johansen, F. O. *Projects in Action English; Socialized Recitations in Composition and Grammar*. 207pp. 1920. Badger, Boston.—In this original method of teaching English grammar, pupils singly or in groups present some action, usually a very simple one, before the class. Then the pupils make original sentences of various types based upon this action, and readily learn the principles of grammar and composition. (U. S. Educ. Bur.)
283. Wilson, J. H. Eighth-grade English. *Teaching* No. 45, pp. 15-18, February 1919.

20. English—High Schools

284. Clark, A. B. Another experiment in problem teaching. *English J.*, 8:218-28, April 1919.—Third-year high-school English. See also entry No. 77.

285. Hinchman, W. S. Reading clubs instead of literature classes. *Sch. and Soc.*, 4:417, 1916.—Each boy reports upon a book he has read from time to time, the report being followed by class discussion. The fact that the teacher is never quite prepared is one of the educative features of the plan. Boys are found to read about two and one-half times as much under this scheme as before its use. (Herring)
286. Lasher, G. S. English and the project method. *Journal of the Michigan School Masters' Club*, 53:61-67, 1918.—Describes the writing of a book about Chicago by a freshman high-school class, and other projects. (Herring)
287. McIntyre, H. I. Giving purpose to students of high-school English. *English J.*, 6:539-41, 1917.—Describes the beginning of an attempt to increase the interest of freshman and junior English students by surveying their needs and organizing the course to meet the needs expressed. (Herring)
288. Stratton, E. Project method of teaching oral composition. *High Sch. J.*, 3:35-38, Feb. 1920.
289. Struble, M. C. A big business-English project. *English J.*, 9:463-66, Oct. 1920.—A class in Ellensburg, Wash., high school.
290. Ziegler, C. W. Laboratory method in English teaching. *English J.*, 8:3, 1919.—Describes, as in a friendly interview, aspects of a new method in high-school English: lengthened school day; supervised study; equipment; relations in the curriculum; content; spirit of industry; responses in educative activities beyond school requirement; aim and method in poetry; difficulties; textbooks. (Herring)

21. Geography

291. Allen, N. B. Teaching geography by the problem method. *Normal Instruc. and Prim. Plans*, 29:43, 66-67, Nov. 1919.
292. Branom, M. E. Problem method of teaching geography. *Jn. of Geog.*, 19:233-42, Sept. 1920.—Nature, development, and practice of the problem method.
293. Branom, M. E. Project-problem method in the teaching of geography. *Jn. of Geog.*, 16:333-38, 1918.—A general discussion of the nature of solutions, the advantages, the difficulties, and the dangers of the method, with a number of illustrations. (Herring)
294. Hausman, L. A. Making relief maps. *Jn. of Geog.*, 16:97-100, 1918.—A method by which pupils who are developing projects in geography or history may build contour or relief maps. (Herring)
295. Lockwood, I. Problem method in geography. *School Education*, 39:34-35, Nov. 1919.
296. Minor, R. Problem teaching: how to plan for it. *Jn. of Geog.*, 19:61-69, Feb. 1920.—Formulates a plan based upon an illustration drawn from experience, a study of Japan. Gives references to books on Japan suitable for children. (U. S. Educ. Bur.)
297. Semple, E. C. *Influences of Geographic Environment*. 683pp. 1911. Holt, N. Y.—An invaluable source of problems and their solutions, for the teacher who realizes the necessity of being, upon her own level, a student, if she is to guide students. (Herring)
298. Weisend, W. T. Problem method applied to geography. *Education*, 41:166-70, Nov. 1920.

299. Wilson, H. B., and Wilson, G. M. Motivation of geography. In their *Motivation of School Work*, pp. 133-57. 1916. Houghton Mifflin, Boston.
300. Write, R. Socialized recitation. *Atlantic Educ. J.*, 13:175-81, 1917.—A socialized recitation in geography. (Herring)

22. Geography—Elementary Schools

301. Johnson, M. T. Chile and other South American countries by the problem method. *Pop. Educator*, 38:218-19, Dec. 1920.
302. Knight, E. B. Collecting and making use of local geography material. *El. Sch. J.*, 20:459-65, Feb. 1920.

23. Geography—Junior High Schools

303. Goodwin, E. C. A geography project. *Pop. Educator*, 38:78-79, Oct. 1920.
304. O'Neil, W. J. Teaching geography through the problem method. *Pop. Educator*, 37:22-23, Sep. 1919.
305. Parker, E. P. Partition of Africa, a seventh-grade geography unit. *El. Sch. J.*, 20:188-202, 1917.—Nine periods of sixty minutes each sufficed to develop this project. Each child chose his own part. Vivid narrative of how problems lead to solutions and solutions to problems. (Herring)
306. Williams, J. Project-problem instruction in eighth-grade geography. *Teaching*, No. 45, February 1919, pp. 11-15.

24. History

307. Birdwell, A. W. Problem method of teaching history. *Texas History Teachers' Bulletin*, 5:5-8, Ncv. 15, 1916. (Univ. of Texas, Bulletin, 1916, No. 64.) 1916. Austin, Texas.
308. Branom, M. E. Project-problem method in history. *Historical Outlook*, 11:107-10, 1920.—Information projects, enjoyment projects, and problem projects. Effect-to-cause and cause-to-effect problems in history. Illustrations. The initiation of projects. Steps in the project process. (Herring)
309. Branom, M. E. Project-problem method in the teaching of the history of Missouri. *Missouri Sch. J.*, 35:61-63, Feb. 1918.
310. Hatch, R. W. Project-problem as a method for teaching history. *Historical Outlook*, 11:237-40, June 1920.
311. Keatinge, M. W. *Studies in the Teaching of History*. 232pp. 1910. Macmillan, N. Y.—A most suggestive work on the use of problems in teaching history. A masterly discussion of the difficulties inherent in historical problems. Many illustrations of the quality of criticism of which students are capable. (Herring)
312. Levin, S. M. Use of the problem method in history teaching. *Education*, 40:111-20, Oct. 1919.—Emphasizes the importance of history teaching and advocates the problem method as "an instrumentality of inestimable worth." (U. S. Educ. Bur.)
313. O'Neil, W. J. Problem idea in the teaching of history. *Normal Instruc. and Prim. Plans*, 26:50, 68, March 1917.

314. Roberts, E. M. Problem method in history teaching, an argument. *Pop. Educator*, 35:132-33, Nov. 1917.
315. Rosenberger, W. E. Problem method in teaching history. *Normal Instruc. and Prim. Plans*, 26:33-34, 74, Nov. 1916.—Shows how the problem method may be applied to the study of political history, economic and industrial history, and social history. (U. S. Educ. Bur.)
316. Traner, F. W. Socializing the study of history. *Sch. Rev.*, 25:714-21, 1917.—Presents criteria for the selection of content. Favors the "topical or problem method." The aim of education is stated to be adjustment to social environment. (Herring)
317. Wilson, H. B., and Wilson, G. M. Motivation of history. In their *Motivation of School Work*, pp. 101-32. 1916. Houghton Mifflin, Boston.

25. History—Junior High Schools

318. Wilson, G. M. Motivation of seventh and eight-grade history work. *El. Sch. Teacher*, 13:11-16, 1912.—A very interesting suggestion. An 8B class in United States history used Madison's *Journal of the Constitutional Convention* and organized itself into such a convention, the teacher being elected to play the role of Washington. Other members of the group played other roles. The dramatic treatment aroused undoubted interest. (Herring)

26. History—High Schools

319. Clark, L. A. Good way to teach history. *Sch. Rev.*, 17:255-66, 1909.—A record of events in a high school with evidence of keen interest and successful outcomes. "No teacher is equal to the dynamic force of the class before her." (Herring)
320. Johnson, B. T. Problem method of teaching history in the high school. (Missouri, First district normal school, Kirksville, Bulletin, 16:14-22, Jan. 1916.)

27. Home Economics

321. Adams, M. G. Home project work in vocational home economics in secondary schools. *Jn. of Home Econ.*, 10:358-62, 1918.—Suggests projects in food, textiles, and clothing, giving general directions, steps of preparation for the teacher, projects for different years of the course, and pupil outlines. (Herring)
322. Charters, W. W. Project in home economics teaching. *Jn. of Home Econ.*, 10:114-19, March 1918.—Definition, relation to curriculum, advantages, and limitations of projects. (Herring)
323. Heyle, E. M. School lunch as a project in teaching cookery in the elementary schools. *Jn. of Home Econ.*, 9:205-10, 1917.—Describes and evaluates a method in which the preparation of the school lunch is at once educative and efficient. (Herring)
324. Home project work in Utah. *Jn. of Home Econ.*, 12:67-8, Feb. 1920.
325. Snedden, D. Project method of teaching homemaking. *Educ. Admin. and Superv.*, 5:94-6, Feb. 1919.—Notes of an address suggestive as to method and containing a list of relevant projects. (Herring)
326. Texas. Agriculture dept., Home economics division. *Home Projects for Agriculture and Home Economics*, by Mrs. E. M. Barrett. . . (Texas,

Dept. of Agriculture, Bulletin No. 47, January-February.) 32pp.
1916† Austin, Texas.

28. Hygiene and Physical Training

327. Case-System Corporation, Trenton, N. J. Case-system of teaching hygiene . . . 28pp. 1916.
328. Haight, H. W. Case system of teaching hygiene and preventive medicine in the upper grades. *Educ. Rev.*, 49:503-9, May 1915.
329. Haight, H. W. Case system of teaching hygiene in graded schools. *Educ. Rev.*, 52:385-91, Nov. 1916.
330. McCloy, C. H. Project method of teaching. *Physical Training*, 17:53-62, Dec. 1919.
331. Stoolzing, K. Health chores, a hygiene project. *Prim. Educ.*, 28:552-53, Nov. 1920.
—See also entry No. 92, Good Health project.

29. Industrial Education

332. Burton, M. G. Eight thousand desks refinished in the schools of Kansas City, Missouri. *Indus. Arts Mag.*, 9:16-17, Feb. 1920.
333. Burton, M. G. *Shop Projects Based on Community Problems*. 135pp. 1916. Ginn, Boston.
334. Carman, K. V. Basing work in industrial arts on the construction of a new building. *Teach. Coll. Record*, 17:247-62, 1916.—“In basing the larger portion of a year’s work in industrial arts upon the erection of a new high-school building, he has given a practical demonstration in the enrichment of school work by deriving its motives from community activities . . . Cooperation of the teachers came as the most natural thing . . . Mr. Carman’s successful experiment should stimulate other teachers to similar effort.” F. G. Bonser. (Herring)
335. Craigo, E. T. New idea in trade training. *Artisan*, 1:6-7, 1919.—At Dunwoody Institute interest in learning is said to be created by a little participation in actual industry at the outset. Students about to study framing, rafter-cutting, and flooring, first build a small building. (Herring)
336. Foulkes, T. R., and Diamond, T. Argument for larger projects suggestive of community activity. *Manual Training Mag.*, 21:5-8, 1919.—Study of projects, made and used by 1532 pupils in Wisconsin, showed that many articles made are not used. Such projects as the summer cottage, the garage, the highboy, are suggested. (Herring)
337. *Industrial Arts Magazine*. Problems and projects. A department which presents each month class and shop projects in the industrial arts. Directions and diagrams.
338. Jackson, L. L. Project—sinning and sinned against. *Indus. Arts Mag.*, 7:138-9, 1918.—An application of certain criteria of project education to a typical industrial arts project. (Herring)
339. Skinner, R. Practical problem for the drawing class. *Indus. Arts Mag.*, 9:70-72, Feb. 1920.
340. Whitcomb, F. C. General project method of teaching the industrial arts. *Indus. Arts Mag.*, 9:131-35, Apr. 1920.

341. Whitney, H. J. Project method of manual training. *Manual Tr. Mag.*, 22:57-61, Sep. 1920.
342. Woellner, R. Project analysis. *Manual Tr. Mag.*, 21:159-61, Jan. 1920.

30. Industrial Education—Elementary Schools

343. Bonser, F. G. Industrial arts. In Rapeer, L. W., ed. *Teaching Elementary School Subjects*, pp. 281-98. 1917. Scribner, N. Y.—The need, values, organization, and content of a curriculum in industrial arts, with provision for projects. Will repay analysis by any one purposing to make curricula. (Herring)
344. Dopp, K. E. *Place of Industries in Elementary Education*. 270pp. 1913. Univ. of Chicago Pr., Chicago.—Suggestive in many parts, but especially in ch. 5, which treats of the problem of the teacher who is not furnished with the equipment needed for industrial projects. (Herring)
345. Payne, E. G. Experiment in motivation. *El. Sch. J.*, 17:727-33, 1917.—An experiment undertaken with boys. The plan was of two parts: visits to factories, and study and discussion growing out of the visits. Contains a general outline for the study of any industry. (Herring)
346. Towne, M. E. Developing a class project. *Indus. Arts Mag.*, 9:442-44, Nov. 1920.—Development of a project on rope, suggested in a sixth-grade history class.
347. Trybom, J. H. An application of the project method; elementary manual training, fifth grade. *Manual Tr. Mag.*, 22:129-33, Nov. 1920.
348. Vaughn, S. J. Assignment and planning of projects. *Indus. Arts Mag.*, 8:392-96, Oct. 1919.—Woodworking in the elementary schools. (U. S. Educ. Bur.)
349. Wiecking, A. Some suggestions for primary industrial projects. *School Progress*, 1:3-6, 1919.

31. Industrial Education—High Schools

350. Blackburn, S. A. *Boy Activity Projects*. 143pp. 1918. Manual Arts Press, Peoria, Ill.
351. Blackburn, S. A. *Problems in Farm Woodwork for Agricultural Schools, High Schools, Industrial Schools, and Country Schools*. 128pp. 1915. Manual Arts Press, Peoria, Ill.
352. Illinois, University. High school conference, 1918. Reports on projects by Smith-Hughes teachers. *Proceedings of High School Conference, University of Illinois*, Nov. 21-23, 1918, pp. 106-110. Urbana, Ill.

32. Mathematics

353. Breckenridge, W. E. Applied problems. *N. E. A. Proc.*, 1910:515-19.
354. Central Association of Science and Mathematics Teachers. Mathematics section. Report of committee on real applied problems in algebra and geometry, by J. F. Millis and others. *Sch. Science and Math.*, 9:788-98, Nov. 1909.—Analysis of problem method. Method and results of the investigation of the committee. Illustrative problems. Bibliography of sources of problems. (Herring)
355. Miller, G. A. Case method of teaching mathematics. *Sch. Science and Math.*, 19:344-49, Apr. 1919.

33. *Mathematics—Elementary Schools*

356. Wilson, H. B., and Wilson, G. M. Motivation of arithmetic. In their *Motivation of School Work*, pp. 152-82. 1916. Houghton Mifflin, Boston.
357. Wright, A. Project-problem instruction in arithmetic. *Teaching*, No. 45, February 1919, pp. 18-21.

34. *Mathematics—Junior High Schools*

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365. Hofe, G. D. von, Jr. Giving the project method a trial. *Sch. Science and Math.*, 16:763-67, Dec. 1916.—Abstract of an address given to the Physics Club of New York, January 1916. (U. S. Educ. Bur.)—Certain aims are erected and cautions suggested. (Herring)
366. Kilpatrick, W. H. Project teaching. *Gen. Science Q.*, 1:67-72, Jan. 1917.
367. Lott, D. W. Twenty minute project. *Gen. Science Q.*, 1:122-26, 1917.—Contains the quoted conversation of the classroom, illustrating one project which left the pupils with drives toward other projects. (Herring)

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370. Moore, J. C. Project science, progressive. *Sch. Science and Math.*, 16:686-90, 1916.—“The results of science teaching do not measure up to reasonable expectancy.” Project method is analyzed and discussed. (Herring)
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374. Twiss, G. R. Outlook for the application of scientific method to the problem of science teaching. *N. E. A., Proc.*, 1914:723-28.—Contains a series of theses bearing upon the project method. (Herring)
375. Twiss, G. R. *Textbook in the Principles of Science Teaching*. 458pp. 1917. Macmillan, N. Y.—A thorough-going text on scientific method as fundamental in the progress of the race and of the child's education; replete with excellent suggestions of method in teaching and of the materials of equipment. Many principles of scientific method and subjects of the curriculum are treated. Problem-project method is in the last analysis scientific method. (Herring)—See especially pp. 419-28, The project and problem method.
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method, the method of the masters, and the method of everyday effective living. There is considerable range of pertinent quotation. The absurdities of certain commonly used methods are rehearsed. A widely suggestive and important reading. (Herring)

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381. Woodhull, J. F. *Teaching of Science*. 249pp. 1918. Macmillan, N. Y.—ch. 13, Science teaching by projects. A sound view and a wealth of pertinent quotation. Ch. 14, Projects in science. Ch. 15, Natural method. (Herring)

Science—Chemistry and Physics

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383. Phipps, C. F. Value of project study in the teaching of physics. *University of Illinois, Proceedings of High-School Conference*, Nov. 21-23, 1918, pp. 285-89.
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385. Shepherd, J. W. Project studies in high-school physics and chemistry. *University of Illinois, Proceedings of High-School Conference*, Nov. 21-23, 1918, pp. 289-98.
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387. Stone, C. H. Making a match, a project. *Gen. Science Q.*, 3:89-90, 1919.—The process of making a match and its meaning in education. (Herring)
388. Stone, C. H. Optional project work in chemistry. *Gen. Science Q.*, 1:233-36, May, 1917.
389. Williams, R. H. Introductory fire lesson. *Gen. Science Q.*, 1:216-21, 1917.—Detailed account of a project and of class conversation connected with it. (Herring)
390. Workman, L. L. Project in ventilation. *Gen. Science Q.*, 3:33-34, 1919.—An interesting project described. (Herring)

38. Science—Elementary and "General"

391. Billig, F. Project-problem instruction in elementary science. *Teaching*, No. 45, February 1919, pp. 21-32.
392. Billig, F. Study in lawn planning, a project in general science. *Teaching*, No. 50, January 1920, pp. 23-29.
393. Briggs, T. H. *General Science in Secondary Schools*. 21pp. 1916. N. Y.—Contents: General science in secondary schools, T. H. Briggs; Projects in science, J. F. Woodhull; The mill-pond, a project, W. G. Whitman; Cutting off a limb, a project, L. D. Higgins. The articles

- by T. H. Briggs and J. F. Woodhull are reprinted from *Teachers College Record*, January 1916. (U. S. Educ. Bur.)
394. Francis W. Parker School, Chicago. *The Course in Science*. 168pp. (Francis W. Parker School Yearbook, v.5, 1918.)
395. Hofe, G. D. von, Jr. Development of a project. *Teach. Coll. Record*, 17:240-46, May 1916.—“The sixth grade in the Horace Mann School are studying science regardless of every artificial division. The class chooses a project . . . the teacher then presents the information to follow . . . the trend of the thought of the pupils.” One project is presented. (Herring)
396. Hofe, G. D. von., Jr. General science is project science. *Sch. Science and Math.*, 15:751-57, Dec. 1915.
397. Howe, C. M. What eighty teachers think as to the aim and subject matter of general science. *Gen. Science Q.*, 2:445-58, 1918.—An analysis of responses to a questionnaire. (Herring)
398. Meister, M. Science work in the Speyer school. *Gen. Science Q.*, 2:429-45, 1918.—Thoughtful, detailed outline of the project method with concrete suggestion on certain methods in class work in the high school. (Herring)
399. Parker, E. P. Sixth-grade science projects. *El. Sch. J.*, 20:297-307, 1919.—Describes the making of telegraph instruments and magnetic toys, and the wiring of a toy theatre for electric lights. (Herring)
400. Van Buskirk, E. F., and Smith, E. L. *Science of Everyday Life*. 416pp. 1919. Houghton Mifflin, Boston.—A book of projects for the junior high school: air, fire, breathing, health, water, soil, foods, control of nature, homes, clothing, lighting, heating, machines, transportation, and the origin and betterment of life. A goodly wealth of the matter and spirit of projects in general science, with many and excellent illustrations. Of undoubted value for the courses in general science in junior high schools. (Herring)
401. Wake, W. S. Project in general science. *Sch. Science and Math.*, 19:643-50, 1919.—A stimulating, well-organized article dealing with aspects of the project method as follows: need of the method; laboratory; definitions by nine authors with the author's criticisms; approaching, beginning, developing, culminating, and closing projects; attitude; twelve types of projects; induction and deduction; the textbook. (Herring)
402. Woodhull, J. F. General science. *Sch. Science and Math.*, 13:499-500, 1913.—Correspondence is invited with reference to suggestions as to a survey of children's interests, the ignorances of adults, etc. (Herring)
403. Woodhull, J. F. General science,—Summary of opinion under revision. *Sch. Science and Math.*, 14:600-602, 1914. Same art., *Educ. Rev.*, 48:298-300, 1914.—Some unusually significant conclusions regarding children's interests, with implications regarding method. A drastic, but sound arraignment of “preparatory science.” (Herring)
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 Chicago Schools Journal. Chicago Normal College, Chicago.
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 Elementary School Journal. Geo. Banta Pub. Co., Menasha, Wis.
 Elementary School Teacher. *Now* Elementary school journal.
 English Journal. University of Chicago Press, Chicago.
 General Science Quarterly. Salem, Mass.
 High School Journal. Chapel Hill, N. C.
 Historical Outlook. McKinley Pub. Co., Philadelphia, Pa.
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 Manual Training Magazine. Manual Arts Press, Peoria, Ill.
 Midland Schools. Des Moines, Iowa.
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 Moderator-Topics. Lansing, Mich.
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 School Science and Mathematics. 2059 East 72nd Place, Chicago, Ill.
 Sierra Educational News. Monadnock Bldg., San Francisco, Calif.
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CONSTITUTION OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

ARTICLE I

Name.—The name of this Society shall be “National Society for the Study of Education.”

ARTICLE II

Object.—Its purposes are to carry on the investigation and to promote the discussion of educational problems.

ARTICLE III

Membership.—SECTION 1. There shall be three classes of members—active, associate, and honorary.

SEC. 2. Any person who is desirous of promoting the purposes of this Society is eligible to active membership and shall become a member on approval of the Executive Committee.

SEC. 3. Active members shall be entitled to hold office, to vote, and to participate in discussion.

SEC. 4. Associate members shall receive the publications of the Society, and may attend its meetings, but shall not be entitled to hold office, or to vote, or to take part in the discussion.

SEC. 5. Honorary members shall be entitled to all the privileges of active members, with the exception of voting and holding office, and shall be exempt from the payment of dues.

A person may be elected to honorary membership by vote of the Society on nomination by the Executive Committee.

SEC. 6. The names of the active and honorary members shall be printed in the *Yearbook*.

SEC. 7. The annual dues for active members shall be \$2.00 and for associate members \$1.00. The election fee for active and for associate members shall be \$1.00.

ARTICLE IV

Officers and Committees.—SECTION 1. The officers of this Society shall be a president, a vice-president, a secretary-treasurer, an executive committee, and a board of trustees.

SEC. 2. The Executive Committee shall consist of the president and four other members of the Society.

SEC. 3. The president and vice-president shall serve for a term of one year, the secretary-treasurer for a term of three years. The other members of the Executive Committee shall serve for four years, one to be elected by the Society each year.

SEC. 4. The Executive Committee shall have general charge of the work of the Society, shall appoint the secretary-treasurer, and may, at its discretion, appoint an editor of the *Yearbook*.

SEC. 5. A board of trustees consisting of three members shall be elected by the Society for a term of three years, one to be elected each year.

The Board of Trustees shall be the custodian of the property of the Society, shall have power to make contracts, and shall audit all accounts of the Society, and make an annual financial report.

Sec. 6. The method of electing officers shall be determined by the Society.

ARTICLE V

Publications.—The Society shall publish *The Yearbook of the National Society for the Study of Education* and such supplements as the Executive Committee may provide for.

ARTICLE VI

Meetings.—The Society shall hold its annual meetings at the time and place of the Department of Superintendence of the National Education Association. Other meetings may be held when authorized by the Society or by the Executive Committee.

ARTICLE VII

Amendments.—This constitution may be amended at any annual meeting by a vote of two-thirds of voting members present.

MINUTES OF THE 1920 MEETING
of the
NATIONAL SOCIETY FOR THE STUDY OF EDUCATION
AT CLEVELAND, OHIO

The annual meeting of the National Society for the Study of Education was held in the ball room of the Hotel Hollenden, Cleveland, Ohio, Monday evening, February 23rd, President J. C. Brown presiding. Some 1200 persons listened to the following program :

I. THE EDUCATION OF GIFTED CHILDREN

1. *The 'Yearbook' on Gifted Children (15 min.)*

THEODORE S. HENRY, Professor of Psychology, Western State Normal School, Kalamazoo, Michigan.

2. *Detroit's Experiment with Gifted Pupils (12 min.)*

ELIZABETH CLEVELAND, Supervisor of Special Activities, Detroit Public Schools.

3. *Some Features of the Educational Development of Gifted Children (12 min.)*

GUY M. WHIPPLE, Professor of Experimental Education, University of Michigan.

II. PLANS FOR 1921

The Proposed 'Yearbook' on "The Content of Courses for the Training of Teachers in Normal Schools" (10 min.)

H. A. BROWN, President of the State Normal School, Oshkosh, Wisconsin.

III. NEW MATERIALS OF INSTRUCTION

1. *The 'Yearbook' on New Material of Instruction (15 min.)*

CHARLES H. JUDD, Dean of the College of Education, University of Chicago, and Chairman of the Society's Committee on New Materials of Instruction.

2. *The Organization of Lessons in English for Americanization Classes (10 min.)*

CHARLES F. TOWNE, Associate Principal, Lasell Seminary, Auburn-dale, Massachusetts.

3. *Projects for Grades IV to VI to Afford Training in School Skills (15 min.)*

FREDERICK J. KELLY, Dean of the School of Education, University of Kansas.

The discussion, which was led by Superintendent Jesse H. Newlon, of Lincoln, Nebraska, was participated in by various members of the Society.

Particular interest was manifested in the first section of the program dealing with problems arising in the education of gifted children.

At the business meeting which followed, there were reported the following items from the meeting of the Society's Executive Committee earlier in the day:

1. At the request of the Secretary-Treasurer, the annual financial report was audited by representatives of the Board of Trustees.

2. The Secretary-Treasurer was re-elected for a period of three years.

3. It was voted by the Executive Committee, that, while no criticism has been made of the practice that has heretofore prevailed, it would be desirable that hereafter nominations for officers should be presented from the floor by a nominating committee appointed by the president rather than by the Executive Committee itself.

4. The Executive Committee formally approved the election of various persons who had applied for active or associate membership during the year.

5. The Secretary presented a letter from Dr. W. V. Bingham inviting the Society to appoint representatives to cooperate with the Division of Psychology and Anthropology of the National Research Council in the furtherance of investigations of mutual concern to the two organizations.

6. The Executive Committee voted that Professor Ernest Horn be made the chairman of an informal committee to prepare a Year-book on Silent Reading, and that Messrs. H. A. Brown, B. R. Buckingham, S. A. Courtis, W. S. Gray, M. E. Haggerty, D. Starch, E. L. Thorndike, G. M. Whipple, and others of the active members who might be interested in this topic should be invited to become members of this committee. Professor Horn was requested to speak

briefly concerning the plans for this Yearbook at the evening meeting.

7. The resignation of Professor Charles H. Judd, as chairman of the Society's Committee on New Materials of Instruction was accepted and Professor Frederick J. Kelly was appointed to the chairmanship of the Committee.

After this report of the activities of the Executive Committee, the following nominations were made by this Committee for officers for the ensuing year, and the persons thus nominated were unanimously elected:

For *President*, Harry B. Wilson, Superintendent of Schools, Berkeley, California; for *Vice-President*, David Felmley, President of the Illinois State Normal University, Normal, Illinois; for member of the *Executive Committee*, Stephen S. Colvin, Brown University, Providence, Rhode Island; for member of the *Board of Trustees*, Frank W. Ballou, Assistant Superintendent of Schools, Boston, Massachusetts.

The Secretary, in accordance with the vote of the Society at the preceding annual meeting, reported briefly concerning the desirability of continuing the two classes of membership, active and associate, and on motion, it was voted that no change be made in the prevailing classification.

The secretary presented the following resolutions, which, after brief discussion, were carried with a single dissenting vote:

Whereas, Mr. Charles E. Chadsey, one of the former presidents of this Society, a man of national repute, of unquestioned integrity and sincerity of purpose, who has stood conspicuously for the scientific investigation of educational problems, has, as shown by the decision of the Appellate Court, been subjected by a political board, to indignities that constitute a scandal in the teaching profession; and

Whereas, This Society desires to go on record in support of the maintenance of the highest ideals in the professional relations between the schoolmen of our country and the public that they serve;

Therefore, Be It Resolved, That this Society conveys to Charles E. Chadsey this expression of its heartiest good will and this assurance that he has the full confidence of its members; and

Be It Further Resolved, That these resolutions be incorporated in the minutes of this meeting, and that a copy of them be transmitted to Mr. Chadsey.

The Society then adjourned.

J. C. BROWN,
President.

GUY M. WHIPPLE,
Secretary-Treasurer.

HONORARY AND ACTIVE MEMBERS OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

(Corrected to January 31, 1921)

HONORARY MEMBERS

Cook, John W., 5644 Kimbark Ave., Chicago, Ill.
DeGarmo, Charles, Coconut Grove, Fla.
Dewey, John, Columbia University, New York City.
Hannu, Paul H., Harvard University, Cambridge, Mass.

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Information Concerning the National Society for the Study of Education

1. **PURPOSE.** The purpose of the National Society is to promote the investigation and discussion of educational questions. To this end it holds an annual meeting and publishes a series of Yearbooks.

2. **ELIGIBILITY TO MEMBERSHIP.** Any person who is interested in receiving its publications may become a member upon application to the Secretary and subsequent approval by the Executive Committee. Membership may not be had by libraries or by institutions.

3. **PERIOD OF MEMBERSHIP.** Applicants for membership may not date their entrance back of the current calendar year, and all memberships terminate automatically on December 31st, unless the dues for the ensuing year are paid as indicated in Item 6.

4. **CLASSES OF MEMBERS.** Application may be made for either active or associate membership. Active members pay two dollars dues annually, receive two copies of each publication, are entitled to vote, to hold office and to participate in discussion. Associate members pay one dollar dues annually, receive one copy of each publication, may attend the meetings of the Society, but may not vote, hold office or participate in discussion. The names of active members only are printed in Part I of each Yearbook. There were in 1920 about 250 active and 800 associate members.

5. **ELECTION FEE.** New active and new associate members are required the first year to pay, in addition to the dues, an election fee of one dollar.

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THE TWENTIETH YEARBOOK

OF THE
NATIONAL SOCIETY FOR THE STUDY
OF EDUCATION

PART II
REPORT OF THE SOCIETY'S COMMITTEE ON
SILENT READING

THIS YEARBOOK WILL BE DISCUSSED AT THE ATLANTIC CITY
MEETING OF THE NATIONAL SOCIETY, SATURDAY,
FEBRUARY 26, 1921, 8:00 P.M.

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THE TWENTIETH YEARBOOK

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NATIONAL SOCIETY FOR THE STUDY
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PART II

REPORT OF THE SOCIETY'S COMMITTEE ON
SILENT READING

Prepared by the Committee from Material Submitted

BY

J. A. O'BRIEN, MAY AYRES BURGESS, S. A. COURTIS, C. E. GERMANE,
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AND

REPRESENTATIVES OF THE SCHOOL SYSTEMS OF CEDAR RAPIDS,
DENVER, IOWA CITY, AND RACINE

Edited by GUY MONTROSE WHIPPLE

**THIS YEARBOOK WILL BE DISCUSSED AT THE ATLANTIC CITY
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INTRODUCTION

As stated in the introduction to the *Eighteenth Yearbook, Part II*, of this Society, it was hoped by those who contributed that the book would serve to stimulate further investigation in the various fields of work which were reported. This hope has been so well realized for the subject of reading, that at the Cleveland meeting the Executive Committee of the Society decided that it was very important to collect and publish the results of such studies as have been completed since Dean Gray made his report two years ago. This work was assigned to the committee whose names are signed to this report. These members were asked to suggest others who had something to contribute. Dr. Thorndike and Dean Haggerty found it impossible to finish their manuscripts in time to have them included in the *Yearbook*. Dr. O'Brien's study was submitted through Dr. Buckingham, under whose direction the investigation was made. Other contributors are indicated in the table of contents.

After considerable correspondence among members of the committee it seemed best to arrange the *Yearbook* in two sections, the first part dealing with investigations which presented data bearing on the problem of reading, the second part containing examples of concrete exercises which have been actually tried in the classroom. It was hoped to give a large proportion of the space to these classroom exercises, but the difficulty of gathering and editing them was so great that it has seemed necessary to include at this time only a few samples of lessons which were submitted, and to suggest that an entire *Yearbook* be later given to this work.

It is very essential that such studies as are described in the first part of this report be made. Teachers are particularly ready just now to undertake any new method which goes under the name of "silent reading." No doubt, the teaching which results from this interest will, in general, be superior to that which we have had in the past. On the other hand, many mistakes will be made, some of them perhaps quite serious. This is particularly likely to be true in the case of certain types of speed exercises. In a way, it is un-

VIII

fortunate that changes in methods cannot be delayed until we have more assurance as to the efficiency of the methods which are being recommended.

The problems which need investigation are almost without limit. Most of them, however, may be grouped under five heads: first, the thorough-going analysis of the various types of reading abilities required in life outside the school; second, the construction of a course of study which would show the proper relation, on the one hand, between oral and silent reading, and, on the other hand, between reading and literature; third, a study of the problems of reading in the area where reading overlaps study; fourth, the discovery of exercises for the development of each of the major types of reading abilities; fifth, an investigation of the diagnosis and treatment of individual cases. These problems naturally overlap; each is a center of focus rather than an isolated problem.

In attacking any of these groups of problems it is important to distinguish among four qualities and to study the relation existing among them. These are speed (including skimming), comprehension, organization, and remembrance. There are, in addition to these, certain technical skills, such as the use of reference material in libraries, the use of encyclopedias, dictionaries, etc. There are also the various abilities involved in the proper use of indexes and tables of contents. Each of these abilities needs to be studied, moreover, in relation to the various types of materials which are commonly read and in relation to the various purposes for which these types of material are read.

The exercises which are given in Section II represent but a small sampling of a great number which were submitted. Since it was impossible to print all of the really excellent lessons which were reported, it seemed wise to include only exercises for the first three grades. Even with these limitations there was space but for a small part of the lessons which were submitted. The effort of the Chairman has been to select lessons which represent a wide range of types of exercises.

These lessons embody attempts to work out methods of teaching under the guidance of the data which have been disclosed by such investigations as were summarized by Dr. Gray in the *Eighteenth*

Yearbook, Part II, and as are also reported in the first section of this *Yearbook*. In this sense they represent experimental work. They are for the most part in the stage where the technique of practical method is being worked out. So far, little has been done to isolate and test the effect of any one exercise, but we have evidence that satisfactory results can be obtained from certain combinations of exercises. Studies like those of O'Brien and of Hoover in this *Yearbook*, for instance, lead to just such conclusions. The conclusions seem to be substantiated also by the superior scores made on the standard tests by schools which have featured such work, and by the rapid improvement which has resulted when such exercises have been introduced.

It is the opinion of the Committee that this or some similarly constituted committee should continue the study of these problems. As rapidly as possible the efficiency of each type of exercise should be scientifically determined. Investigation must of necessity be slow. Meanwhile, an exhaustive search should be made for all types of silent reading exercises which seem to give good results. These may be subjected by the Committee to a critical examination made in the light of present knowledge, and printed with explanatory notes as a future *Yearbook*.

COMMITTEE ON SILENT READING,

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SECTION 1
CHAPTER I
FACTORS AFFECTING RESULTS IN PRIMARY READING

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Director of the Division of Reference and Research
Cleveland Public Schools

INTRODUCTION

Reading instruction may be said to be in a process of transition as regards aims, methods and content. If one examines the older literature, one frequently encounters such terms as "expression," "enunciation," "articulation," "pitch," "inflection," and "emphasis," while today "silent reading," "thought," "content value," "rate," and "individual differences" are terms which challenge the attention of the student. It is not difficult to locate the cause. The development of a more scientific attitude toward education has tended to make educators more critical. Studies of failures (16)¹, the development of standard educational and intelligence tests and the use of methods of classroom experimentation have served to point out some of the shortcomings of the old system and to indicate some of the possibilities of the new. Even so, there has been far too little actual testing of results and too little experimentation to discover possible achievements. When we consider the time that is ordinarily given to primary reading and the bearing of reading achievement upon the future success of the child, it is important that we bring together such evidence as we have, concerning the effect of various factors in producing results. This article is offered as a brief summary of experimental evidences and current thought concerning factors affecting results in primary reading.

FACTORS

1. *Attendance.* For a group of children just learning to read, attendance is a factor that may be important. It is a matter of

¹Numbers in parentheses refer to the list of references at the end of this chapter.

observation that normal children sometimes fail to acquire satisfactory proficiency in primary reading, because of excessive absence. However, absences that aggregate less than two months in the course of a year probably have little effect upon attainment in primary reading as compared with such other factors as intelligence, quality of teaching and amount of reading done. The writer found the correlation between attendance and attainment on the Haggerty Achievement Reading Tests to be negligible for the children who had had kindergarten training, and who had attended school for 130 days or more at the time of the test in May.¹ The Pearson correlation between attendance and score for 210 first-grade children, selected at random, was .017 for Test I, —.003 for Test II, and .008 for the two tests combined. For 190 second-grade children, similarly selected, the corresponding figure in the case of Test I was .073 (31).

Long periods of interruption would probably interfere materially with progress. Packer and Anderson found in the case of rate of reading that summer vacation lowered it materially. Children in 1 B, who read 50 words per minute in May, read but 44 in September. Corresponding figures were: for 1 A, 84 and 49; for 2 B, 125 and 68; and for 2 A, 145 and 125, respectively (21).

2. *Time Devoted to Reading.* At first thought, many persons would probably say that results in primary reading vary directly with the time given to reading on the daily program. If all other factors were equal, this would probably be true within limits. Under present ways of teaching, other factors apparently overshadow it. The Pearson correlations obtained in our own study between total time (including recitation, study and phonics) and score on the Haggerty tests for 200 first-grade children, selected at random from a group of nearly 600, were slightly negative, being —.035 for Test I, —.153 for Test II, and —.102 for both tests com-

¹ Figures recently given us by Miss Engel, of the Psychological Clinic at Detroit, indicate that a percentage of absence greater than 15, or a lesser amount of continuous absence, is causally related in a definite way to first-grade failure. The operation of this factor might not be revealed by the method of correlation, but it is revealed when differences in intelligence are first allowed for and the pupils then classified into those who are promoted and those who are not promoted.—*Editor.*

bined (31). The Spearman correlation obtained by Woody for Grades III, IV, and V between the number of minutes per week devoted to reading recitation (actual reading, phonics and word drills, exclusive of study) and the scores attained in the Monroe reading test were those of Table 1.

TABLE 1
CORRELATIONS BETWEEN TIME DEVOTED TO READING AND SCORES IN MONROE READING TEST (WOODY)

Grade	Number of Teachers Reporting	Correlation between time and comprehension scores	Correlation between time and rate scores
III	51	.18	.17
IV	52	.06	.29
V	60	.06	.05

This lack of correlation, he concludes, seems to indicate that other factors are more influential in determining the score attained than the time element (33). While these two studies are by no means conclusive, they indicate how completely other factors may submerge the time factor. It is entirely possible, *e. g.*, that many children may gain more from ten minutes spent in independent silent reading than they would in a twenty-minute oral-reading recitation period of the conventional type. Similarly, a class possessing a high average intelligence may make greater progress in half the time taken by one of low intelligence. Again, one teacher will use the entire period profitably while another squanders two-thirds of it. The teacher should endeavor constantly to have each child spend his reading time in ways that will be the most profitable to him.

3. *Kindergarten Training.* Does kindergarten training influence the character of the reading work done by children in the primary grades? No comprehensive studies of this problem have been made. Our own results with the Haggerty tests in the first grade showed that the group that had attended kindergarten exceeded the group that had not, even though their median ages were the same. The median score for the kindergarten group was 7.5 in Test I, and 4.2 in Test II, and for the non-kindergarten group 6.0 and 3.6, respectively. In the second grade, the kindergarten group

scored 13.8 in Test I, and 9.6 in Test II, while the non-kindergarten group scored 12.6 and 7.4, respectively. In the third grade the non-kindergarten group excelled. The number of pupils, however, was less in this grade, as the figures in Table 2 will show. The average difference between the kindergarten and non-kindergarten groups is roughly equal to one-fourth of the interval between the first and second grades (31).

TABLE 2

MEDIAN SCORES ON THE HAGGERTY ACHIEVEMENT READING TEST FOR KINDERGARTEN AND NON-KINDERGARTEN GROUPS

	Grade I		Grade II		Grade III	
	Test I	Test II	Test I	Test II	Test I	Test II
Kindergarten Group	7.5 (526)	4.2 (516)	13.8 (878)	9.6 (878)	17.8 (106)	15.6 (106)
Non-kindergarten Group	6.0 (92)	3.6 (91)	12.6 (77)	7.4 (70)	18.9 (70)	16.8 (59)

Figures in parenthesis indicate number of children.

4. *Intelligence and Mental Age.* Dickson had children of the low first grade segregated on the basis of intelligence quotient and mental age. After an experiment covering a year and a half, he concluded that "mental age and I. Q. are important factors in revealing a child's chances for success in his school work." Children who tested low were very slow to learn to read. They had little initiative. What they appeared to learn one day was not retained to the next. Much repetition was necessary. Their reading was marked by a tendency to name words without thought of their meaning. In a group of "borderzone" children (I. Q. 85 or below) only 6 could read in an easy primer after nearly a year and a half of effort under a strong primary teacher. Of 42 pupils who tested normal or above, "all but five passed the work of the first grade at the end of the term. The teacher attributed the failure of four of these to irregular attendance, and of one to excessive timidity."

In another school, thirty of the pupils, who tested below six years mentally, and who classified in the "dull normal" group, or below, were placed in a special first-grade division. Ten were repeating the work of the grade. At the end of two terms, under the experiment, two pupils out of the thirty were promoted into the "high first" grade, regular class. Near the end of the third term,

five more were ready (7). While this is but one experiment, the results are exceedingly significant for primary education. Haggerty has found that there is a significant correlation between intelligence and ability to perform the exercises of his primary reading tests (12). He correlated teachers' estimates of intelligence when weighted according to grade location, with scores on his reading tests. In the case of 200 pupils in Grades I to III the Pearson coefficients were .71 for Test I, .69 for Test II, and .76 for the two tests combined. Similar figures for 144 eight-year-old pupils were .67, .67, and .71, respectively. Using the scores obtained with his intelligence test, the figures were .65, .67, and .70 for the same group. For 200 pupils of Grades I and II the intelligence and reading tests yielded a correlation of .84. Terman reports five third grades tested by Dickson in the results shown in Table 3.

TABLE 3
DISTRIBUTION OF INTELLIGENCE IN FIVE THIRD-GRADE ROOMS (AFTER DICKSON)

Room	Median Mental Age	Median I. Q.	Percent below 5.5 mental Age	Percent above 7 mental Age
A	6-0	87	31	10
B	5-7	76	46	5
C	6-0	85	20	20
D	7-2	108	14	60
E	7-8	112	0	71

He points out the average mental age of Room E was fully two years above that in Room B, and the median I. Q. 36 points higher. "One third of the pupils in Room A, and half of those in Room B were incapable of doing standard first-grade work." The lack of progress in Room B was so evident that the teacher was in despair and the superintendent doubted her efficiency (28).

Of all the factors which make for progress in primary reading, intelligence is probably the most significant. It has not, however, been sufficiently recognized in dealing with children.

5. *Chronological Age.* Chronological age at any stage of school life is less indicative of probable success than mental age, or mental maturity. The younger children of a grade on the whole excel the older in reading (*e. g.*, see 9, 30). Their superior intelligence enables them to do so. The six- and seven-year-old first-grade pupils

in St. Louis read better orally than the eight- and nine-year-olds. Similarly, in the second grade the seven- and eight-year-olds averaged better than the nine- and ten-year-olds. The average rate of silent reading in the second grade was found to decrease with age (9).

It is not surprising that our results showed no correlation between score on the Haggerty tests and age. For 210 first-grade pupils, and 190 second-grade pupils, selected at random, the correlations between age and score were zero, except one correlation of 0.13 between Test I and age in the second grade. These figures are too small to be of significance. If age were one of the strong factors in producing results in primary reading, we should expect to find a decided positive correlation between it and reading performance. Such a condition would mean, in general, that the older the child in a given grade, the better his reading. This, however, is not the case. Only in the event that we selected children of about the same intelligence quotient should we expect to find a positive correlation between chronological age and reading achievement.

6. *Nationality and Home Influence.* Foreign language spoken in the home is a distinct handicap to a child's reading development. This agrees with common observation. It is difficult, however, to determine the influence of nationality. Intelligence, rather than nationality *per se*, probably accounts for a large part of the differences in attainments of different language groups. The Rochester studies tend to show that Hebrew children can be expected to read better than foreign children of other nationalities, and that Italian children do not read as well. O'Hern concluded from the Rochester studies that foreign children made relatively better showings in oral than in silent reading. But even in oral reading tests "the children seemed to labor under a distinct language handicap. This

TABLE 4
ORAL READING SCORES IN THE GRAY TEST BY PREDOMINATING NATIONALITY
(AFTER JUDD)

Grade	Cleveland Average	American	Italian	Polish and Bohemian	Jewish
I	81	87	21	31	32
II	42	44	25	40	48
III	46	47	28	44	50

was decidedly noticeable in the case of Italian children. The differences due to nationality were more marked in the silent reading scores than in oral reading scores" (20). In Cleveland, as Table 4 shows, the oral reading of Jewish children was distinctly above that of the average, and that of Italian children much below. Poles and Bohemians were reported as making slow progress during the first year but approximating the average in the next four grades (16). In St. Louis, English-speaking and German-speaking children represent average achievement. "Jewish children rank above the average, and Italian pupils rank distinctly below the average. With the exception of German and Jewish children, practically all foreign-speaking children are seriously retarded by language handicaps." In quality of silent reading "foreign children made lower scores than did English-speaking children. Jewish children formed an exception to this rule. There seemed to be little correlation between rate of silent reading and nationality." The exact figures are not shown. In the case of oral reading, the report recommends that selections "be provided which are simple in construction and phraseology, and that will enable the pupil to develop gradually in the mastery of language forms as well as in the recognition of symbols." With reference to silent reading it recommends the extensive reading of simple selections which relate to familiar experiences (9).

7. *Oral Versus Silent Reading.* For many years, oral reading has played a lone part in our schools, particularly in the primary grades. The growing dissatisfaction with reading progress and the evident superior merit of practice in silent reading is now resulting in a movement to introduce a larger proportion of the latter into all grades. To what extent silent reading can be profitably substituted for oral in the primary grades is a matter that should be determined by careful experimentation. In the light of the evidence we now possess, there is nothing that would justify the amount of oral reading commonly found. It is becoming more and more evident that mechanical accuracy does not imply an understanding of the thought. Comprehension is less than in silent reading and rate is slower. Individual needs are not well satisfied.

Experimental evidence sufficient to establish the greater effectiveness of training in silent reading is not yet available. What we have is confined largely to the intermediate grades and has not always been produced under carefully controlled conditions. Woody correlated the estimated proportion of recitation time devoted to silent reading and class scores on the Monroe tests. Using the Spearman method, he obtained correlations of only $-.21$, $.00$, and $.01$ in Grades III, VII, and VIII, respectively, when based upon comprehension scores, and $.00$, $.10$, and $-.13$, when based upon rate scores (33).

Pintner and Gilliland concluded that oral and silent reading were about equally effective in the third and fourth grades, but neglected some important factors (22). Both Mead and Pintner (cited by Gray) secured better reproduction in the intermediate grades from silent reading (10, 18, 24). These experiments presumably were performed on children who had been reared largely on an oral reading diet. Had these children had equal amounts of training in silent and oral reading, the results would probably have been more strongly in favor of silent reading. The greater facility with which thought may be acquired in silent reading results from the fact that attention need not be directed to mechanics. Among older children and adults, at least, eye pauses in oral reading commonly occur at short intervals. In silent reading, pupils are free to take in longer units, and this permits a better organization of the thought (17). Of 26 persons ranging from fourth grade to college, tested by C. T. Gray, 21 made fewer pauses per line silently than orally (8). Schmidt found the average number of pauses per line for 45 adults to be 6.5 in silent reading and 8.2 in oral reading (27).

The tenacity with which primary teachers have clung to oral reading is probably due to two causes. They know of no way to bring about improvement in oral reading except through oral reading, and they have not known how to conduct silent reading exercises. We firmly believe that experiments will prove that, even in the primary grades, oral reading ability can be developed through training in silent reading. Hawley secured marked gain in silent reading performances in the sixth grade through the use of daily

thought drill exercises and weekly thought tests. Without being emphasized, oral reading improved at the same time (13).

In the matter of reading rates in primary grades, the bulk of the evidence favors silent reading. W. S. Gray found that "the rate of silent reading for the second and third grades was less rapid than that of oral reading, when using selections of about equal difficulty" (10). He accounts for it by the fact that, "when a pupil is asked to read a selection for the content, he may read it more slowly than if he were reading it orally without directing special attention to content." It was probably due also to the fact that previous training had been chiefly in oral reading. He does not compare thought mastery in the two cases. Of the experimenters cited by him, Oberholtzer found the rate of silent reading in the third grade, as well as that of higher grades to be higher than that for oral. He obtained an oral rate of 2.1 words per second in the third grade and 2.2 words in the fourth. The silent reading rates in these grades are 2.3 and 2.6, respectively (19). Hendricks found that first-grade children read faster silently than orally (14). Judd's results showed that a greater number of lines per minute were read silently than orally in all grades. The second grade read thirteen lines orally and sixteen lines silently per minute from the Jones Reader (16). Unfortunately, much of the material used in making rate comparisons was not standardized. Lines, and even words, as Curtis has pointed out (5), are far from uniform in length.

The average variation in rate is much less in oral reading. This means that when children in a grade read orally their rates are more nearly alike than when they read silently, unhampered by the physiological mechanism of the voice. This may be seen from the figures of Table 5, which have been computed from those of the Cleveland Survey (16).

TABLE 5
AVERAGE VARIATION IN RATES OF ORAL AND SILENT READING

	Grade II		Grade III	
	Oral	Silent	Oral	Silent
Average of five schools having lowest mean variation	1.5	5.6	1.4	4.8
Average of five schools having highest mean variation	2.8	10.6	2.9	12.5

later when it is necessary to keep the word units clear. At any rate, phonic analysis is probably best taught outside of the regular reading period. This matter was treated in the *Eighteenth Yearbook*, from which we quote: "If such studies are made during the regular reading period, there is danger that attention will shift from the content of what is read to the study of individual words. If the basic training in the analysis of words is given during drill periods, the information and skill thus secured can be applied quickly and effectively during reading exercises without withdrawing attention from the content of what is read" (11).

The question of phonics or no phonics is perhaps of less importance than those of just what, how much, and for whom. Present practice is exceedingly wasteful. It is not uncommon to see an entire class spend several minutes daily in studying phonics with but scant thought of individual needs. Let those who need training on particular elements be given that training, but excuse those already familiar with them. The phonic content taught should have a direct bearing upon the reading in hand. Time is frequently wasted on material for which there will be no use except in the remote future. Whatever time is spent upon phonics should be spent profitably. That it is so spent can scarcely be said when classes that spend 15 or 20 minutes daily on phonics do no better than others that spend only five and ten, or when the correlations between the time devoted to phonics and the results of reading tests are zero or negative. The Pearson correlation coefficients obtained in our own study between time devoted to phonics and scores on the Haggerty tests for 200 first-grade children, selected at random, were $-.148$ for Test I, $-.173$ for Test II, and $-.178$ for the two combined (31). The correlation obtained by Woody in the third grade between the estimated proportion of time devoted to phonics, as reported by 47 teachers, and scores on the Monroe test was slightly positive. The Spearman correlation between time devoted to phonics and comprehension score was $.31$, and that between time devoted to phonics and rate score $.23$ (33). While these figures are by no means conclusive, they make it doubtful whether the teaching of phonics, *as now practiced*, has much bearing upon success in silent reading in primary grades.

11. *What Phonic System Is Most Effective in Teaching Primary Reading?* This question has often been raised, but never satisfactorily answered. Most publishers of systems in current use could probably be persuaded, with little difficulty, that their own system is second to none. The investigations made previous to 1919 were reviewed, and their limitations pointed out in this Society's *Yearbook* for that year (11). For the most part, these studies have been very narrow in scope; usually they have been limited to a few classes, and often to a single school system. Only a few phonic systems were considered in any one investigation. In some of these studies the attendance factor has been controlled and efforts have sometimes been made to control the teacher factor, but in no case has the factor of intelligence been taken into account. The latter two factors are probably of much greater importance than any particular phonic system itself.

In May, 1920, the writer secured results with the Haggerty reading tests from 15 school systems. The records of classes and schools using different phonic systems were compared. Records of those individuals who had been present less than 130 days, who were transferred from other schools, or who had not had the advan-

TABLE 7
MEDIAN CLASS SCORES FOR TEST I OF THE HAGGERTY READING TEST, CLASSIFIED
ACCORDING TO THE PHONIC SYSTEM USED

	Aldine	Beacon	Elson	Gordon	Laurel	Natural	Progressive	Winston	Combination	Ordained by Supvr.
Grade I	8.4	6.0	2.3	6.8†	0.8	6.3	6.1	8.3	5.3	10.5
	9.0	6.5	4.3	7.5	1.5	8.5				
		8.0	4.5	8.9	4.8	9.2				
		10.3	4.8		5.0*	9.3				
			6.0		5.0	9.5				
			6.5		5.4	9.8				
			16.3		7.0	10.0				
						10.1				
						13.8				
Grade II	10.8		11.8		8.0	11.5	12.5		9.5	12.0‡
	12.3		12.3		9.5	13.0			17.0	12.8
	16.5		18.0		11.3	15.2				
	17.0		18.3		11.8	15.5				
	18.3		15.8		14.4	15.8				
			17.5*		16.0*	17.2				
					18.8					

†Two pupils skipped to 2nd Grade in half a year.

*Class did not have kindergarten training.

‡Class had 4 different teachers during 1st semester of Grade II.

tage of kindergarten training were excluded. Although reports were received from 41 first-grade and 29 second-grade classes, the numbers were insufficient to warrant final conclusions. Not all of the good, nor all of the poor records were confined to classes trained in any one of the phonic systems, as Table 7 shows.

The system which produced the best class record in the first grade produced another that was among the poorest three. Two of the four best records were made by classes not reared by any of the commercialized systems, but on adaptations arranged by the teacher or the supervisor in charge (31).

12. *Eye Habits.* Most of the efforts to study eye habits have been confined to older children. C. T. Gray and Judd have noted that good readers tend to have fewer pauses per line in silent reading than poor readers of the same grade (8, 17). Gray's data show that the average number of eye pauses for 8 elementary-school pupils rated as good readers was 6.1 per line, while that of 9 poor readers observed in the same grades was 10.8. The good reader exhibits a tendency to group his words into phrases as the adult does. The records of the poor readers indicate a tendency to pause on every word or even oftener. Rapid readers commonly make only a few pauses within each line. Huey cites evidence showing that slow readers read a word at a time, while rapid readers take in longer units. Some rapid readers, however, were found by C. T. Gray to make large numbers of short pauses per line. The slow reader makes frequent regressive movements. The most efficient reading was done by those who made few pauses and used longer periods of assimilation. Gray's results show that the eye-voice span in oral is longer in the case of good readers. Phrasing practice, particularly of the flash type, will probably tend to reduce the number of eye pauses per line and increase both comprehension and rate. The writer has found repeatedly through informal flash testing in primary and intermediate grades that the quantity of reproduction is decidedly larger in the case of pupils who are in the habit of phrasing. Practice in the type of work probably tends to decrease the number of eye pauses per line and consequently to facilitate thought mastery. C. T. Gray's study shows that practice in rapid silent reading decreased the number of eye pauses

per line. Twenty days' practice in the case of one poor reader reduced the average number from 15.5 to 6.1 without decreasing comprehension in any material way (8).³

13. *Vocalization.* Vocalization during silent reading is common among primary children. The origin in most cases can probably be traced to oral reading. Having become accustomed to the process of oral reading, many children employ the same laborious process in silent reading, though not allowing the oral expression to become audible. Instead of proceeding directly from the symbol to the idea expressed, they tend to give it oral expression first.

The effect of vocalization, as far as evidence goes, is to retard rate. Its effect on comprehension is less clear. Of the investigators referred to by W. S. Gray, Hendricks found that among first-grade children there was no appreciable difference between lip movers and non-lip movers, but among fourth-grade and eighth-grade children, the non-lip movers read faster. The ten slowest adult readers studied by Quantz showed nearly twice as much lip movement as the most rapid (10, 14, 23). Pintner, also experimenting with adults, found that "practice in reading without articulation increases the ordinary rate of reading;" that "articulation during the reading process is a habit which is not necessary for that process; that practice in reading without articulation can make such reading as good as the ordinary reading of the same individual; that practice in reading without articulation tends to aid ordinary reading most probably by shortening the habitual practice of articulation" (25).

C. T. Gray found that twenty days of practice in reading without vocalization decreased the amount of motor accompaniment of reading and increased rate. While more of his pupils lost than gained in comprehension, it is not a fair assumption that vocalization increases comprehension (8). It is both conceivable and probable that children who have been trained primarily in oral reading may lose in comprehension when first asked to read without vocalizing. But that they will continue to suffer in comprehension, we

³ See the chapter by W. S. Gray in this *Yearbook* for further illustrations.—*Editor.*

have no evidence, nor have we any that they would do so at all, if trained to read silently from the beginning.

14. *Amount of Reading.* "Learn to read by reading" is a familiar maxim. We have not yet witnessed a sufficient amount of experimentation under controlled conditions to enable us to say just what influence the quantity of material read has. It is conceivable that children may read large quantities of material in a slipshod fashion and gain but little as a result. On the other hand, it is also conceivable that a smaller amount of careful reading may produce a good reader. The general trend of teachers' opinions seems to be that good readers are produced by a large amount of reading. This contention is not without merit. Schools in which a large number of books is read in primary grades as a rule produce strong readers, in comparison with those where little is read, *e. g.*, city vs. rural schools. In the St. Louis survey a large proportion of the pupils were found to be reading many books silently during the second and third grades. In some classes the children read as many as one book a week. The tests showed that these children were markedly superior to those who did not have such opportunity (9, p. 179). The extensive reader acquires a wide field of experience, secures much practice in silent reading for the thought, the thread of the story, or the points of interest. He becomes practiced in phrasing. His vocabulary is increased through acquisition of words whose meaning is gathered from the context.

There is also to be considered the question of the relation of amount read to the rate of reading. We may well ask whether children read more because they read rapidly, or whether they can read fast because they read much. We know that, other factors being equal, the child possessing the higher rate reads more in a given period, but we are not at present able to say how much a child's rate will be improved as a result of a given amount of reading. It is very likely true that for many children extended reading improves rate materially.

Correlations between quantity of reading and reading test scores have been computed in only a few instances. Miss Zirbes' data for fourth-grade children show an average Spearman correlation for three separate measurements of .53 between rate and number of

books read at home (32). Woody asked teachers in Grades III, IV, and V to estimate the number of pages their classes read (both regular and supplementary reading) during a current semester. He then correlated this figure with comprehension and with rate on the Monroe test (33). His figures, by the Spearman method, are embodied in Table 8, where it will be seen that the third-grade

TABLE 8

Grade	No. of Teachers Reporting	Amount and Comprehension	Amount and Rate
III	31	.46	.85
IV	34	.02	.02
V	36	.15	.04

correlation is rather marked but that of the other grades is not. Our own Pearson correlations (31) between score on the Haggerty reading tests and books read by each individual during the year, as reported by teachers for Grades I and II are shown in Table 9,

TABLE 9

CORRELATIONS BETWEEN AMOUNT READ AND SCORES IN READING TESTS (THEISEN)

Grade	No. Pupils	Amount and Score on Test I	Amount and Score on Test II
I	210	.47	.44
II	190	.14	.09

where, again, the figures are significant in one grade and not in the other. A more refined method of recording the amounts read would probably have raised the correlation, since the good reader in the primary grades is likely to choose longer selections.

For the relatively unskilled teacher, at least, quantitative silent reading should undoubtedly be urged, even though well-trained teachers may secure very good results with a much smaller quantity. Each schoolroom should have a library of its own, with single copies of many books and arrangements for frequent exchange with other schools.

15. *Difficulty of Reading Materials.* The reaction of the average adult toward a selection that presents any considerable number of new and difficult words, or that is difficult to comprehend, is usually to lay it aside in disgust. The reaction of the beginner

would probably be much the same, were he less naive and submissive. Material in which the vocabulary offers numerous obstacles necessitates constant shifting of attention from the thought, and consequently from story interest, to mechanics. The vocabulary is likely to be so far in advance of the reader's that he cannot appreciate the thought. Easy material is conducive to organization into longer thought units. This in turn stimulates rate. For the average primary teacher, more satisfactory results will be obtained by the use of easy reading materials. Brinkerhoff concluded as a result of his study that "probably an extensive use of easy reading books throughout the primary grades will produce rapidity. The present practice of having pupils read difficult books in the lower grades is vicious, because it prevents the establishment of proper reading habits" (3).

16. *Provision for Individual Differences.* To our knowledge no one has yet attempted to measure the advantage to be had from careful provision for individual abilities and needs, as against the conventional form of class teaching. Primary children differ not only in intelligence, maturity, experience and interest, but in their proficiency in each of the various elements that go to make up primary reading ability. They differ materially in breadth of vocabulary, in knowledge of phonics, in eye habits, in amount of vocalization, in fluency and correctness of oral reading, in type of material they can comprehend and in rate of reading. In the usual classroom procedure, few of these facts are taken into consideration. Were primary children to be placed, when occasion demands, with others whose acquirements and abilities were similar, and treated accordingly, it is not improbable that we should need to establish newer and higher standards of accomplishment for them.

A recent inquiry (29) brought out, among others, these valuable suggestions for adapting primary reading instruction to individual differences: (a) voluntary reading in free periods, (b) arranging pupils into small groups on the basis of ability, (c) testing of reading ability and intelligence to determine what may be expected of each pupil, (d) independent silent reading, (e) permitting the rapid reader to cover longer portions, (f) specific help and treatment of individual defects, (g) individual word, phonic and phrase

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which do not require children to spend time on what they know well for the sake of the few who have such difficulties, sight drills, (i) grading of materials to fit individual ability, with easy material placed in the hands of the weaker, and more advanced in the hands of the stronger, (j) home reading, (k) choice of materials on the basis of individual interests, (l) stimulation of individual efforts through motivation, and (m) rate drills. The justification for such measures is obvious. To this list should be added such provisions as can be made for promotion and for proper attention to physical needs.

We have pointed out elsewhere what may be expected where provision is made for differences in intelligence. Just what to expect when adequate provisions are made for individual differences in other respects is still a matter of conjecture that needs to be determined experimentally.

17. *Diagnostic Study and Treatment of Individual Needs.* As Anderson and Merton have expressed it, "Much of the weakness in our methods of teaching reading is due to our system of mass instruction, which does not attempt to discover the sources of the reading ailments of individuals, but which prescribes a patent nostrum that, it is hoped, will cure all reading ills" (1). Uhl diagnosed the reading of the third-grade children along with higher grades. He found the accuracy of diagnosis such that no poor reader made good records in all tests, while the specific defects of poor readers could be detected. He concludes that for many who fail to profit by class instruction, carefully planned individual treatment will produce as rapid growth as is produced in the case

TABLE 10
 DISTRIBUTION OF 909 ERRORS IN THE ORAL READING OF 91 PUPILS
 (ANDERSON AND MERTON)

Types of Error	No.	Percent	Types of Errors	No.	Percent
Repetitions	138	15	Additions not changing meaning	21	2
Insertions	125	14	Vowel sounds	15	2
Omissions	71	8	Confusing letters not governed by rule	9	1
Substitutions	220	24	Wrong syllables	24	3
Mispronunciation	30	3	Repetition to correct errors	25	3
Accent	33	4	Not attempted	5	1
Portions omitted	65	7			
Portions inserted	90	10			
Omissions not changing meaning	38	4			

of many apparently brighter pupils by class instruction (32). Anderson and Merton found that 909 oral reading errors of 91 pupils were distributed as in Table 10.

Such studies of the frequency of different types of error in both silent and oral reading form a definite part of the reading instruction in the schools at Stoughton, Wisconsin. Treatment is given poor readers in accord with the diagnosis of their cases. They report what was accomplished with a second-grade pupil demoted after a trial in the third grade. He could not read primer material satisfactorily. His case was diagnosed as "lack of familiarity with the printed words and an utter lack of phonetic power." He was given instruction in phonics for one month, and from then on, a combination of phonics, oral reading, and silent reading for rate and quality, with the emphasis upon oral reading for quality. In all, he received 36 special lessons. His record on the Gray Reading Test at the beginning and at the end showed: "(1) Rate almost doubled; (2) quality more than doubled and 4 points above the standard for his grade; (3) lip movement eliminated." In this school system, where special efforts were made to study and to treat individual needs, "the median rate of the second grade increased from 74 words per minute in November to 193 in May. The third grade increased from 113 to 200." "Before a teacher can do efficient work with a reading class, she needs to know what problems she is meeting, what defects must be remedied. Her work must be with small groups of three or four pupils, rather than with masses. She should work with these groups to overcome reading defects" (1).

18. *Interest.* Interest is a factor the exact effect of which is still undetermined. It is a commonly accepted principle of psychology that effort is proportional to interest. Motive conditions results. Writers of primary reading materials have not always been careful to provide for the item of interest. Some of the books to be had for primary children are particularly lacking in this element. Of those purporting to be interesting, many are based only upon shallow, superficial interests. In their earnest desire to have beginning children master a particular phonic system, teachers are in grave danger of overlooking the factor of interest. Most teachers

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bly do not make sufficient attempt to discover the particular likes and dislikes of each child, and to build accordingly. In response to an inquiry on provisions for individual differences sent to a group of successful teachers, it was found that "only 15 percent of the primary teachers apparently made serious efforts to fathom the interests of the individual child." In grammar grades, where teachers are forced by circumstances to study interests, the percent was more than twice that in the primary grades (29).

The interests of primary children differ with age, maturity, home surroundings, experience, school training and previous reading. Differences are frequently exhibited by the members of a class. The teacher's problem is to discover each child's interests, and to develop and broaden them. Some teachers make progress in this direction by observing each child carefully, discussing with him his likes and dislikes, and noting his home and out-of-door interests, or what he reads when free to choose from a large variety of material.

19. *Supervision.* Very few figures are available on the effects of supervision, but the few that are available tend to show that a small amount of supervision is likely to produce large gains. Miss Reichert, at Madison, by six weeks' supervision secured a comprehension score of 11.3 on the Monroe reading test, Form II, for the supervised class, where the two control classes scored 8.5 and 8.1. At the beginning of the experiment the classes had scored 5.5, 5.3, and 5.3, respectively, on Form I. In the supervised class, a diagnostic study of individual needs was made. Pupils were grouped on the basis of ability, and training in thought-getting was given. The proportion of silent reading was increased. Material varying from difficult first-grade to difficult fourth-grade was used, depending upon the ability of the child. Phonic training and phrase drill were given to those needing it. Home reading was encouraged (26). In many schoolrooms, a supervisor would probably need but to show the teacher how to put the most obvious steps into operation to produce marked gains. There is so much sheer wasting of pupils' time on the part of unskilled teachers that improvement is easily possible. The presence of a reading supervisor properly equipped for the task is to be welcomed.

20. *The Quality of the Teaching.* Aside from intelligence, none of the factors affecting results in primary reading is more important than the quality of the teaching. Just how much influence a given quality of teaching has, when spread over a given interval of time, has unfortunately never been accurately determined. This is due in part to the difficulty of securing reliable measures of the quality of the teaching, and in part to the fact that until recently we have lacked standardized tests of primary reading achievements. The improvement secured by Miss Reichert, previously cited, is indicative of what may be expected when superior teaching is secured (26).

While all of the various factors we have discussed do evidently enter into the teaching, their sum does not make the teacher. The quality of the teaching will be improved, it is true, by a due regard for the importance of each of these factors, but their sum, we repeat, does not make the teacher. The additional elements of judgment, regard for values, encouragement, ability to stimulate children, executive skill and classroom management must be supplied by her. Unless she is a master of the technique of instruction, knows the tendencies of her children, and is familiar with the subject matter, she will not achieve the best results. It is not at all improbable that when a school obtains a highly favorable condition with reference to all of these factors, we shall reach new and unheard-of standards of achievement in primary reading.

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CHAPTER II

CONTROLLING FACTORS IN THE MEASUREMENT OF SILENT READING

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During the past year the Department of Education of the Russell Sage Foundation has conducted a series of studies in the measurement of silent reading. This work has produced a scale for measuring the silent reading of children in grades three to eight. The scale itself consists of a large sheet of paper on which are printed 20 little pictures with a paragraph under each one, telling the pupil to make a line or mark with his pencil to supplement the picture. The number of paragraphs that he can read and mark correctly within the time limit of five minutes is taken as the measure of his ability, in this particular sort of careful silent reading. The scale is designated as Picture Supplement Scale 1, or PS-1.

It should be noted that the testing material of this new silent reading scale is of uniform difficulty throughout, and that a definite time limit has been set. That is, difficulty and time have been held constant, and the variable which has been measured is the amount which the child can do. These characteristics of Picture Supplement Scale 1 were not found in all of the earlier testing material used by the Foundation in its silent reading experiments. They are the results of many changes which have been carried on in the effort of the Department to make the test conform to the fundamental principle of measurement, "the law of the single variable." It is with some of the problems arising in the endeavor to apply this principle to the measurement of silent reading that this article is intended to deal.

THE LAW OF THE SINGLE VARIABLE

A few months ago, newspapers in different parts of the country were filled with humorous references to the troubles of the Mayor of Providence, Rhode Island, who had come in conflict with the law of the single variable. According to the newspaper accounts, an Italian, who had formerly lived in Providence, and wished to show his affection for the city, left in his will a sum of money which was to be awarded by the mayor to the most beautiful and virtuous girl in the city. The mayor devoted considerable thought to his problem. It might be possible to measure the beauty of the young women of Providence. It might be possible, although the difficulties involved were rather staggering, to arrive at some measure of womanly virtue; but to contrive a measure which would successfully discover the girl possessing the most perfect combination of beauty and virtue was too difficult a task for even the courageous mayor, and the newspapers say that he refused to accept the trust. He could not measure two variables in combination.

Measurement is the process of comparing a given sample with a standard sample, and stating the proportion it bears to the standard, in terms of the standard unit. Length is measured in feet, time in seconds, weight in pounds; always the results of measurement are given as specified amounts of a single standard unit. Tests may furnish simultaneously several different kinds of results, and each of these results may be measured in terms of its relation to the standard unit of its kind. It is clear, however, that if different results are to be compared with each other, they must be of the same sort; they must be expressed in common terms. The law of the single variable is to the effect that, in the measurement of comparative attainments, only one element can be measured at a time; and when one element has been chosen as the variable to be measured, every other conditioning element which might affect the result shall be held constant.

The principle of the single variable is accepted, not only by the Mayor of Providence, but by chemists, physicists, and biologists; by carpenters and clerks, by schoolboys, and milkmen, and professional pugilists. It is the universally accepted principle

of measurement in the affairs of everyday life. We measure, for example, "How far this man can run in a given time," and "How fast he can run a given distance," but we do not even attempt to measure "How far he can run how fast." Whether we have clearly formulated it for ourselves or not, in practice we obey the law of the single variable. In comparative measurement, we try to measure only one thing at a time.

SCALES MEASURE QUALITY, DIFFICULTY, AND AMOUNT

As part of the experimental work in connection with the silent reading study, a careful examination and tabulation was made of the principal existing scales for the measurement of ability in classroom subjects. It was found that without exception every scale seeks to measure one of three elements. It seeks to answer one of three questions: "How well can he do?" "How hard can he do?" or "How much can he do?" It measures quality of product, difficulty reached, or amount done. If the term *amount* be taken to include its companion term, *time*—and it must be so treated, since the two are mutually dependent; time implies amount, and amount implies time—then every careful comparative measure that we make will be found upon close examination to be primarily concerned with one of these three elements. In dancing we compare quality; in jumping we compare difficulty; in swimming we compare time or amount.

Moreover, we successfully compare only one sort of measure at a time; and when we try to compare measures in combination we open the way for endless arguments and misunderstandings. In diving contests, for example, where the difficulty is set, so that contestants all make the same sorts of dives, it is easy to judge them on the basis of comparative quality. Where, however, each contestant is allowed three dives of his own choosing, and the judges try to decide who made the most difficult dive best, decisions are continually questioned and become matters of hot controversy with little hope of satisfactory settlement. Such judgments are of the crudest sort and do not pretend to scientific accuracy. Scales which seriously attempt comparative measure-

ments always chose one of three elements—difficulty, quality, or amount—and only one, as the variable they seek to measure.

In any scheme of scientific measurement, after the variable has been chosen, the two remaining factors must be carefully studied. Either methods must be devised to hold them constant or it must be shown that they are without power to affect the scores in the particular field where the measurements are to be made. That is, where one of the three factors of quality, difficulty, and amount is chosen as the variable, the results of which are to be noted, the remaining two factors must be restrained from influencing those results. In some cases it can be shown that no special restraints are required, since variations of one factor have no influence upon the other; but such mutual independence cannot be taken for granted. It must be definitely proved, and the burden of proof rests upon the person who is responsible for making the scale.

READING NOT MEASURED BY SCALES FOR QUALITY OF PRODUCT

The first problem in studying silent reading is to decide which of the three factors—quality, difficulty, or time—shall be chosen as the variable to be measured. In the study here described the conclusion was reached that reading is a classroom activity which does not readily lend itself to measurement by means of scales for quality of product. Quality in reading is an elusive thing which varies not only with different people, but with the same person from moment to moment as he reads. There are as many different reactions which children get out of reading as there are children, and as there are times that children read. The reading process awakens in consciousness thoughts and memories of the most varied character. In re-reading even a simple passage, the same individual gets new meanings from the page, new and different mental reactions from the same stimuli.

Moreover, outside of the psychologist's laboratory, the shades of quality of reading are not of great import. For practical purposes, the problem of measuring reading involves finding out how rapidly the subject reads the material with a sufficient degree of comprehension to get from it the essentials of its meaning.

As the material increases in difficulty, the ability to read it is rarer; but the important question is not "How full and varied is the meaning the reader draws from it?" but rather "Is he able to grasp the gist of the material?" The quality element is reduced to the very simple one of, "Well enough to get the essential thought."

READING NOT MEASURED BY SCALES FOR DIFFICULTY REACHED

There are several well recognized tests which consist of graded series of progressively difficult tasks, where the hardest task successfully completed is taken to measure the degree of accomplishment shown. No time limit is set, since it is assumed that the results achieved in the test are independent of the time needed. These are scales for difficulty reached.

In the early experimental work of the Foundation, a tentative reading scale of this kind was devised, which was similar to the present Picture Supplement Scale 1 in that it consisted of little pictures with paragraphs of instructions about them. In the former scale, however, instructions were graded in reading difficulty, so that in the earlier paragraphs sentences were short and the words were those most commonly used, while paragraphs towards the end of the scale consisted of longer sentences and words so rarely used that they do not enter into the speaking vocabularies of most high-school or college students. Children were allowed to work as long as they wished, and it was assumed that the hardest paragraph attempted and read successfully would mark the limit of the child's reading ability.

To the embarrassment of those conducting the experiments, it was found that under these conditions, almost every child was able to read everything. That is, if the thought and style were easy to grasp, and there was no time limit, even the littlest children showed an amazing ability to puzzle out the meaning of the hardest words. For example, a picture of the cross used in the anti-tuberculosis campaign was accompanied by the following instructions:

"Since TB is the usual abbreviation for tuberculosis, print the two initials closely contiguous to this celebrated emblem of the American Tuberculosis

Association. In doing so, be careful to select such locations as will result in the separation of the initials by the intervention of the emblem between them."

Third-grade children, Italians, on the lower east-side of New York City, who were counted by their teachers as exceptionally poor in reading, and were not themselves able to use English fluently, read that paragraph, re-read it, and finally with shining eyes grasped their pencils and printed T on one side and B on the other side, closely crowded against the central cross. They could not have defined the words, but they could discover what the paragraph meant if given long enough time to puzzle it out. The same result occurred over and over, with other forms of test material, even such as, under the picture of the veiled lady, requested the children to "perpetrate an incision in the facial vesture immediately anterior to the buccal orifice through which the fastidious female may procure aliment."

In these early silent reading experiments, the three fundamental factors of quality, difficulty, and time had been recognized. The quality requirement had been held constant, at the low level of "well enough to get the gist," and it had been assumed that where the reading material was difficult, the time consumed was of no great importance. It was thought that a child either could, or could not, read so as to understand a given selection, and that no amount of additional time would materially improve his performance. The experiments established that, far from being unimportant, time is in reality very nearly the most powerful controlling factor in silent reading. It must either be measured or controlled.

An easy solution of the problem thus confronting the investigators would have been to keep the test material as it stood in gradually increasing steps of difficulty, and set a time limit. It seemed clear, however, that this solution would not be satisfactory, because it would violate the fundamental law of measurement, which declares that only one variable can be measured at a time. The difficulty of equating time and accomplishment is as great as the difficulty confronting the Mayor of Providence of equating beauty and virtue. Girls of equal virtue might be arranged in order of beauty, or girls of equal beauty according to

their relative virtue; but the two attributes could not be mixed in unknown and varying proportions and the results compared or interpreted. Similarly, in measuring reading there seemed to be no statistically valid way of equating "Difficulty 10 reached and three paragraphs wrong," with "Difficulty 6 reached and none wrong," or "Difficulty 12 reached in four minutes" with "Difficulty 16 reached in five minutes." The results are not comparable because they are the sums of two variables, in unknown proportions.

If difficulty was to be measured, the time element must be restrained from influencing the result. It might be possible to allow the difficulty of each paragraph to vary, and to record the rate of each child on each paragraph. This would, in effect, be the same as giving the children a series of tests, one at each level of difficulty, and measuring the amount done at each level in a given time. Such a measurement would be defensible from the purely scientific standpoint, but would entail a number of practical difficulties of administration, with which the classroom teacher is hardly able to cope.

Another alternative was to increase the difficulty by means of abstruse thought, unusual style, catches, puzzles, and technical phraseology, to such a degree that no amount of increased time would assist in interpreting the meaning. This second method raised the serious question whether material so hard that the child cannot understand it, either when reading to himself or when listening to some one else reading or repeating it aloud, can properly be used to measure reading. Such material would appear to test general intelligence rather than ability to secure meaning from the printed symbol. In the experiments here described, the conclusion was definitely reached that reading ability cannot legitimately be measured by exercises in which difficulty has been created artificially through complicating the thought, confusing the style, or inserting puzzles or catches intended to trip the reader.

The experience of the investigators in trying to construct scales for difficulty in reading, suggests that there will probably be found very few classroom subjects in which difficulty can be

measured directly, without reference to time. It will be noted that most of those who have devised scales for difficulty have been obliged to set time limits, even while declaring that time is not a conditioning factor. Where such a time limit is set for the scale as a whole, but none is set for individual paragraphs or problems of varying difficulties, the scores made must necessarily be affected by the rate at which the child works. He may have stopped at a certain point because he could not do work any harder or because he could not work any faster. Nothing in the score enables the examiner to tell what portion of it is attributable to ability, and what to speed. The most that such a test can tell is "Who reached the highest difficulty first." It cannot tell "Who would have gone highest had enough time been given," or "Who is the fastest worker."

If scales are to be of help to the classroom teacher, they must furnish more definite information than that. She already knows that some of her children can do harder work than others. What she needs to know, and what the scales that are given her should be designed to tell, is which children should be warned to go more slowly and which encouraged to work faster; who needs to be scolded for careless work, and who should be taught the difficult art of neglecting unimportant details. Then, in addition to, and separated from, these diagnostic facts of rate and accuracy, she must know at what points children are failing to understand her teaching. Scales which are to be of diagnostic help, must result in simple scores, which can be relied on, and readily interpreted. There is reason to believe that, in the future, scales to measure comparative ability in classroom subjects will generally fall into the two groups of scales for quality and scales for amount; and it is probable, also, that difficulty will eventually be measured indirectly, by means of series of carefully graded scales for amount.

READING MEASURED BY SCALES FOR AMOUNT DONE

Having decided that reading cannot readily be measured either by scales for quality or by scales for difficulty, it was necessary to ascertain whether it could be measured by the third

remaining method, that of scales for amount done. Scales which seek to measure amount must be so constructed that quality, difficulty, and time, and their subsidiary elements, are all held constant, and the variable which is to be measured and compared is the amount of work which the child can do under such standard conditions. In the measurement of silent reading, therefore, the measurement by scales for amount demanded that quality, difficulty, and time be maintained constant. It was decided to adopt as the standard of quality, the ability to secure the fundamental meaning of a paragraph well enough to act in accordance with it. The child must read well enough to get the gist of the material; his reading must be of the quality necessary in the ordinary reading of everyday life. Through the most careful sort of writing, testing, and re-writing, the difficulty of each paragraph must be maintained at a given level throughout the test; and a time limit, during which the children should be allowed to work, must be determined. With these general considerations well in mind, the measurement of silent reading through scales for amount was finally undertaken.

FACTORS INVOLVED IN TIME AND DIFFICULTY

The decision to treat amount as the variable and to hold quality, difficulty, and time constant, immediately brought into question all those subsidiary elements which also must be controlled and held constant if the scores resulting from measurement are to be purely in terms of quantity done, under uniform testing conditions. It is clear, for example, that if a paragraph is constructed in such an involved style that the child has to stop to puzzle out its meaning, his score will be lowered, not because the child is a poor reader, but because the author of the test is a poor writer. So again, a paragraph calling upon the child to compute the age of Uncle's Father may give the child a poor reading score which should really be charged to lack of skill in arithmetic.

Accordingly, having decided that the required quality should be the passing mark of "well enough to get the gist," and that time and difficulty should be maintained at constant levels

throughout the testing material, three further steps were necessary before the material itself could be used as a basis for constructing the final scale. The first step was to identify and list as many as possible of the elements which tend to affect either the difficulty of the reading material or the time required to read it. The list actually used in preparing Scale PS-1 is here presented:

CONTROLLING FACTORS IN SILENT READING

(Subsidiary elements of time and difficulty which must be eliminated or held constant.)

To Be Eliminated

Complex thought
 Abstract thought
 Technical thought and language
 Catches, puzzles, accidental leads
 Demands for spatial imagination
 Irrelevant dramatic appeal
 Ability to reproduce
 Ability to remember
 Ability to reason, or infer
 Involved style

To Be Held Constant Throughout Test

Memory span requirements
 Attention span, multiple strains
 Difficulty of action demanded
 Time required for complying with instructions
 Vocabulary difficulty
 Sentence structure
 Word arrangement
 Amount of material to be read
 Uniformity of print
 Uniformity of space relations between pictures and print
 Ease of finding place on paper
 Interest and corresponding effort on part of child

The second step was to eliminate as many as possible of these dangerous subsidiary factors; and the third step, to contrive methods by which the remaining factors could be rendered harmless by equalizing their influence in all the sections of the test.

After the list of controlling factors had been compiled, certain of them were chosen as those which might, or clearly should, be eliminated. It was decided, for example, that the thought should always be simple. The child should not be called upon to reason or to infer. He should not be expected to grasp abstractions, or complexities of thought. Technical language should be avoided,

and there should be no demand for special technical knowledge. Puzzle questions were ruled out, and so, more difficult to avoid, but equally dangerous, were the accidental catches or leads, in which unwisely emphasized words tricked the child into wrong responses.

In the particular scale under discussion, one of the extraneous factors most difficult to rule out was that of irrelevant dramatic appeal. There was the picture of the dog, for instance, which still appears at the top of the first column in the present scale. As originally written, the paragraph underneath the dog read as follows:

This dog sees a cat in the street. He does not like cats, and he hates this one. He will watch her and if she comes too near he will bark at her and chase her up a tree. We do not want him to chase the cat. Take your pencil and draw a strong rope about his neck so that he can not run after her.

That was an easy paragraph to read, but it proved to have more catches than any other in the entire collection. In the first place, while most of the children drew the "strong rope about his neck" in a single rapid stroke, there were one or two extra bright children who did not intend to be caught that way. In each set of papers there were always a few in which "strong rope" was represented by a cable of huge size, with every twisting strand carefully drawn and shaded, to prove to the teacher that the child taking the test knew exactly what a rope looks like, as contrasted with the possible string or chain.

Then again, when the "strong rope" had been deleted, the paragraph still made trouble because of its dramatic appeal. It practically always made the children laugh. They looked up at the teacher to see if she enjoyed the joke as well as they did. They smiled across the aisles and pointed to the picture to show their neighbors that it was the first picture, the one with the dog, which struck them as particularly funny. After they settled down, the dramatic possibilities worked havoc, for the brighter children could not resist the temptation to make drawings with fences—picket fences—to keep the dog in, a sturdy tree for the cat to climb, and even the cat herself, half way up the tree, with fluffed out tail, and claws digging desperately into

the wood. It was an excellent exercise for the imagination, but disastrous in a carefully timed reading test. In his latest form, the dog has stolen two bones and forgotten about the cat. The children do not like him so well, but he is much better material for testing!

Demands upon the ability to reproduce, to remember, and to answer questions were carefully excluded, because of the danger, as in arithmetical tasks, of unintentionally testing qualities commonly associated with reading, but not genuine elements in reading ability. The responses called for were made so simple that even very young children, far below the grades for which the scale is intended, were readily able to comply with them. The number of main ideas in each paragraph was carefully restricted to well within the attention span and memory span of the younger children, and these ideas were distributed through the paragraph in such a way as to make guessing difficult. Length of paragraph, size of print, size of picture, and relation of picture to print were kept uniform throughout the test, so that differences in style and make-up would not be responsible for differences in scores.

It was found that close attention had to be paid to the children's own reactions towards what they read. One illustration showed an open book, and the instructions were to make a small cross upon the right-hand page, so that the reader would be able to find his place again. This was a mistake. In school, children are taught never to mark their books, and they were obedient, even at the cost of failing in the reading test. The paragraph was re-worded, so that the children were told to draw a line representing a ruler lying straight across the book to hold the pages open. This wording proved to have an unforeseen catch, because the idea of one line was not sufficiently emphasized, and many children carefully drew rulers, with all the inches marked and numbered. The final wording runs "Draw a single straight line, to represent a ruler," and the paragraph now seems to be in satisfactory shape.

The children wanted the examiners to be reasonable and logical. If the tasks required offended them, they worked slowly or carelessly. To keep interest and effort high enough, but not

too high, and to keep them uniformly at the same pitch through the entire duration of the test, was one of the most difficult of all the problems met in the preparation of the testing material.

TEST MAKING IS A TWO-FOLD PROCESS

It will be seen from the foregoing illustrations, that the process of preparing test material was an alternating one of painstaking scrutiny and analysis within the office, and careful testing of the new material in the classroom. It seemed clear that neither part of the process could be dispensed with. Testing alone left undiscovered many alien factors which tended to pervert the results. One of the paragraphs showed a football player, and asked the children to draw the football soaring through the air. Classroom trials seemed to indicate that the paragraph was too easy to read, since few children failed on it. Office consultation, however, with critical scrutiny of paragraph and picture, showed that the paragraph had never really been tested. Given that picture, with no print at all, if told to make a mark the children would always draw a soaring football. The perfect scores represented, not reading ability, but familiarity with the game. Most extraneous elements fail to show in classroom testing. They can be detected only by the most painstaking examination and scrutiny of the testing material. Testing must follow upon preliminary critical revision, and further revision must be verified and stimulated by testing. Neither process can be effectively carried on without the other.

SUMMARY

1. The law of the single variable declared that, in the comparison of relative attainments, one element, and only one, shall be chosen as the variable to be measured, and other conditioning elements, which might affect the result, shall be held constant. This is a universally accepted principle, which applies to every sort of careful scientific measurement of comparative attainment.

2. Scales for comparative attainment measure quality, difficulty, or amount. These are the three fundamental factors. One of them may be chosen as the variable to be measured. The other

two must be restrained from affecting the results secured. Where it is assumed that one of these three factors is non-operative, the burden of proof rests upon the person making the scale.

3. Reading is a classroom activity which is not readily measurable by scales for quality, or scales for difficulty. It is measurable by scales for amount.

4. There is reason to believe that most classroom subjects may best be measured by scales for quality or for amount. Because of the influence of time and rate, which are not easily controlled, difficulty rarely can be measured directly. It is probable that difficulty will eventually be indirectly measured through series of carefully graded scales for amount.

5. If difficulty and time are to be maintained as constants, the subsidiary elements of difficulty and time must also be maintained as constants. This means that, in the preliminary preparation of testing material, far greater care is necessary than has usually been exercised. In reading, for example, the practice of hastily compiling heterogeneous masses of paragraphs of different lengths and arrangements, indiscriminately calling upon the child's ability to do arithmetic, solve puzzles, reason, remember, reproduce, moralize, and imagine, should not be tolerated in the field of educational measurements. The common practice has been to assume that paragraphs on which equal per cents of failures occurred were of equal reading difficulty. Such an assumption is clearly unsafe, unless it can be shown that care has been taken to keep all the difficulties measured genuine reading difficulties. Unless extraneous, non-reading elements have been weeded out, paragraphs of equal reading difficulty may result in totally different percentages of failures; and so, conversely, paragraphs of different reading difficulties may result in identical percentages of failures. Equal difficulty cannot be secured merely by testing and computation. It can be arrived at only through keen inspection, merciless criticism, and the rigid determination to eliminate every alien influence which might pervert the findings, and result in mongrel scores. The law of the single variable must be conscientiously followed in the writing of every sentence, and the formulation of every paragraph.

CHAPTER III

INDIVIDUAL DIFFICULTIES IN SILENT READING IN THE FOURTH, FIFTH, AND SIXTH GRADES

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Two years ago a boy who now ranks slightly above the average of his age-group in general intelligence began his public-school career. He advanced rapidly through the primary grades until the autumn of 1920. At that time it became necessary for him to discontinue regular school work because he was unable to read. In class discussions, in ability to solve problems, and in all phases of school work which did not involve reading he equalled or excelled his classmates.

A careful analysis revealed the fact that the boy had not established the habit of moving his eyes regularly from left to right along a line. At times the first fixation was near the end of the line; frequently it was near the middle of the line; and sometimes it was near the beginning. The remaining fixations were irregular and followed no definite order. Drill exercises were organized which consisted of series of short words typewritten with half-inch horizontal spacing. The boy was required to read these words for five minutes each day in order to cultivate regular habits of eye-movement. That there was rapid reorganization of his method of procedure was clearly evident in his reading. After considerable progress had been made, a simple story was typewritten, again with a half-inch space between words. After a few exercises of this type, the words were grouped in thought units with a half-inch space between each unit. Finally, stories were read, still during the drill periods, directly from books. The facility and accuracy with which he soon read indicated that one of his major difficulties had been corrected. Other prob-

lems, such as increasing the span of recognition, were then attacked. At the present time the boy is making very rapid progress and will doubtless be able to resume work with his class at the end of the first half of the school year.

This case has been cited as an illustration of the failure of regular instruction to meet individual needs. There are doubtless thousands of boys and girls who fail each year and are unable to continue with their classmates because of peculiar defects which could be readily remedied. The results are discouragement, retardation, and elimination in far too many cases.

Progressive schools are taking definite steps to provide facilities for discovering and remedying these defects. The work of Superintendent C. J. Anderson and Elda Merton in the public schools of Stoughton, Wisconsin, is described in the *Elementary School Journal*, May and June, 1920. The work which has been carried on in the Elementary School of the University of Chicago is described in *Reading: Its Nature and Development*, by Charles H. Judd. The valuable results which have been secured in public-school systems such as Stoughton, Wisconsin, and Rochester, New York, thoroughly justify these recommendations: that Bureaus of Educational Research give special attention to the problem of diagnosis; that a special teacher be provided for each large elementary school to devote her entire time to the problem of testing and instructing pupils who encounter fundamental difficulties in reading and other subjects; and that classroom teachers be instructed in the technique of recording facts in order that special difficulties may be discovered and corrected as early in the child's school career as possible.

The cases which are described in the sections which follow illustrate in a limited way the wide variety of difficulties which pupils encounter in silent reading in the middle grades. Each of these pupils was retarded in reading because of a peculiar difficulty. When appropriate remedial devices were employed, each responded satisfactorily to treatment. The purpose of the discussion which follows is to present a limited number of interesting cases, to describe the methods of treatment, and to stimulate supervisors and teachers to cooperate actively in similar studies. Improved meth-

ods of group instruction will do much toward increasing the ability of most boys and girls to read and to study independently and effectively. We shall learn how to meet the needs of pupils who encounter unusual difficulties only through detailed, accurate studies of individual difficulties and application of appropriate remedial devices. Progressive teachers and supervisors can make studies of very great value in this connection.

A FLUENT ORAL READER IN THE FOURTH GRADE WHO COMPREHENDED
VERY LITTLE READ SILENTLY¹

This pupil was a fourth-grade girl who was described by her teacher as slow and indifferent. When given the Gray Oral Reading Test in December she made a score of 41.25, which is 5.75 below the standard for her grade. In the silent-reading test she made unusually slow progress and was unable to reproduce what she had read or to answer questions. Evidence that she read all of the words was secured from noting her lip movements.

Tests were next given to determine the ability of this girl to read the materials ordinarily assigned in the reading class. A passage from page 57 of the *Merrill Fourth Reader* was used in this connection. The girl was instructed to read the selection silently for the purpose of getting the thought well enough to reproduce it later. She read at the rate of 1.05 words per second. She reproduced more or less inaccurately only a very small percentage of what she had read. Her lip movements were very pronounced. She answered only one of the eight questions asked and that inaccurately.

To discover if mechanics of reading was causing the difficulty, she was asked to read the same material orally. She read fluently and with expression at the rate of 1.01 words per second, making only four errors. After studying carefully all the data which had been secured, the following conclusion was reached in regard to her difficulties: "Knowledge of the rudimentary mechanics permitted her to read material far beyond her comprehension. She read

¹ Reproduced in part from "Remedial Work in Reading, Part I." By C. J. Anderson and Ella Merton. *The Elementary School Journal*, May, 1920: pp. 687-692.

words as names and not as symbols of ideas. The problem was plainly that of training her to read for content."

The remedial exercises consisted of passages cut from second- and third-grade readers. The first passage was very short and contained few ideas. Each succeeding passage was somewhat longer and made increasing demands on the reader in order to get the meaning. When exercises were assigned, the attention of the subject was directed to meanings rather than pronunciations. "After she had given a reproduction of the 'story' and had answered a number of specific questions about it, she was asked to re-read the selection in search of any thoughts she had overlooked during the first reading. She then gave a second reproduction. This last reproduction was, no doubt largely a result of the specific questions. Nevertheless, it was valuable in training the pupil to see the richness of content in the selection."

The training period lasted for six weeks. One thirty-five-minute lesson was given each week with the exception of one week in which two lessons were given. From five to seven paragraphs were assigned at each lesson in accordance with the methods described in the preceding paragraph. In May the oral- and silent-reading tests were given again. A comparison of the December and May records led to some interesting observations. It is to be noted that there is no change in the rate, but the quality shows a decided improvement. Her score in this test rose to 50, which is 3 points above the standard for her grade. This improvement is significant when it is remembered that no instruction was given in oral reading in these special-help periods.

TABLE 1
PROGRESS IN RATE AND QUALITY OF SILENT READING

Selection	Words per Sec. Before Practice	Words per Sec. After Practice	Quality Before Practice	Quality After Practice		
				Reproduction	Questions	Quality
"Tiny Tad" Grades II and III.....	1.11	1.81	0	32	60	46
"The Grasshoppers" Grades IV, V, VI.....	1.05	1.21	0	7	80	18

Table 1 gives the silent-reading records for December and May. It shows a decided increase in silent reading rate and in quality.

In December she was unable to reproduce a single thought or to answer a single question. In May she showed marked improvement along both lines and had become fairly efficient.

A FIFTH-GRADE PUPIL WHO READ SLOWLY BECAUSE OF WORD
DIFFICULTIES²

Pupil G was a fifth-grade girl who read very slowly and ineffectively. Her fourth-grade teacher described her as "a slow reader who reads hesitatingly and haltingly, repeating words and phrases." In the preliminary study of her difficulties photographic records were made of her eye-movements while reading. Oral- and silent-reading tests were also given. In the oral reading test the pronunciation of unfamiliar words caused much difficulty. The rate of silent reading was unusually slow, being six-tenths of a word slower per second than her oral-reading rate. The photographic records showed clearly that she "could not unravel the intricacies of the printed lines which proved easy to her classmates." A careful analysis of all of these facts made it evident "that her difficulties were due to a lack of familiarity with printed words and a lack of method of working out new or unknown word forms."

"In an effort to help her overcome this handicap she was given various types of training during eighteen weeks. The first six weeks were devoted to a great deal of oral reading. The second six weeks were spent on drills in phonics and in word analysis. During the last six weeks silent reading was emphasized. While each period of six weeks thus stressed some one phase of reading, all three types of work were carried along throughout the eighteen weeks. For example, oral reading was continued with less emphasis during the last twelve weeks."

During the first six weeks the oral-reading exercises were conducted in ways familiar to most teachers. The selections for reading were made along the line of the pupil's school interests in history and geography. Records of rate and accuracy were secured at frequent intervals for purposes of comparison. The improvement made by the girl in rate and accuracy of oral reading during the eighteen weeks is shown in Table 2.

²"Reading, Its Nature and Development," by Charles H. Judd. *Supplementary Educational Monographs*, Vol. II. No. 4 (July, 1918), pp. 82-91.

words as names and not as symbols of ideas. The problem was plainly that of training her to read for content."

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Selection	Words per Sec. Before Practice	Words per Sec. After Practice	Quality Before Practice	Quality After Practice		
				Reproduction	Questions	Quality
"Tiny Tad" Grades II and III.....	1.11	1.81	0	82	60	48
"The Grasshoppers" Grades IV, V, VI.....	1.05	1.21	0	7	80	18

Table 1 gives the silent-reading records for December and May. It shows a decided increase in silent reading rate and in quality.

In December she was unable to reproduce a single thought or to answer a single question. In May she showed marked improvement along both lines and had become fairly efficient.

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Pupil G was a fifth-grade girl who read very slowly and ineffectively. Her fourth-grade teacher described her as "a slow reader who reads hesitatingly and haltingly, repeating words and phrases." In the preliminary study of her difficulties photographic records were made of her eye-movements while reading. Oral- and silent-reading tests were also given. In the oral reading test the pronunciation of unfamiliar words caused much difficulty. The rate of silent reading was unusually slow, being six-tenths of a word slower per second than her oral-reading rate. The photographic records showed clearly that she "could not unravel the intricacies of the printed lines which proved easy to her classmates." A careful analysis of all of these facts made it evident "that her difficulties were due to a lack of familiarity with printed words and a lack of method of working out new or unknown word forms."

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²"Reading, Its Nature and Development," by Charles H. Judd. *Supplementary Educational Monographs*, Vol. II. No. 4 (July, 1918), pp. 82-91.

TABLE 2
PROGRESS IN RATE AND ACCURACY IN ORAL READING

Period	Words per Sec.	Errors per 100 words
First six weeks.....	2.4	4.5
Second six weeks.....	2.5	2.1
Third six weeks.....	2.7	1.1

"Phonics and word analysis were emphasized during the second six weeks. Various systems of phonics, with some modifications to suit the particular needs, were used. Words mispronounced in oral-reading lessons were worked out phonetically, and lists of words similarly pronounced were built up and reviewed from time to time. There seemed to be a gradual growth in ability to attack an unfamiliar word. In the earlier period the pupil frequently looked at the word helplessly or pronounced a known syllable, but was unable to attack it at all phonetically. She usually asked the instructor to pronounce it. Later, she began immediately to sound the new word phonetically, and though sometimes making a mistake in the length of the vowel or in the position of the accent, her manner of attack indicated that she had confidence in her own ability to work it out." The records which were secured from time to time showed clearly that there was a reduction in the number of mispronunciations, even though the selections which were used gradually increased in difficulty.

"Silent reading was emphasized during the last six weeks, after some training in silent reading had been given throughout the first twelve weeks. For special training, paragraphs or selections dealing with topics of particular interest to the pupil were used. In many instances, the original selections were edited, and the words which had been used in the phonic exercises were woven into the text. Frequently, before the silent reading began, a question was raised the answer to which was to be found in the text. Oral or written reproduction or a discussion of the thought of the selection usually followed the reading. It is interesting to note in passing that, though no effort was made to reduce the vocalization so perceptible at first, it entirely disappeared except when an unusually difficult passage was encountered." The records for rate and comprehension in silent reading which are summarized in Table 3 indicate clearly the value of the special training.

TABLE 3.

PROGRESS IN RATE AND COMPREHENSION IN SILENT READING		
Period	Words per Sec.	Comprehension
First six weeks.....	2.4	22 percent.
Second six weeks.....	3.4	60 percent.
Third six weeks.....	3.6	74 percent.

At the end of eighteen weeks the oral- and silent-reading tests given before the practice period began were repeated. A second pupil who had received no special instruction also took the same tests both before and after the training period. "By comparing the records of the two pupils it is seen that the special Pupil G made a net gain of .63 in oral rate and 2.5 in silent rate. Furthermore, she is beginning to establish a silent-reading rate, while the second pupil continues to read silently at the same rate as she does orally. The gain made by Pupil G in rate of silent reading is even more significant when it is remembered that her silent rate was less than her oral rate of reading before practice began. The gain in comprehension, while not striking, places Pupil G at a normal level for the grade, while the other student is still below average."

A FOURTH-GRADE PUPIL WHO READ SLOWLY AND INEFFECTIVELY BECAUSE OF WORD-BLINDNESS³

The subject of this study was a fourth-grade girl nine and one-half years old. At the time the study began she was unable to read and could not carry her school work without the aid of a tutor. "The child had been in the University Elementary School for two years, including the first grade, and had therefore received the ordinary instruction in reading, which included a considerable amount of sight reading in which phonetic analysis is also emphasized. In addition to this, the child had been instructed for a year by a tutor, and this instruction had included a very large emphasis on phonetic drill. Moreover, in her second year she had been given special help in reading by her teacher. In spite of all this intensive training, the child, when first seen, was unable to read a primer as well as is a first-grade child before the end of the year."

³"Clinical Study as a Method in Experimental Education," by Frank N. Freeman. *Journal of Applied Psychology*. Vol. IV, 1920; pp. 126-141.

Before the child was brought to the laboratory she had been tested with the Gray Oral Reading Test and the Courtis Silent Reading Test, No. 2, and had failed to score in each test. At the time of the examination she was tested with the Gray Silent Reading Test for second- and third-grade children. She read at a rate of 0.5 words per second, and her comprehension score was 23. The average rate for the second grade is 1.96 words per second, and the comprehension score is 25. In order to equal the comprehension standard of second-grade pupils, the girl had to read at one-fourth the standard rate.

Photographic records of the eye-movements of the girl were then secured and analyzed. A highly irregular and unusual condition was discovered. "Instead of going forward step by step, it [attention] skips about, sometimes jumping to a point ahead of where it should be and at other times moving backward over the part which has already been read. This irregularity is in all probability due to the child's failure to grasp the meaning of the words which were fixated by the eye. Failure to grasp the meaning results in the return of the eye to the parts already fixated and in a slow wandering movement or a succession of movements made at short intervals rather than a series of clear-cut movements just long enough to cover the space which can be fixated at a single pause."

In addition to the tests just described a general mental test was given and also other tests which related more or less closely to reading and to speech processes. Among these tests was a test of the recognition of visual symbols, the Binet Picture Test, and tests which included the matching of geometrical forms, the pronunciation of nonsense syllables, and the spelling of simple words. As a result of the diagnosis it was concluded that there was no deficiency in general intelligence, that the child's vision was entirely normal, and that there was no general motor deficiency or language disturbance. The data showed that the difficulty was a highly specialized one and consisted in an inability to make the association between the visual symbols and the sounds of the words. Furthermore, the conclusion was reached that "for this child, at least, phonic drill had been carried beyond the point where it was use-

ful. Instead of being the means to the recognition of word meaning, it had become an end in itself, and really blocked the recognition of the meaning. The treatment, therefore, had as its first object the short-circuiting of this round-about association and the attempt to develop a more direct association between the sight of the words and their meaning."

Early in the training, easy reading material was selected and the child was encouraged to read the passages for their meaning. In this connection, however, difficulty was encountered because the child had not developed coordinated eye-movements or a regular progression of attention. It became necessary, therefore, to restrict her reading of larger units for some time and to direct her attention specifically to each part that she read. Various devices were employed in this connection. (1) Passages were broken up into sentences, and the child read these one at a time from slips of paper on which the sentences had been typewritten. (2) A card was sometimes placed on a page and moved forward across the line as rapidly as the child read. (3) Flash card exercises were given and some use was made of printed directions to which the child responded by appropriate action.

"In addition to these drill devices the child was given continuous reading material which at the beginning was very easy. This was for the purpose of encouraging fluency without the loss of meaning. The difficulty of material was advanced as rapidly as the child could go, and a certain amount of work was also given with still more difficult material because of its inherent interest to the child. Comparatively brief periods of intensive work with difficult material were found to be stimulating and to be helpful in carrying her to a higher level of recognition than was habitual." Parallel with this specific instruction there was practice in spelling and in writing words and sentences. Furthermore, a great deal was done to direct the child's attention to the meaning of what was read. Before assigning a passage, the topic was discussed and the child's curiosity in it was aroused. Difficult words were also written on the board and studied in order to avoid the habit of slurring over unknown words or of pausing too long to study them.

After about eight weeks of training the pupil was tested again. In the Gray Oral Reading Test she made a score of 36.25 as compared with complete failure at the beginning of the training period. This represents the equivalent of a year and one-half of progress. In the Courtis Silent Reading Test she read 3.2 words per second. This is six times as rapid as the rate of reading at the beginning and equals the standard for the sixth grade. The number of questions answered in the time allowed was 34, which is half way between the standard for the fourth and and fifth grades. The index of comprehension was 62, which is between the standards for the second and third grades. After the results had been carefully analyzed, it was evident that specific training for one-half hour each day had resulted in progress "equivalent to perhaps three years' ordinary progress in school."

A FIFTH-GRADE PUPIL WHO READ SLOWLY BECAUSE HE RECOGNIZED A
VERY SMALL UNIT AT EACH FIXATION⁴

Frequent tests and observations revealed the fact that this pupil read very slowly. An analysis of his difficulties showed clearly that he did not recognize words in groups or thought units. In order to provide training in the rapid recognition of groups of words, eight phrase books were prepared in which a phrase was pasted on each page. The first book contained ten very simple phrases cut from a primer. Each succeeding book in the series contained a similar number of longer and more difficult phrases. The eighth book contained phrases from a sixth reader. In conducting drill exercises the teacher flashed each page so quickly that the pupil had time for only one fixation. As soon as a phrase had been exposed, the pupil immediately told what he had seen. A grade of ten was given for each entirely correct response. Since each book contained ten phrases, the scoring was very simple.

The record of the progress through six books in fourteen lessons is shown in the following table. As a rule thirty phrases were presented each day; occasionally, the drill was limited to

⁴The record of this case was supplied by Miss Elda Merton, Stockton, Wisconsin. It was secured from the progress book of Miss Edna Burall, teacher of fifth and sixth grades, Central School.

TABLE 4
PROGRESS IN PHRASE RECOGNITION

Book I Lesson Score		Book II Lesson Score		Book III Lesson Score		Book IV Lesson Score		Book V Lesson Score		Book VI Lesson Score	
I	90	II	60	V	60	VIII	60	XI	60	XIV	60
	100		60		70		80		80		80
II	100	III	80	VI	80	IX	80	XII	80	XIII	90
			80		90		90		70		70
		IV	90	VII	90	X	100	XIV	100		
			100		100		90				
		V	100	VIII	100	XI	100				

twenty; sometimes it included forty. A given book of phrases was not discontinued until the boy had scored 100 in two successive lessons. For illustration, Table 4 shows that a score of 100 was made the second time the phrases of Book I were presented. Drill was discontinued until the next day. On repeating the exercise a score of 100 was again made. Book II was then begun and the exercise was repeated seven times before a perfect score was made. At the conclusion of an exercise the pupil was shown his score. (A score of 90 means that 9 out of 10 phrases were correct.)

TABLE 5
PROGRESS IN RATE OF READING

Lesson	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
Words per min	60	69	70	79	80	86	88	70	80	95	90	98	100	105

At the close of each lesson the boy was given a selection from his reader and allowed to read for one minute. His rate for each lesson is shown in Table 5. The entries in the table indicate clearly that the drill exercises proved effective in increasing his rate of reading.

A SEVENTH-GRADE PUPIL WHO RANKED LOW IN COMPREHENSION BECAUSE OF A SMALL VOCABULARY OF MEANINGS⁵

This seventh-grade boy was fourteen years, ten months, old when the training began. In the report of his case he is described as follows: "In general school standing he is rated as a poor

⁵"Reading, Its Nature and Development," by Charles H. Judd. *Supplementary Educational Monographs*, Vol. II, No. 4, July, 1918, pp. 106-118.

student, although he is given a grade of good (B) in the manual arts, music, and physical training. In all other subjects he is poor. During the past two and a half years he has received no grade higher than C in history, geography, science, literature, composition, and grammar. In this connection it is interesting to note that progress in these subjects after the fourth grade is dependent to a large degree on ability to get thought from the printed page.

“His teachers report him as a shy, timid boy, easily embarrassed, lacking in self-confidence and initiative in the classroom, though very energetic and responsive on the athletic field. He rarely takes part voluntarily in class discussions, and when called on to do so, responds in a few brief fragmentary sentences, badly expressed, but usually containing a thought or an idea on the topic being considered. His English teacher finds great difficulty in getting him to read with any degree of expression, for he makes no attempt to group words into thought units. He reads in a dull, monotonous tone, slurring words and phrases. When asked to tell what he has read, he reproduces a few ideas in short, scrappy sentences, for apparently he makes few associations as he reads. His teachers in history and geography explain his poor standing in their subjects as attributable to an inability to get ideas from the text. He apparently reads as rapidly silently as any in the class but gets and retains less of the thought.”

Tests in oral and silent reading were given which revealed other very interesting facts. He read aloud fairly rapidly, pronouncing the words mechanically and enunciating poorly. Periods were disregarded and adjoining sentences were read as a single unit of thought. The test in silent reading showed that this boy ranked below the poorest readers in the two preceding grades in comprehension. This result supported the judgments of his teachers of history and geography. A review of all the facts which were secured led to the conclusion that he had acquired ability to pronounce words which exceeded very much his ability to understand their meanings.

This diagnosis emphasized the importance of taking steps at once to develop a background of meaning as a basis for intelligent interpretation. “Because of his interest in animal stories and tales

of camp and pioneer life emphasis was laid throughout the eighteen weeks on literature dealing with these topics. The *Boy Scouts' Manual*, *Custer's Boots and Saddles*, *Roosevelt's Winning of the West*, *Southworth's Builders of Our Country, Book II*, the Merrill and the Horace Mann *Fourth Reader* and *Fifth Reader*, *Burrough's Stickeen*, *Coffin's Boys of '76*, and *Seton Thompson and Kipling* stories, and similar literature were drawn upon freely. Silent reading was continued throughout the eighteen weeks, but was especially emphasized during the first six weeks and again during the last six weeks. After reading a selection the pupil reproduced it orally or in writing. These reproductions at first were so meager and inadequate that he frequently had to re-read several times before he could answer the questions raised. Many selections were read in this way, paragraph by paragraph, and the main points jotted down to assist in the organization of the thought.

"Before the work had progressed very far it became apparent that definite word study was necessary in order to build up a background of meaning. Words were studied in the context for meaning, and certain ones were chosen for detailed analysis of prefix, suffix, and stem. A stem word analyzed in this manner became the nucleus for grouping together other closely related words more or less familiar to the pupil. The word 'traction' encountered in an article on the 'Lincoln Highway' brought out a discussion of traction engines, their use in plowing, road-building, and trench warfare, why so called, etc. This centered attention upon the stem 'tract.' As its meaning became clear the following list was elaborated:

subtract
contract
detract
attract

distract
extract
retract
contraction

attraction
distract
subtraction
extraction

"A study of the prefixes in these words gave a point of leverage for attacking the meaning of words containing them. In this type of prefix study only those words were listed whose stems were familiar to the pupil, as, for example:

recall
reclaim
rearrange
regain

rebound
retain
reform
remake

retake
reinforce
return
reframe, etc.

In a similar manner an acquaintance was made with the most common suffixes.

“The meaning of some words was approached by the study of synonyms and equivalent idiomatic phrases. These were, as far as possible, studied in the context and discussed at length to bring out shades of difference in meaning.” An “indomitable hero” met in the pioneer tales brought forth the following synonyms and idiomatic phrases:

indomitable	fearless	stout-hearted
brave	heroic	intrepid
courageous	bold	audacious
resolute	daring	defiant
manly	plucky	undimayed

to look danger in the face
 to screw one's courage to the sticking-point
 to take the bull by the horns
 to beard the lion in his den
 to put on a bold front.

The type of training which has been described continued throughout the first six weeks. It was supplemented by incidental word study during the remaining twelve weeks of the training period. Oral reading was given special emphasis during the second six weeks and continued during the following six weeks. Inasmuch as this type of training is not directly relevant to the special problem under consideration, it will not be discussed here in detail. Suffice it to say that the special training given in this connection resulted in a 50 percent reduction in error and a gain in rate.

In order to determine somewhat accurately the result of the special training given to this seventh-grade pupil his progress in both oral and silent reading was compared with that of another poor reader in the same grade who did not receive special training. Both pupils made more progress in silent reading than in oral reading. The boy who received special training developed a higher rate in silent reading than in oral reading, while the check pupil maintained practically the same rate in both types of reading. In comprehension the subject of the experiment made far greater progress than the check pupil, although at the close of the experiment he was still behind the standard for his class.

In conclusion the following interesting and significant judgment was expressed in regard to the value of this type of training: "The training of this pupil has apparently affected the mechanical side of his reading very little. His improvement has been rather in the comprehension of what he reads. It seems proper to infer that training in the upper grades, at least training of the type given in this case, is unlikely to be effective in changing the mechanical habits of pupils."

CHAPTER IV

THE DEVELOPMENT OF SPEED IN SILENT READING

JOHN A. O'BRIEN

This article will briefly sketch some of the results obtained from an investigation of factors conditioning the development of speed in silent reading.¹ The investigation was conducted by the writer under the auspices of the Bureau of Educational Research at the University of Illinois.

Hucy, Dearborn, Schmidt, Judd, C. T. Gray and others have demonstrated the superiority of silent over oral reading as a thought-getting instrument. They have also pointed out the unmistakable advantages of ability to read rapidly and yet with good comprehension; but how the teacher was to develop in her pupils this desirable habit of rapid silent reading remained for the most part unanswered. Accordingly, this investigation was undertaken primarily to secure an answer to the practical school question: *How can speed in silent reading be increased without decreasing comprehension?*

Among the other queries on which the investigator endeavored to secure data for the formulation of at least tentative answers were the following: Can training to accelerate silent reading rate be developed into methods adapted to pupils under the ordinary conditions of the classroom? How does an increase in speed of reading affect comprehension? In other words, is comprehension thereby decreased, unaffected, or increased? What grades show the greatest susceptibility to improvement in rate? To what extent can the rate be increased by training without causing the reading to degenerate into skimming? What are tentative grade norms for pupils who have been trained in rapid, silent reading? How do such norms compare with the present standards for rate? Is in-

¹ For a complete statement of the method of procedure, the types of training, the interpretation of results, see: O'Brien, John A. *Silent Reading*. New York: Macmillan Co., 1920. 268 pp.

creased speed effected physiologically chiefly by a decrease in the duration of the fixation-pauses, or by a lessening of their number?

A survey was made of the studies of reading, including both laboratory and classroom investigations, in which any light was thrown, directly or indirectly, upon the factors affecting the rate. The evidence concerning these factors is summarized next.

FACTORS IN THE DEVELOPMENT OF SPEED

1. *Practice in rapid silent reading.* The investigations of Peters (12),² of C. T. Gray (7), of Miss Bowden (2), of Oberholtzer (11), clearly demonstrate that practice in rapid reading has a marked effect in increasing the reading rate.

2. *The decrease of vocalization in silent reading.* The experiment of C. T. Gray (7), and the observations of Miss Abell (1), of Huey (9), and of Dodge (5), reinforce the conclusion reached by Quantz (13) as a result of his investigation: "the motor tendency (as manifested by lip movement) in any degree has an influence detrimental to rapidity of reading."

3. *Training in perception by means of short exposure exercises, combined with practice in rapid reading.* The experiment reported by C. T. Gray shows the effectiveness of this two-fold type of training.

4. *Familiarity with subject matter.* Dearborn's investigation (4) offers experimental corroboration of the favorable influence of this factor upon the rate—a factor which has obvious *a priori* grounds of plausibility.

5. *Habits of regular, uniform, rhythmical eye-movements.* Fordyce (6) reports the doubling of his speed by replacing his defective motor habits with those "of a regular, rhythmical nature." The observations of Huey (9) and of Dearborn (4) likewise emphasize the influence of these habits of regular, rhythmical eye-movements.

²Numbers in parentheses refer to the bibliography at the close of this article.

6. *Purpose for which the subject matter is read.* The investigations of Whipple and Curtis (16), of C. T. Gray (7), and of W. S. Gray (8), show that the mental 'set,' the mode of attack, the amount of reflective thought, and logical association—all of which influence the rate—depend very largely upon the end for which the reading is done.

7. *Concentration of attention.* The results of the present experiment strongly support the conclusion of Quantz (13) that rapid reading is characterized by an absence of 'day-dreaming' and 'wool-gathering.'

8. *Ability to grasp the meaning of contents.* The observation of Ruediger (14) and the positive correlation generally found to exist between rate and comprehension point to the influence of the central factor of assimilation.

9. *Recognition of the value of the habit of rapid, silent, reading, combined with the determination to acquire this habit.* The cases of Huey, of Fordyce, and of others, show that this factor is of fundamental importance in any attempt to accelerate the reading rate.

10. *The pressure of a time-control.* Preliminary experimentation in this investigation demonstrated that the awareness of a clock accurately measuring the rate, induces a mental 'set' which militates directly against lackadaisical poring and leisurely dawdling and for increased speed in reading.

11. *Individual graph and class chart.* The graphical representation of the individual daily performance, enabling the pupil to see at a glance how his rate compared with yesterday, proved instrumental in arousing in the pupil the strong determination to "make the line go up," to surpass yesterday's record. It stimulated rivalry among the pupils and especially that more wholesome type of rivalry between the pupil and his own previous record. The class chart portraying the median rate of the class for each day, proved a valuable supplement to the individual chart. It enlisted the interest of the class as a whole in the effort to develop speed, and made the pupils enthusiastic to see the class median rise above the record for

yesterday. This earnestness and enthusiasm radiated to all the members of the class, even to the less ambitious, appealed to their class pride and loyalty, and created an *esprit de corps* that was favorable to the success of the experiment. The individual graph and the class chart are devices for motivation. They are applicable, of course, not only to training in speed, but also to other types of work as well. They are included in this enumeration of the factors merely because of their pronounced influence in evoking the type of effort necessary to overcome habits of slow dead-level poring and to build up the opposite type of habits of rapid, effective reading.

12. There are other factors which investigations have shown to have some effect upon the reading rate, such as the size and kind of type, character of paper, and similar typographical considerations. But as factors of this nature are obviously not susceptible to incorporation into types of training to develop speed, they are not considered further.

TYPES OF TRAINING

Three types of training were developed. In Type I, practice in rapid, silent reading was made the basic factor; in Type II, the stress was placed coordinately upon the decrease of vocalization and practice in rapid, silent reading; while in Type III emphasis was directed upon training in perception by means of short exposure exercises, supplemented with practice in rapid reading. In Type I all the eleven foregoing factors except Nos. 2 and 3 were incorporated; in Type II, all except No. 3; and in Type III, all except No. 2. All three types of training have much in common—the same auxiliary devices, the same technique. They differ chiefly in the factor which has been made the basic one in each method.

Type I—Training in rapid, silent reading—will be outlined briefly, as it is typical of the general procedure in the other two methods.

The teacher was instructed first to point out to the pupils the advantages of a rapid, effective rate of reading, and to enlist their whole-hearted effort in the attempt to develop such a habit. The method consisted essentially of alternate reading and reproduc-

tion. The reading period was broken into several reading stretches, consisting of 2, 3, or 4 minutes. During each stretch the pupils were instructed to read as rapidly as possible—consistent, of course, with an understanding of what was read. The periods were made quite brief, in order to evoke the greatest possible speed by an intensity of effort which could not be sustained over a longer period. The idea was to break up the old order of eye-movement habits as quickly as possible, and to build into a habit an ocular-motor reaction of a more advantageous type. The short period safeguarded against fatigue, as well as against a relapse into the customary leisurely reading rate. In short, speed was the dominant note in the entire set of directions.

The amount read was quickly determined and marked. The pupil then reproduced what was read—sometimes by free paraphrase, orally or in writing, and sometimes by answers to specific questions based on the text. The reproduction was usually brief. Its function was merely to show both the teacher and the pupil whether the matter was properly grasped. The aim was to devote about two-thirds of the time to actual rapid reading. Interesting, familiar material was preferred. Difficult words were explained beforehand. Whenever thought preparation was deemed necessary, the teacher was instructed to give it briefly. At the end of the total reading period the pupil immediately entered upon the chart his average rate of speed as the record for the day.

In *Type II the conscious effort to decrease vocalization* was added to the above group of factors. To secure uniformity in the application of the training and in the method of control, a representative from each of the schools was brought to the University of Illinois to witness a demonstration of the method by a teacher and her class from a Champaign public school.

STATEMENT OF PROCEDURE

To test the efficacy of the first two types of training, they were applied to the pupils in 40 classes and 18 elementary schools in 9 cities in Illinois. One was a parochial, the rest were public schools. In these classes there was a total of approximately 1200 pupils.

Because of the lack of a tachistoscope suitable for class use, Type III—short exposure exercises—was not applied to the subjects in this particular experiment. The methods were used in Grades III to VIII, inclusive.

The length of the reading period for all the grades was 30 minutes. Each class was divided into two groups whose aggregate scores in rate, as determined by the Courtis Silent Reading Test, No. 2, Form I, were approximately equal. One group received the experimental training and was called the Experimental, or A Group; the other continued the conventional work in reading and was called the Control, or B Group.

Besides this group control, an effort was made in the present investigation to secure a more refined type of control. Accordingly, each class was further subdivided into pairs of pupils of approximately equal speed in reading. One member of each of the pairs was placed in the experimental, the other in the control group. This afforded a control not only for the experimental group as a whole, but also for each individual member in the group. This enables a comparison to be instituted, not only between the final aggregate scores of the experimental and the control groups, but also between the final achievements of each of the members in the series of pairs. It thus enables one to penetrate behind the group totals to determine the number of pupils in each group who surpass their corresponding control mates. This method of individual control necessitated the elimination from the final statement of results, of the records of the pupils who could not be properly matched. The total period of training extended from April 8, 1919, to May 29, 1919, a period of 39 school days. At the middle and at the end of the training period, the Courtis Silent Reading Tests No. 2, Forms 2 and 3, respectively, were administered to all the classes to determine how much improvement in speed and comprehension had been effected in the first half of the training period and how much in the latter half. The tests were also given to the control groups at the same times in order to secure a check for each half of the training period.

STATEMENT OF RESULTS

The development of speed effected by the experimental training in Grades IV to VIII, as compared with the progress made by the control pupils, is shown in Table 1. Because of the comparatively small number of third-grade pupils—there were but 32—their records are not included in this table. In this grade, however, the average gain in rate of the experimental pupils is slightly more than twice the average gain of the control pupils.

Table 1 shows that the amount of gain increases as the grade advances. At the end of the training the average for the experimental groups rises from 236.4 words per minute in the fourth grade until it reaches 393.0 in the eighth grade. Reducing the average gains in number of words read per minute to a percentage basis, it becomes possible to express the amount of improvement for the experimental pupils in all the grades in a single quantity, 56 percent. The average gain for the control pupils in all the grades is 25 percent. This shows a final average superiority in

TABLE 1
AVERAGE RATE OF READING FOR EXPERIMENTAL (A) AND CONTROL (B) PUPILS AT BEGINNING, MIDDLE AND END OF TRAINING PERIOD, AS DETERMINED BY COURTIS SILENT READING TEST FOR GRADES IV-VIII

Grade	No. of Pupils	Test I		Test II		Test III		Gain		A's Superiority in Gain	
		A	B	A	B	A	B	A	B	In Words	In Per.
IV	236	155.7	155.1	241.9	189.5	236.4	188.2	80.7	33.1	47.6	31%
V	154	190.7	191.9	265.4	225.6	277.8	222.1	87.1	30.2	56.9	30%
VI	128	197.8	204.4	284.7	235.4	292.6	235.0	94.8	30.6	64.2	33%
VII	206	205.6	202.5	298.5	237.2	321.6	249.7	116.0	47.2	68.8	33%
VIII	92	220.8	211.7	361.2	290.5	393.0	301.8	172.2	90.1	82.1	35%

Average gain of A for all grades = 56%; of B = 25%; A's superiority over B = 31%.

Table 1 is to be read thus: In Grade IV there was a total of 236 pupils. At the beginning of the training period, the Experimental, or A, pupils averaged 155.7 words per minute, the Control, or B, pupils 155.1; at the middle of the training period, the A pupils averaged 241.9, the B pupils 189.5; at the end of the training period, the A pupils averaged 236.4, the B pupils 188.2; the A pupils gained 80.7, the B pupils 33.1. The superiority in gain of the A pupils over the B pupils was 47.6 words per minute, or 31%.

gain for the experimental pupils over their control mates of 31 percent. In terms of the number of words read per minute the average gain of the A Group is 110.2 as against 46.2 for the B Group—an average superiority in gain of 64 words per minute in favor of the Experimental, or A Group.

As determined by the method of individual control, the effect of the training upon the rate may be seen from the following comparison of the scores of the experimental and control pupils. At

TABLE 2

AVERAGE COMPREHENSION IN READING FOR EXPERIMENTAL (A) AND CONTROL (B) PUPILS AT BEGINNING, MIDDLE, AND END OF TRAINING PERIOD, AS DETERMINED BY COURTIS SILENT READING TEST

Grade	No. of Pupils	Test I		Test II		Test III		Gain		A's Superiority in Gain
		A	B	A	B	A	B	A	B	
IV	236	77.4	78.6	81.2	78.0	81.6	79.1	4.2	0.5	3.7
V	154	82.5	86.3	87.0	89.9	85.6	88.6	2.9	2.3	0.6
VI	128	91.0	92.6	90.8	90.4	88.2	88.5	-2.8	-4.1	1.3
VII	206	91.2	91.3	94.1	93.5	92.3	91.4	1.1	0.1	1.0
VIII	92	95.8	96.5	94.3	96.3	94.8	94.1	-1.0	-2.4	1.4

Average gain of A for all grades = 0.9%; of B = -0.7%; A's superiority over B = 1.6%.

Table 2 is to be read in the same manner as Table 1.

the end of the training period the results for all grades combined were: One pair of pupils had scores identically equal; 86 controls were superior to their correspondents in the experimental group, but 314 experimentals were superior to their controls—a final net superiority of 228 pairs for the experimentals. Subtracting from this total the amount of A's initial superiority of 48 pupils, the results show a final superiority in gain of the experimental over the control group of 108 pupils, or 45 percent.

The effect of the training in speed upon comprehension, as determined by the Curtis Index, is presented in Table 2; as measured by the number of questions correctly answered, the effect upon comprehension is shown in Table 3. In regard to the effect of the training in speed upon comprehension, the result of the application of the method of individual control shows a final superiority in comprehension of 32 pairs, or 8 percent, for the experimental pupils over their controls.

The results of the method of individual control, it will be seen, serve as a powerful reinforcement of a refined type of the conclusions issuing from a comparison of the aggregate scores of the two groups. This method of control shows furthermore that the superiority in rate of the experimental group over the control

group is not due simply to a very marked superiority of a comparatively small number of pupils, but that the superiority is spread very largely throughout the whole group.

INTERPRETATION OF RESULTS

A. The Effect of the Training Upon the Rate of Reading

The data contained in Table 1 are shown graphically in Fig. 1. The latter clearly shows the differences in amount of improve-

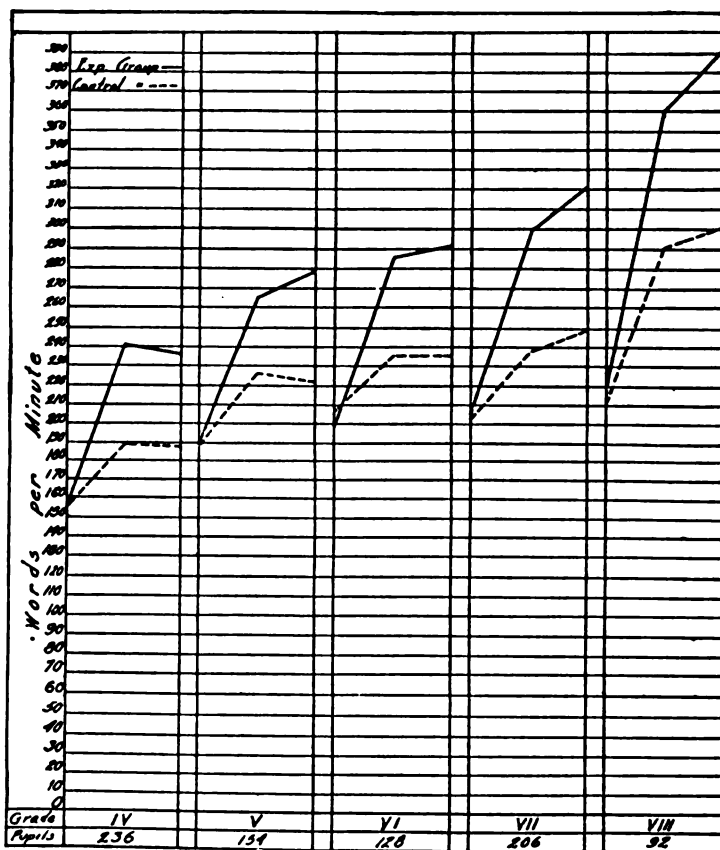


FIG. 1. AVERAGE RATE OF READING FOR EXPERIMENTAL (A) AND CONTROL (B) GROUPS BY GRADES AT BEGINNING, MIDDLE, AND END OF TRAINING PERIOD, AS MEASURED BY THE COURTIS SILENT READING TEST.

ment in reading rate achieved by the experimental pupils and the controls. While in every grade the two groups start at practically the same level of reading rate, yet in every grade the experimental pupils far outstrip the controls. The bulk of improvement, it will be noticed, is effected in the first month of the training. With the exception, however, of the fourth grade, in which there occurs a very slight decrease, improvement of a lesser character continues during the second month. It is to be noted that the increases in speed are very marked. Thus, the pupils in the seventh grade are able to increase their rate 116 words per minute, while the eighth-grade pupils succeed in almost doubling their rate—reaching the high average of 393 words per minute.

These quantitative results would seem to justify three conclusions:

1. *The present average rates in silent reading in Grades III to VIII are needlessly slow and inefficient.*

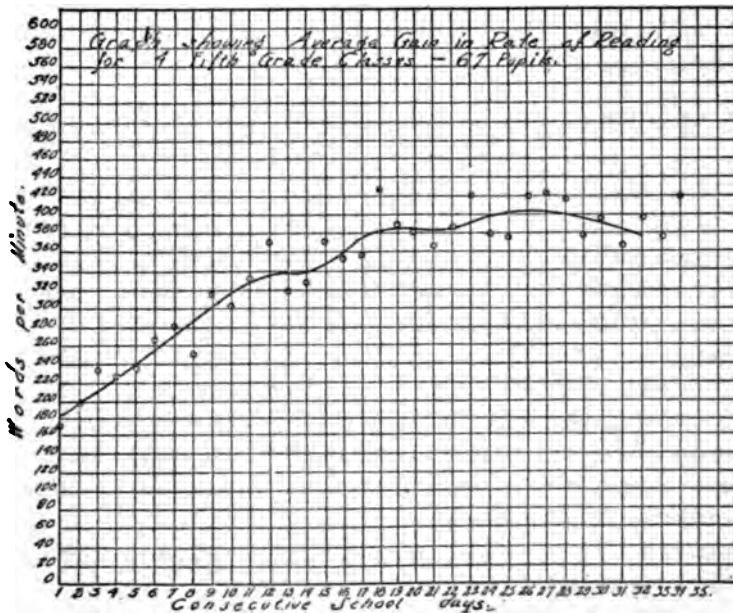


FIG. 2. GAINS IN AVERAGE RATE OF READING FOR FOUR FIFTH-GRADE EXPERIMENTAL GROUPS, BY DAYS, AS RECORDED ON DAILY CLASS CHARTS

2. *These rates can be greatly increased by systematic training extending over a period of two months.*

3. *The improvement effected in the first month is considerably greater than that effected in the second month of training.*

Besides the Courtis Test, the growth in speed of reading was also measured by the daily class chart, which shows the median rate of reading for each day. The fact that the class chart records the progress for each day causes it to reflect the character of the growth in speed, gradual or otherwise, which the three Courtis Tests naturally could not show. Fig 2 reveals the character of the growth in speed as shown by the daily medians of the experimental pupils, totaling 67, in four fifth-grade classes. The dots in the graph represent the actual medians, the line shows the smoothed median increase in speed. The daily class charts reveal an increase in speed greater even than that reflected by the Courtis Test. They serve, on the whole, to corroborate the conclusions based on the scores in the Courtis Test. The growth in speed, it will be noted, is fairly regular, though the bulk of the improvement occurs in the first half of the training period.

B. The Effect of the Training Upon Comprehension, as Determined by the Courtis Index

The Courtis index is so computed that it reflects only the accuracy of the response. It does not reflect the efficiency of comprehension as measured by the number of questions correctly answered in a given amount of time. As determined by the Courtis index, the accuracy of the comprehension was not greatly affected, either favorably or adversely (see Fig. 3). It remained constant to a large extent in both the experimental and control groups. The slight superiority in gain that does exist, however, is, in each grade, in favor of the experimental pupils. The conclusions that would seem to follow from the performances of the pupils in accuracy of comprehension in this study are:

1. *Marked increases in speed of reading may be effected without any impairment of comprehension.*

2. *The setting up of habits of rapid reading does not per se increase the accuracy of comprehension.*

3. To secure marked improvement in accuracy of comprehension, special stress must be placed upon training designed specifically to secure that effect.

While the experimental training outlined in this study succeeded in safeguarding and even slightly improving the accuracy of com-

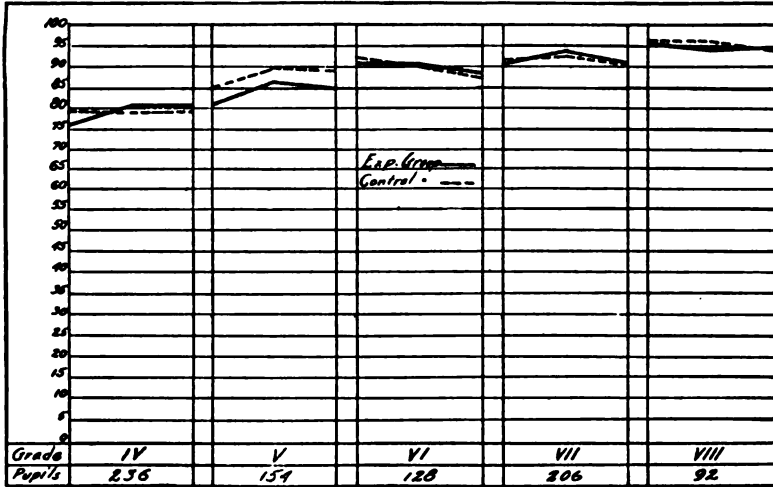


FIG. 3. AVERAGE COMPREHENSION IN READING FOR EXPERIMENTAL (A) AND CONTROL (B) PUPILS AT BEGINNING, MIDDLE, AND END OF TRAINING PERIOD, AS DETERMINED BY COURTIS SILENT READING TEST

prehension, yet its predominant effect was the marked augmentation of the reading rate. To produce such an effect upon the rate was precisely the end for which the training was devised.

C. The Effect of the Training Upon Comprehension, as Determined by the Number of Questions Correctly Answered

Efficiency in comprehension is reflected not only by the proportionate accuracy of the response, but also by the number of responses correctly made in a limited period of time. To measure this latter phase of comprehension, the number of questions correctly answered was employed as a supplementary measuring device. The increase in the number of correct answers reflects, furthermore, the increase in the rate of reading of a passage in which the com-

prehension is required and upon which it is tested. This device makes it possible, moreover, to determine whether or not the increased speed of reading effected by the training persisted in different situations. For the mental attitude assumed in reading a passage to answer questions on it immediately, is considerably different from that assumed in reading a passage rapidly simply to 'get the gist' of it. It is thought that the employment of this device in the present study obviates the one serious weakness inherent in the Courtis Reading test. The performances of 274 experimental pupils collected at random from different grades were subjected to this sort of analysis. The results are presented in Table 3.

TABLE 3

GAIN IN COMPREHENSION OF THE EXPERIMENTAL PUPILS, AS DETERMINED BY THE NUMBER OF QUESTIONS IN COURTIS TESTS CORRECTLY ANSWERED

Grade	Number of Pupils	Beginning	End	Gain
IV	97	23.9	34.8	10.9
V	47	29.6	42.1	12.5
VI	57	33.7	48.4	14.5
VII	50	45.3	58.0	12.7
VIII	46	47.1	57.8	10.7

A very marked increase is shown in the number of questions correctly answered by the experimental pupils in all the grades. In fact, the number of *questions correctly answered* by the pupils after receiving the training in rapid reading, is greater than the norms, or the average number of questions *attempted*, as reported by Courtis. The average number of correct answers for the fourth grade, as shown in Table 3, is 34.8 as against Courtis' norm of 30 questions attempted; for the fifth grade, it is 42.1 as against 37; for the sixth grade, 48.4 as against 40. No norms have been suggested by Courtis for the seventh and eighth grades. The average number of questions correctly answered by the different experimental classes at the beginning and end of the training are compared in Fig. 4 with the norms reported by Courtis for the number of questions attempted, whether answered correctly or not.

The conclusions that would seem to follow from this phase of the investigation are:

1. Marked improvement in comprehension, as measured by the number of questions correctly answered, resulted from training in rapid silent reading.

2. This phase of the efficiency of comprehension is measured in no way by Courtis' 'Index of Comprehension,' which is, more strictly speaking, an index of accuracy.

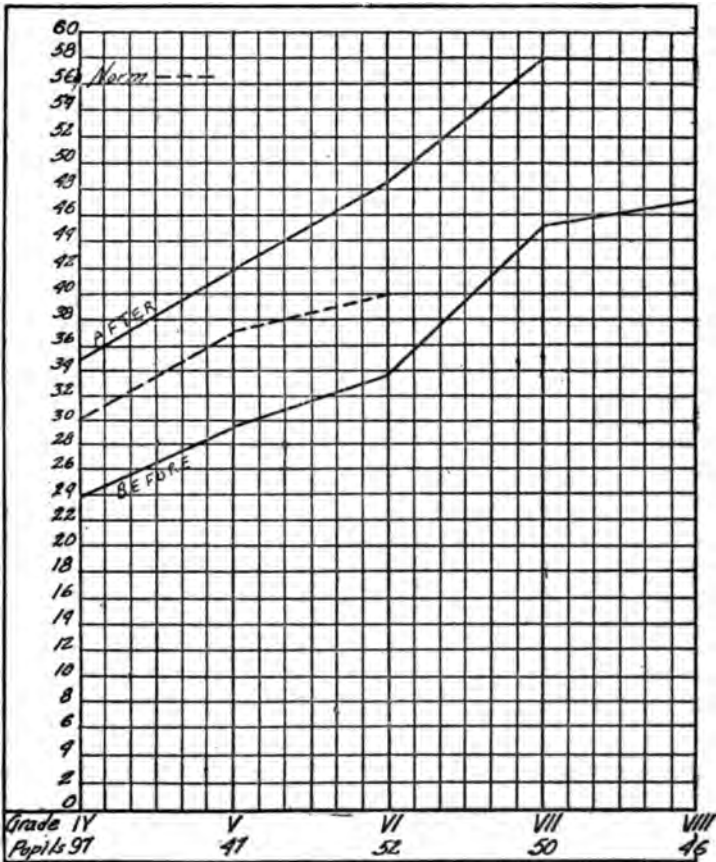


FIG. 4. THE AVERAGE NUMBER OF QUESTIONS ANSWERED CORRECTLY IN COURTIS SILENT READING TEST BY EACH PUPIL BEFORE AND AFTER TRAINING IN EXPERIMENTAL GROUP. GRADES IV TO VIII COMPARED WITH NORMS REPORTED BY COURTIS

3. The marked gain in the number of questions correctly answered demonstrates the persistence of the improvement in reading rate in a changed situation involving a different mental attitude, i. e., in careful reading, and reading to answer written questions.

D. The Relative Amount of Gain Made by Different Grades

A comparison of the amount of gain in rate, as determined by the Curtis Test, made by the experimental and control pupils in each of the grades is shown in Fig. 5. This graph brings out clearly the fact that the amount of gain increases as the grade advances. In the experimental groups the gain made by the higher grade is in every case superior to that made by the lower. With the single exception of the sixth grade, this is true likewise of the control group.

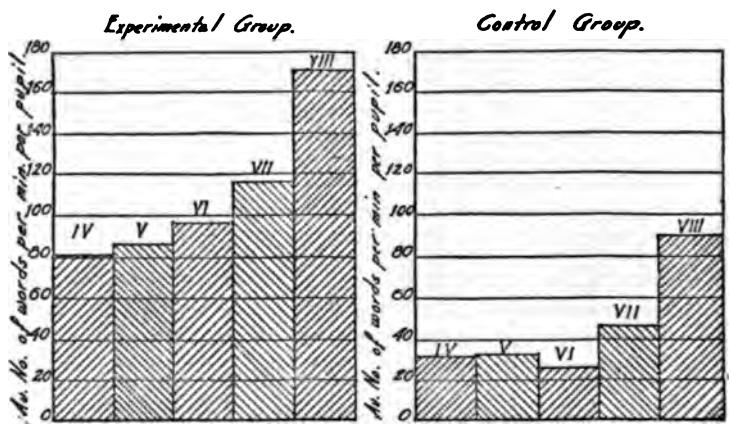


FIG. 5. THE AVERAGE GAIN IN RATE OF READING FOR GRADES IV TO VIII, AS DETERMINED BY COURTIS SILENT READING TEST

The gains in rate made by the different grades were also measured by the daily class charts. The rates of all the grades at the beginning and at the end of the experimental training, as recorded on the class charts, are shown in Fig. 6. The shaded blocks in the figure call attention to the amount of gain made by the different grades. The records of the daily charts, it will be noted, offer a

striking corroboration of the results obtained from the Courtis test. They serve to reinforce powerfully the conclusion illustrated in Fig. 5 that, on the whole, "the amount of gain increases as the grade advances."

This superiority in gain in rate by the upper grades over the lower is quite the opposite of what has usually been reported concerning the relative gains made by the different grades. The third and fourth grades have been of late generally regarded as corre-

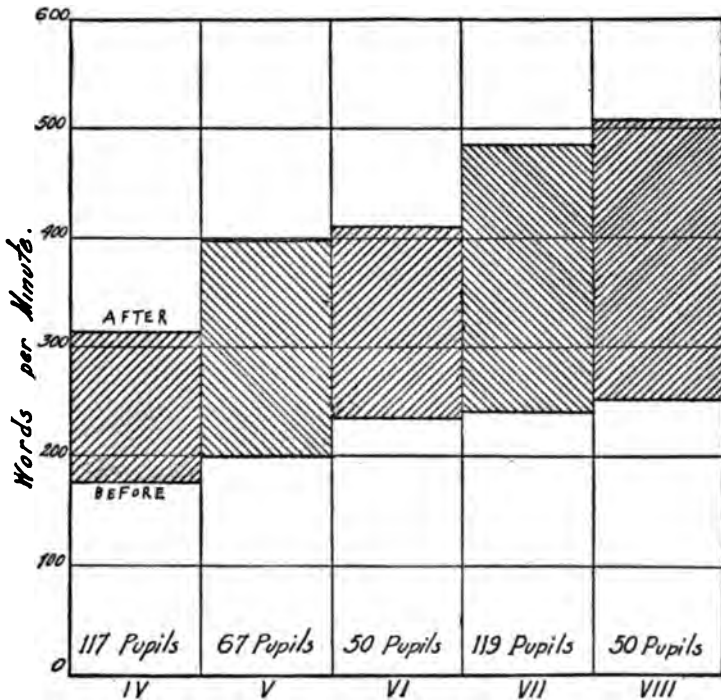


FIG. 6. THE AVERAGE NUMBER OF WORDS READ PER PUPIL BEFORE AND AFTER TRAINING IN GRADES IV TO VIII, AS DETERMINED BY THE INDIVIDUAL CHARTS

sponding to the crucial school periods during which any appreciable increases in rate are to be effected. The results reported by W. S. Gray (8), Judd (10), Courtis (3), and Waldo (15), show that, from the fourth grade on, the rate is practically at a standstill. Thus Waldo reports that, after a year's work in reading,

gains of 2.1 and 11.7 words per minute were effected in the sixth and eighth grades respectively—gains so meager as to be scarcely perceptible.

This difference between the amount of gains in the various grades as reported by the previous investigators and those reported in the present study is due to the fact that the gains previously reported were the results of the conventional type of instruction in reading with almost the entire emphasis upon the oral phase; whereas, in the present study the development of speed was made a conscious problem in the upper as well as in the lower grades. This is in marked contrast to the conventional type of instruction in reading in the upper grades where rate in silent reading is generally completely ignored. From the quantitative results of this phase of the investigation four conclusions would seem to follow:

1. *Marked increases in rate can be effected in the upper grades when speed in reading is set as a definite problem for the pupils.*

2. *When training in rapid silent reading is given to pupils not previously trained therein, the increase in rate tends in a general way to advance pari passu with the advance in the grade; the higher the grade, the greater is the increase in rate.*

3. *As compared with the gains which can be readily effected by systematic training in rapid silent reading, the increases ordinarily obtained in rate in the upper grades are so small as to indicate a condition almost pathological in character. They constitute a serious indictment of the present school régime in the teaching of reading, with its grotesquely misplaced emphasis on oral reading and its utter neglect of reading in the true sense of the term—the silent interpretation of the printed symbols.*

E. The Average Rates Attained by Pupils After Training, Compared with Existing Norms

A comparison of the averages of the experimental pupils in Grades IV to VIII, with the results reported by Courtis, Brown, Gray, Starch, and Oberholtzer, and by Courtis in the Gary Survey, is presented in Table 4. There is a common basis of comparison between the averages of the experimental pupils and the norms

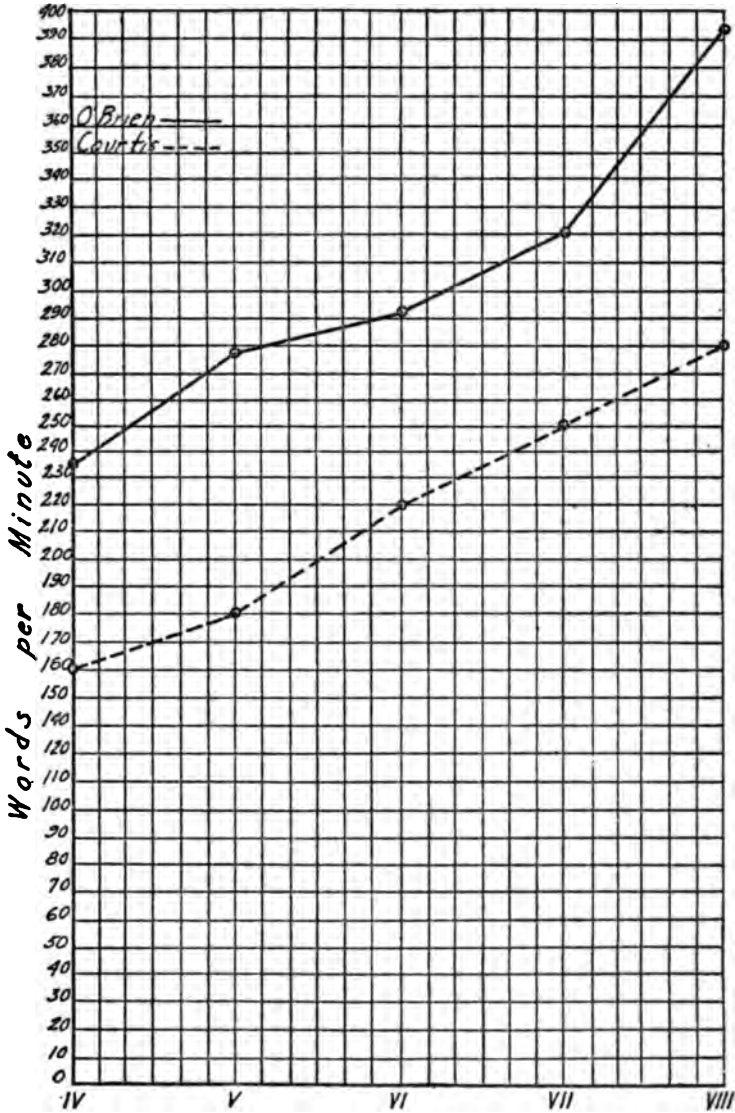


FIG. 7. THE AVERAGE RATE FOR PUPILS AFTER TRAINING IN RAPID READING, AS COMPARED WITH NORMS REPORTED BY CURTIS FOR ORDINARY READERS

reported by Courtis. Both were based on the Courtis test and the directions to the pupils were in both cases identical. The norms reported by Courtis represent the smoothed averages; the norms presented by the writer are the actual averages. A comparison of these two norms is shown in Fig. 7. This figure brings out strikingly the superiority in reading rate of pupils who have received training in rapid, effective silent reading and pupils who have been nurtured on the conventional pabulum, drill in oral reading. The superiority of the experimental pupils in every grade is very marked. Not less noticeable is the superiority over the norms reported by W. S. Gray and by Oberholtzer, as also shown in Table 4. The norms reported by W. S. Gray for the three different selections in his reading test have been adjusted here to the basis of the easiest selection, "Tiny Tad."

The highest norms reported are those by Brown. They represent, however, not the averages of all the pupils tested in the different grades, as in the case of the other investigators, but the highest averages reached by various single classes tested by Brown. Consequently, they are offered as norms or standards to be striven after,

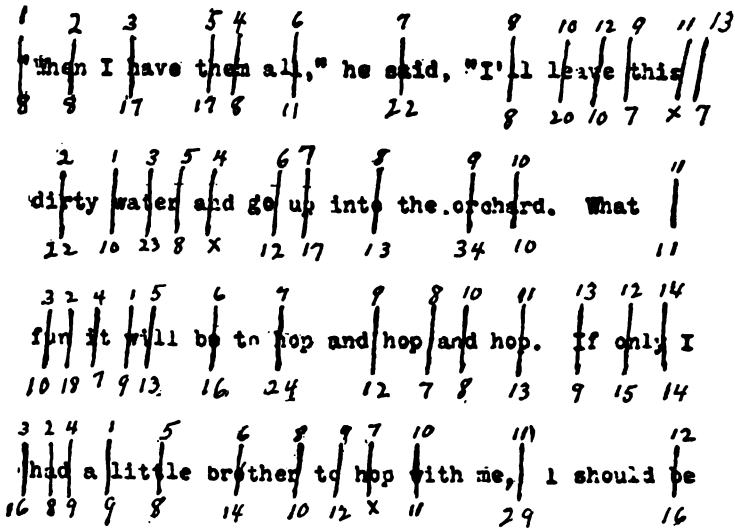


PLATE 1. EYE-MOVEMENT OF FOURTH-GRADE SUBJECT A.P. BEFORE TRAINING.

rather than indices of the present average attainment of the different grades. These standards mentioned by Brown come closer to the averages actually reached by the experimental classes than those of any of the other investigators. They are still, however, very considerably below them, as shown in Table 4.

TABLE 4
AVERAGES IN RATE ATTAINED BY PUPILS AFTER TRAINING (O'BRIEN) COMPARED WITH
NORMS OF PREVIOUS INVESTIGATORS

Grade	IV	V	VI	VII	VIII
O'Brien	286	278	293	322	398
Oberholzer	156	186	234	282	288
Courtis	180	180	220	250	280
Gary	140	166	185	198	204
Starch	144	168	192	216	240
Brown	218	269	272	279	290
Gray	180	204	216	228	284

The previous norms for reading rate have all been derived from the performances of pupils who have been trained in the conventional type of oral reading. In the vast majority of cases they have received no training in rapid silent reading. What the norms will be after the schools begin to train in rapid silent reading is an

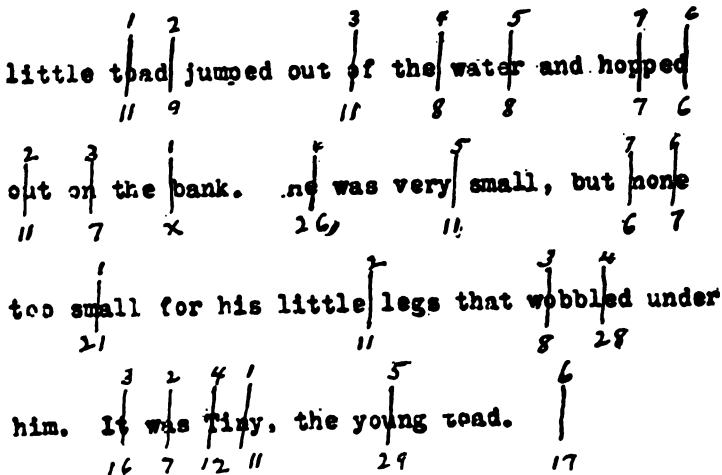


PLATE 2. EYE-MOVEMENT RECORD OF FOURTH-GRADE SUBJECT A.P. AFTER TRAINING.

x indicates that it was impossible to determine with accuracy the duration of the fixation-pause.

interesting question which the future alone can answer. As a result of a pioneering effort in a virgin field, the actual averages attained by the experimental pupils in the different grades in the present investigation are suggested as tentative norms. The degree of reliability of the averages for the different grades has been computed in terms of the P. E. which are presented in Table 5. It is

TABLE 5
TENTATIVE NORMS FOR PUPILS TRAINED IN RAPID SILENT READING

Grade	Average	P. E.
IV	236.4	12.13
V	277.8	8.87
VI	292.6	8.71
VII	321.6	7.01
VIII	398.0	12.77

noted that the P. E. is relatively small, which indicates a good degree of reliability for the averages.

F. Physiological Basis of Development of Speed

Photographic records of the eye-movements of ten pupils in Grades III to VIII were taken before and after the training in rapid silent reading. In each case the pupil developed habits of rapid silent reading. A study of the records showed that the improvement on the physiological side was effected chiefly by a lessening of the number of the fixation pauses rather than by a decrease in the duration of these pauses. Plates 1 and 2 are presented in illustration of this modification of the eye-movement habits. The lines indicate the places of fixation; the numbers at the top show the order of the pauses and those at the bottom, the duration of the pauses in fiftieths of a second. The development of speed was also accompanied by a marked decrease in the number of regressive movements and by the setting up of habits of regular rhythmical eye-movement.

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CHAPTER V

MOTIVATED DRILL WORK IN THIRD-GRADE SILENT READING¹

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The general problem toward the solution of which this study is directed is: what is the value of games and devices in providing motivated drill in the fundamental process of silent reading? Before describing the material and the methods that were employed in this particular experiment with pupils in the third grade we shall discuss some of the theoretical considerations that, in our opinion, bear upon the efficiency of drill work in general.

NATURE AND CONDITIONS OF EFFECTIVE DRILL

Drill is the name given to that kind of repeated activity which has for its purpose the increasing of one's physical skill or dexterity or the permanent fixing in memory of certain useful associations. Stated in another way, drill is an activity which has for its purpose the reducing of certain mental or physical operations to an automatic basis.

If drill is to be made effective and economical, it must be freed from some of its monotonous and unattractive aspects. Instead, it must be made attractive, profitable, and varied. Unless this condition is realized to a greater or less degree, drill periods can be scarcely more than periods of drudgery for both teacher and pupils. A feeling of satisfaction should accompany every drill period and a feeling of discontent should follow every unsuccessful effort. It must be quite generally conceded that responses, or reactions, in order to be often repeated, must be pleasant to the performer, and it is equally true that unsuccessful or unpleasant responses tend to

¹ The study from which this material is drawn was made at the University of Kansas with the co-operation of Dean F. J. Kelly.

be sluffed off or eliminated. One of the chief characteristics of successful drill work is repetition, not meaningless, thoughtless repetition but clear cut, vivid, and interesting repetition. If a feeling of dissatisfaction or annoyance accompanies a series of efforts, it will not be often repeated. Now if this repeated activity is to be voluntarily realized, which, of course, should be the case, only one alternative remains open for the educator; namely, make drill work interesting in itself. Let the results of the activity be an incentive to further effort. Let the process of the development of skill be inviting to the learner. Pleasure brings success, and success spurs the learner on to greater effort, while unpleasant duties or activities have a depressing, retarding effect.

Interest, as used above, does not imply mere fun or entertainment. It does not imply 'taking things easy.' In fact, when teaching deteriorates to this level, interest invariably dies out. Students should be led to see a distinct need for making a process automatic. Once seeing this need, it should serve as an impelling force, being responsible for the expenditure of effort even when the attitude of mind and body is not entirely favorable. If possible, drill lessons should occur when the children see that, without these fundamental, automatic abilities in their school subjects, future progress will be materially handicapped, if not finally arrested. Let the nature of the material presented to children be such that they will really care to master it. Let them enjoy it, let it be a game for them.

Play may be used in school in a very useful way. A child's play interests may be used as a means of bringing about the repetition of those acts which need to be fixed in the mind as habits of thought. In other words, play could be profitably used as a means of making drill interesting. Numerous repetitions of a single activity must of necessity become monotonous to the child unless a motive, like winning the game, for carrying on this activity is provided. Play can with profit enter more thoroughly into the education of children and if we mistake not, the natural play activities of children are capable of furnishing numerous suggestions that can profitably be employed within school walls. Organized games, making use of the child's instinct for play and based on play motives, should form a part of the regular curriculum, especially

during drill periods. Since young children play much, play should be included in their school activities. Much of the unattractive, toil attitude which young children have towards their school tasks could thus be eliminated.

Dramatization is another form of play activity that can be successfully used in the drill work of the lower grades. This fact is especially true in the teaching of reading. Children love to make a situation real by going through the motions it suggests. Abstract ideas are often not comprehended, and the child is not sure of his understanding of the passage read. Allow him to act out or dramatize the idea and it becomes real to him. If it is not thus made real to him, his lack of understanding is shown by his actions, and the teacher has a rather definite means of knowing the abilities and inabilities of her pupils. This means of diagnosis should be useful to the teacher in planning individual assignments and tasks for the future. Let action be the test of comprehension. In other words, learning by doing is a more efficient way of learning than is learning by passive listening.

Again, one is safe in saying that drill is futile when it relies on the device of formal external repetition to achieve results. Instead, there must be repetition with attention. Careless, blundering repetition is valueless from the standpoint of improvement in the desired activity and is a hindrance to the introduction of correct, economical methods of procedure. The teacher should strive to focus the attention of the student on what he is doing and how he is doing it. Exceptions to right methods must be positively discouraged at every opportunity. A child learns to read his lesson intelligently not by fifty or a hundred inattentive readings; rather the most economical method of learning to read requires that the maximum of focalized attention be given during the reading process.

Drill, to be most efficient, must be individual in character. Mass drilling of pupils does not meet the individual needs of the different class members. Class drilling of pupils often gives practice to certain pupils when in fact they do not need it, hence it is often worthless. To be effective in its highest degree, drill should be conducted for each pupil in the light of his particular abilities and

according to his needs. Much group drill work shows little attention given by many of the class members, except as it is necessary, in a parrot-like fashion, to follow the leaders in the work. Such work is doubtless beneficial to the leaders, but it is of little benefit to the others who take part.

READING MATERIALS

The fundamental aim in devising reading materials for this study was to have drill work in reading assume the form of a game in which the elements of comprehension of what is read and speed of reading would play a prominent part.

Since the love for activity, or motion, is one of the characteristics of childhood, it was decided to make use of this fact in developing the reading materials for this study. Printed cards containing 'action' sentences which lend themselves readily to dramatization in the schoolroom were devised.

We believe the psychological principles stated in the foregoing paragraphs are fundamental in the teaching of reading in the lower grades of the elementary schools, and the materials, to be described presently, have consequently aimed to bring these principles into the foreground. In determining the content of the sentences which should appear upon these reading cards, the environment, interests, and every-day activities of children as a whole were kept constantly in mind. In order to appeal to the needs and interests of various types of children in the matter of the response to be given, four different kinds, or sets, of cards were devised, which, for convenience, we will call Set A, Set B, Set C, and Set D. These different sets of cards are described in the "Rules for Reading Game," which are given later.

The A, B, C, or D, as the case may be, which appears in the upper left-hand corner of each card indicates to which set this particular card belongs. There are 150 A's, 150 B's, 250 C's, and 100 D's. The cards are arranged serially in order of difficulty (least difficult first, most difficult last), and the number which appears in the upper right-hand corner of each card indicates the position in the series to which this card belongs. For instance, A 125 means that the card belongs to Set A and is the one hundred and twenty-fifth card (based upon the author's judgment) in Set A, in order of difficulty.

A sample card from each of the 4 sets of reading cards is shown below. Each card is 2 inches wide and 4 inches long.

A	125
School closes at four o'clock in the afternoon. Show how the face of a clock looks at that time.	

B	67
A donkey was loaded with salt. He lay down in the water. What happened to the salt ?	

C	239
Shetland ponies are little horses which children like to ride. Show how tall a Shetland pony is.	

D	87
Mosquitoes are larger than elephants. Their wings are made of brass and copper.	

In order that the reader may gain an accurate knowledge of the content of the reading materials devised for this study the first 10 cards and the last 10 cards of each set will now be given.

SET A

1. Face the rising sun.
 2. Lay your book in the nearest window.
 3. Place your right foot in front of you.
 4. Cover your eyes with your hands.
 5. Place your left elbow on a piece of wood.
 6. Take three long steps towards the door.
 7. Handle your arm as if it were broken and very sore.
 8. Stretch both arms out as far as possible.
 9. Ask your mother for a piece of bread and butter.
 10. Place your right hand on the left knee.
141. Our President is a very good man. It is his duty to see that people obey the laws of the United States. Write his name on the blackboard.
142. Fall asleep and snore loudly. Remain asleep until you think one minute has passed.

143. Act as if you were tired and sleepy by leaning against the wall and nodding your head.

144. Put your left hand against the blackboard. Now take a piece of chalk and mark around your hand so as to make a picture of it on the blackboard.

145. Sit down in your seat, then lean backward until the back of your head strikes the desk behind you.

146. Take a piece of chalk in each hand. Now make two marks on the blackboard just as far apart as you can reach.

147. "Paul Piper picked a peck of purple peppers." Write this sentence on the blackboard. Cross out the letter "p" every time it appears.

148. The vowels of the alphabet are: A, E, I, O, and U. Write "Indianapolis" on the blackboard, then draw a mark through each of the vowels.

149. Snakes crawl on the ground. They haven't any feet. Some snakes catch mice and are useful to the farmers. Draw a picture of a snake on the blackboard.

150. The children played tag on the lawn. They soon felt tired and went to sleep. There were eleven children in the group. Make the figure "eleven" on your paper.

SET B

1. Name some good winter games.
2. Tell how many boys there are in the classroom.
3. Repeat the names of two pupils that you know.
4. What are shoes and boots made of?
5. Spell the word "rabbit" three times.
6. Name four articles that can be seen in the classroom.
7. Name three things used in cooking our food and heating our houses.
8. Are cows useful to us in any way? If so, how?
9. Name different kinds of animals that may be seen at a circus.
10. Whisper the names of two animals raised on the farm.
141. Clyde went to the barn to gather the eggs. He put them in his cap. He dropped his cap on the hard ground. You tell the rest.
142. Suppose you are lost and cannot find your way to the school-house. Inquire of Mr. Jones which way to go.
143. Mamma had a good dinner. I was playing in the yard under the big tree when she called me. Dinner is eaten about the middle of the day. What is the morning meal called?
144. Milk is sold by the pint and by the quart. A quart of milk is bigger than a pint. How many pints does it take to make a quart?

145. The little girl is pretty. Her hair is black and curly. She is now thirteen years old. How old was she four years ago?

146. The boys went to the woods on Wednesday. They gathered sticks for the fire and cooked their own dinner. What day comes just before Wednesday?

147. Make a sentence out of the words that follow: "eat grass cows."

148. My grandmother lives on a farm. I am going to visit her. I shall see ducks, geese and chickens on the farm. In what way are ducks and geese alike?

149. Hiawatha was a little Indian boy. He lived in the woods with wild animals all around him. Name some wild animals that lived in the woods with Hiawatha.

150. Last year I bought some roses for twenty cents a dozen. How many things does it take to make a dozen?

SER O

1. Show how mother rocks the baby's cradle.
2. Lay the football on the floor, then kick it.
3. Act as if you are buttoning your coat.
4. Baby has some sand in his shoe. Loosen the string and pour it out.
5. Act as if you were cutting a piece of cloth with the scissors.
6. Pretend that you are trimming your finger-nails.
7. Aid Mary who is trying to read her lesson.
8. Go through the motions of splitting wood with an ax.
9. Catch the basket-ball. Now toss it back to Henry.
10. Light the lantern and set it on the table.

241. The hoe was left out in the rain and it is now rusty. Papa scoured the rust off with sand-paper. Act as if you were rubbing the hoe with a piece of sand-paper.

242. The wheat was threshed last Saturday. Now it is in a bin in the granary. Charles likes to wade in the wheat. Show how he walks when wading in the wheat.

243. Daniel's new coat fell from the hook on to the floor. When he picked it up, the sleeves were covered with dust. He brushed the dust off with a clothes brush. Show how he did it.

244. A hickory nut or a walnut has a hard, thick, shell. We have to crack them with a hammer. Act as if you were cracking a walnut.

245. The dog can dig a hole in the ground with his fore-paws. He makes a hole in the ground and hides away a bone until he wants it. Show how a dog digs a hole with his fore-paws.

246. You have seen a cat waiting patiently at the hole for a mouse to come out. When Mr. Mouse comes out, the cat springs upon him and eats him. Show how a cat springs upon a mouse.

247. The dog is a swift runner. After he has been running, his tongue hangs from his mouth and he breathes very rapidly. Show how a dog breathes when he is warm and tired.

248. The cat has very sharp claws. She is very active and strong. She can walk so quietly that the mice cannot hear her coming. See if you can walk across the room without making any noise.

249. When papa gets up from the supper table, he gets a toothpick and begins picking his teeth. Pretend that you are picking your teeth.

250. Mr. Wilson is digging potatoes to-day. He plows them out with a big team of mules and a plow. He then puts them in a sack and carries them to the cellar. Act as if you were picking up potatoes.

SET D

1. Apples and peaches grow on the ground.
2. Do you like to climb high up in a tree?
3. Do farmers cut oats and wheat in the winter?
4. Does a baker make shoes, boots and slippers?
5. The moon is just ten feet from the ground.
6. Do we know whether kittens have the head-ache?
7. Mamma sews the buttons on my clothes with binder-twine.
8. My hair is green and my eyes and teeth are yellow.
9. The sun is no bigger than the palm of my hand.
10. When it rains the sun is always shining brightly.
91. Horses can gallop very fast. Their hoofs make a noise when they hit the ground. Can you ride in a gallop?
92. Dreams are queer things. They come to us in the night while we are sleeping. Did you ever dream of falling from some high place?
93. Clarence went to bed and his mother blew out the light. The room was then dark and still. Are you afraid in the dark?
94. The grocer sells soap, sugar, and beans. I think he is fair and honest. Would you ask for a dozen beans and a bushel of soap?
95. It is interesting to read story-books. Stories about animals sometimes make us afraid. Did you ever read the story about "Little Red Riding Hood?"
96. Frost makes the leaves turn red and brown. They soon fall to the ground. Are the leaves red and brown now?

97. Houses used to be made of logs. Mud was placed between the logs to keep out the wind and rain. Are houses still built in this way?

98. Hark! I hear the school bell ringing. I must hurry or I shall be late. I do not want to get a tardy mark. School begins a little while before sunrise.

99. A neat-looking boy came to school to-day. His hair was combed and his shoes were polished. Do you think his hands and face were clean?

100. We went to church last Sunday. Uncle John and Aunt Lena came home with us. They took us out riding in the afternoon. Do you enjoy riding in a car?

METHOD OF PROCEDURE

The general plan of procedure was as follows: The experiment was carried out with 1,139 children (571 in non-drill sections and 568 in drill sections) in thirty different third-grade rooms. Only third-grade children were used, as the materials were developed with this idea in mind.

1. At the beginning of the study, December 29, 1919, standardized tests in reading (Monroe's Standardized Silent Reading Tests) were given to all the children. These tests revealed the standings or abilities of the children at the beginning of the study. The methods of scoring provided by the authors of the tests were strictly adhered to in every case, both at the beginning and at the end of the study.

2. After these tests were given, the attempt was made to divide the pupils of the thirty different rooms into two groups of equal size and mental attainments. In making this division the advice and assistance of the superintendent of schools was sought. This method of division seemed advisable, as it was desirable to begin the study without delay rather than to wait until all of the papers had been scored and to make the division then upon the basis of the results thus found. The superintendent's judgment in this matter was exceedingly accurate, as will be noted by referring to data in Table 1. A better division of the children into groups of equal size and mental ability could not have been realized even if the division had been based upon the results of the tests.

The division into groups accomplished, fifteen of the rooms were provided with the materials and the teachers were given in-

structions in their use. This was done both by demonstration and by a set of printed rules with which each teacher was provided.

The teachers of drill classes were requested to use the materials 10 minutes a day on Mondays, Wednesdays, and Fridays.

Since the aim was to compare the improvement made by the drill section upon its previous record and the improvement made by the non-drill section upon its previous record, it was quite essential that the same amount of time be spent by each section in improving reading. Therefore, the time spent in the extra drill work by the drill section was deducted from the regular amount of time given to reading improvement. In other words, the time element in the two groups was identical; the only difference was the way in which this time was utilized. In order to leave the working conditions of the drill group as nearly normal as possible, the extra drill work was given during the regular lesson period. The drill classes were to cover the same daily textbook assignments as the non-drill section.

The experiment was in operation from January 1 to April 1, 1920. At the end of the study, as at the beginning, the tests in reading were given to all children. The improvement in rate and comprehension was then determined.

For the purpose of making clear just how the work was actually conducted during the drill period, the rules for playing the reading games are reproduced.

RULES FOR THE READING GAME

The reading cards are divided into four main divisions, or sets. Set A is a group of 'Action Cards.' These cards are primarily, simple commands or requests. The child works with things actually present. No pretense is involved. ("Place your right hand on your left knee.") Bodily activity is required in each case.

Set B is a group of 'Language Response Cards.' Response to these cards is made wholly through the medium of spoken or written words. ("Name some good winter games.") Bodily activity is not required. Language responses may be written or oral, depending upon the teacher's judgment as to the needs of the particular group of children in question.

Set C is a group of 'Pretense Cards.' Here the children are asked to *pretend* that they are doing this or that particular thing. They work or pretend to work with things *not* actually present. ("Act as if you were hoeing in the garden.") Muscular activity is required in all cases.

Set D is a group of 'One Word Response Cards.' Response to these cards may be made by using one of the four following words: *Yes, No, Right, or Wrong.* ("Is ten greater than nine?") ("Horses have two feet.")

The cards in each of the four sets have been arranged in order of difficulty, least difficult first. The teacher will do well to keep this in mind in giving out the cards. If a group of children need exercise in giving correct oral or written language responses, they should be given cards from Set B. If children need exercise in accurately getting the thought from the passage read, so that they can with accuracy perform the desired activity, thus giving visible evidence as to their understanding or misunderstanding of the passage read, they should be given cards from Set A or Set C. If children need practice in selecting the correct answer where other answers are possible, they should be given cards from Set D.

PLAYING RULES (SET A)

The children are arranged in pairs according to some convenient plan. Each child is given a sufficient number of cards to occupy his time for the entire reading period. If the time allotted to a reading period is fifteen minutes, ten cards given to each child will probably be enough.

For convenience, let us say that Ruth and James are playing together. Each is given (say) ten cards from Set A. Each has a pencil and paper on which to keep the score or his or her opponent. James picks up one of his cards, reads it silently, hands it to Ruth who reads it carefully, then proceeds to perform the required activity. By his performance, Ruth judges whether or not James has gotten the thought of the passage which he has just read. She now gives him a score of "1" if he has performed his task correctly, and "0" if he has failed.

The teacher will do well to be in the midst of the children while the game is in process, to watch the performances of the children being judged and the scoring of the ones doing the judging. Fairness, accuracy, and speed are things to be encouraged.

Ruth now reads one of her cards and James becomes judge. Thus the game proceeds until the twenty cards are exhausted or until the reading period has been consumed. The one having the greatest number of perfect scores (ones) at the end of the play period wins the game.

The rules for playing with cards from Sets B, C, and D are the same as the above directions which are based upon Set A, the only difference being in the nature of the responses given, and these varied responses do not effect the rules for playing.

RESULTS

The accompanying table summarizes the results for the fifteen classes of the non-drill section (A to O) and the fifteen classes of the drill section (a to o). The table indicates the scores both for

comprehension and for rate—in each case in such a way as to contrast the January scores and the April scores.

Improvement may be indicated in two ways; increase in the median performance and decrease in the absolute or the relative variability of the class. The table is arranged to show the alterations that appeared in both these respects and for every one of the thirty classes under test.

Disregarding the individual classes and referring now only to the average performance of the drill and the non-drill sections, the following facts appear. Between January and April the non-drill section increased its median comprehension score from 3.9 to 7.0, while its average deviation increased only 3.3 to 3.7 (the coefficient of variability, or relative degree of variation, accordingly, decreased from .84 to .53). Correspondingly, between January and April the drill sections increased their median comprehension score from 4.0 to 9.0, while their average deviation increased from 3.1 to 4.5 (the

TABLE 1
SCORES IN COMPREHENSION AND RATE OF READING OF 15 NON-DRILL AND 15 DRILL
CLASSES IN JANUARY AND IN APRIL

	Comprehension				Rate				
	January		April		January		April		
	Med.	A. D.	Med.	A. D.	Med.	A. D.	Med.	A. D.	
NON-DRILL SECTION	A	4.3	2.7	8.0	4.4	37.5	21.4	57.3	17.2
	B	3.9	3.9	6.9	3.8	42.1	21.8	50.0	15.4
	C	3.8	4.0	7.0	3.8	38.8	24.2	46.4	17.6
	D	3.2	2.6	5.7	4.2	27.8	17.3	40.0	24.0
	E	3.9	4.7	9.8	5.0	36.9	22.9	57.0	28.0
	F	2.1	2.6	6.5	3.6	22.5	16.6	47.7	16.4
	G	6.5	3.7	4.1	3.2	51.6	18.0	42.5	21.0
	H	1.7	2.8	11.0	3.2	20.0	17.8	56.3	17.2
	I	4.1	3.4	5.9	2.8	31.3	18.9	38.5	12.6
	J	3.3	3.3	7.2	4.0	27.0	16.2	46.0	21.0
	K	3.7	3.7	6.5	3.2	35.5	17.0	42.5	22.0
	L	3.3	3.3	6.0	3.4	36.3	18.2	44.5	15.6
	M	4.0	3.7	5.4	3.2	35.0	22.2	44.4	17.6
	N	6.0	3.1	8.9	3.4	38.7	20.0	51.7	14.2
	O	5.1	2.5	5.8	4.3	40.8	19.0	45.0	21.0
Av.	3.9	3.3	7.0	3.7	34.7	19.4	46.7	19.0	
DRILL SECTION	a	3.9	3.6	7.3	3.6	35.6	19.4	55.0	21.0
	b	2.8	2.1	9.0	4.4	32.5	15.8	55.0	16.6
	c	4.0	3.2	8.5	4.5	37.7	21.8	55.0	24.0
	d	4.4	3.0	9.0	4.8	35.0	17.4	58.6	28.0
	e	5.3	3.3	12.4	3.8	38.3	19.4	68.3	12.0
	f	3.8	3.1	12.0	5.2	34.4	12.2	71.0	20.0
	g	1.7	2.4	5.9	4.4	21.0	16.7	45.0	22.0
	h	4.0	3.0	3.3	3.2	33.7	15.8	48.0	20.0
	i	4.5	2.2	8.9	4.0	35.9	13.6	53.3	16.6
	j	5.5	4.1	10.0	5.8	50.0	21.8	63.5	22.0
	k	3.0	2.8	7.7	5.8	33.6	18.2	49.5	22.0
	l	4.8	2.4	9.6	4.0	34.1	14.8	57.7	16.8
	m	3.6	2.9	8.7	5.4	33.0	18.8	57.7	26.0
	n	5.6	4.1	9.0	5.4	46.2	21.8	55.0	26.0
	o	3.7	3.5	9.0	4.0	34.3	18.2	57.0	22.0
Av.	4.0	3.1	9.0	4.5	35.7	17.7	56.9	21.0	

coefficient of variability, accordingly, decreased from .78 to .50). In brief, then, the drill section increased its comprehension 5 units as against 3.1 units of the non-drill section and at the same time reduced its class variability to a slightly lower point than that of the non-drill section.

Turning to rate of reading, the following facts appear. Between January and April the non-drill section increased its median score from 34.7 to 46.7, or 12 points, whereas the drill section increased its score from 35.7 to 56.9, or 21.2 words per minute. The reduction in the coefficient of variability was, for the non-drill section, from 56 to 41 percent; in the drill section from 50 to 37 percent.

It follows from this study of over 1100 third-grade pupils in thirty classrooms of Kansas City, Kansas, that in every phase of reading considered in this study the improvement made by the classes that were drilled in reading by the games devised by the writer was more pronounced than the improvement made during a corresponding period by the classes that devoted the same amount of time to other forms of reading exercises.

CONCLUSIONS

The following generalizations are definitely indicated by this investigation:

1. Uneconomical methods of drill are now being employed in the lower grades of our public school system.
2. Greater use must be made of the doctrine of "Interest in Education," especially as it applies to drill work. Drill work should be motivated or vitalized by being connected with some dynamic purpose.
3. Bodily activity (dramatizations, handling of objects, etc.) can be profitably connected with exercises in silent reading.
4. Drill, to be efficient, must be made individual in character. Drill should be conducted as nearly as possible according to each child's needs and particular abilities.
5. Intensive focalization, in connection with attentive repetition, is an essential characteristic of efficient drill work and by appealing to the play instincts of children this desired characteristic is effectively provided.

CHAPTER VI

THE EFFECT OF A SINGLE READING

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It is curious that in the studies of silent reading no attention has been given directly to the determination of the effect of a single reading of different types of reading matter, because this would seem to be the first step in experimental work in reading.

It is true, however, that there is some indirect evidence on the matter. Ebbinghaus and others experimented with the effect of learning periods of different lengths on the retention of meaningless material. Later experimenters used logical materials in their efforts to learn about memory; and from their studies and those of the earlier experimenters, certain valuable laws of memory were formulated. But none of these studies gives an adequate idea of the extent of the memory of logical materials as the result of a single contact. Nor do the reports of Brown, Gray, Starch, Waldo, Pintner, and others bear directly on this point.

The problem is a particularly important and fundamental one. No one will deny that many children consider the lesson learned if they have read it through once. Indeed, the ordinary teacher in the elementary or the high school may consider herself fortunate if the child has read understandingly through the assignment a single time. How much has been learned as a result of this single reading? We have not fully adequate answers to this question. And so far as we know at present, the economy of re-reading a lesson again and again until, as in the early district school, it is "learned by heart" is wholly problematical. The logical procedure is to begin at the bottom by determining the effect of a single contact with different types of reading ma-

terials. The problem opens up a very significant field of experimentation which, no doubt, will be followed through by succeeding experimenters until the economy of various re-readings has been determined. The present study is only a partially successful attempt to supply some data which have been lacking and to call attention to the importance of measurement in this field.

MATERIALS

The materials used in this series of experiments are, with one exception, almost exclusively factual selections of varying lengths, taken from school textbooks or adapted from other sources for use in the elementary school. The selections include materials from geography, history, agriculture, civics, economics, language, and literature. This last selection was used merely for the purpose of comparing the results of reading narrative material with the results of reading factual material particularly adapted to silent reading. There follows a list of the selections with their approximate lengths:

1. *On the Use of Abbreviations.* Language material taken from the intermediate book of a language series by Jean Sherwood Rankin; length, 1200 words.

2. *Peanuts.* Adapted for experimental purposes from *Farmers' Bulletin No. 431*, United States Department of Agriculture; length, 1900 words; similar to textbook material in geography or agriculture. Prepared by C. E. Germane and used by him in connection with his doctor's thesis, "The Value of Summarizing as Compared with Re-reading of the Same Article."¹

3. *The Government of Switzerland.* Prepared by G. H. Alderman for experimental purposes and borrowed by the writer; civics material; length, 1200 words.²

4. *Medieval Castles.* Adapted by the writer from Robinson and Breasted, *Outlines of European History*, pp. 387-392; length, 600 words.

5. *Chasing a Rainbow.* Adapted from an old Harper's *Fifth Reader*; narrative material; length, 1000 words.

6. *Tuberculosis.* Adapted by C. E. Germane from a pamphlet, "What we Should Know about Tuberculosis," by New York State Department of Health; length, 1900 words.

¹State University of Iowa, 1920. Unpublished.

²Used in doctor's thesis, "The Lecture Method of Teaching Versus the Question and Answer Method." State University of Iowa, 1920. Unpublished.

7. *Pyramid Age*. Adapted by the writer from Robinson and Breasted, *Outlines of European History*, Part I. pp. 27-31; length 600 words. This article was rewritten in order to make it as nearly like article number four as possible.

8. *The Admiralty Islanders*. Adapted from *The Living Races of Man- kind*, by H. N. Hutchinson; geographical material; length, 1000 words.

It is seen that these materials are representative of those studied in the elementary school, that they are sufficiently varied in length, and that they so differ in character as to give an opportunity to investigate the manner in which pupils will retain different types of material, an aspect of the problem which is, however, only touched upon in this series of experiments.

Articles 2 and 6 were printed pamphlets; the others were typewritten or mimeographed, with care to provide clear copy.

Two main types of tests were used for measuring the retention of these materials after a single reading: (1) controlled completion tests; and (2) tests consisting of short questions requiring a short written answer. These tests were mimeographed. Sample questions from each of these tests are given herewith:

TEST I

They were first visited by (Columbus, De Soto, Narveyez, Balboa, Carteret, John Cabot) in (1121, 1776, 1850, 1767, 1492.)

TEST II

In what two ways did the armed followers help the master of the castle?

1.
2.

It will be understood that in the first test, the child was required to cross out the words in the parentheses which correctly completed the meaning of the sentence as he remembered it, while in the second test he was required to write his answer which might consist of a word, a phrase, or a sentence. The first type of test is very detailed, requires no writing, and tests the pupil's power of choosing the right word to complete the true statement of the original fact as he remembers it. The second test is not so detailed and makes a greater demand upon the power of recall. Both tests have the advantage of being objective in scoring, of requiring little or no writing, and of actually serving

as a measure of the retention of the ideas in the original selection. The first test probably is a greater stimulus to recall; the second is more difficult to answer correctly. The results of the two tests are, of course, not directly comparable numerically.

The tests were scored by giving one point for each correct answer, adding the total points earned, and expressing the final score as a percent of the total possible score. Thus, a score of 50 means that the pupil has answered correctly 50 percent of the total possible score, or has reproduced approximately 50 percent of the total ideas in the article as a result of a single reading. It is acknowledged that there are some objections to this method, on the ground that it does not consider the effect of the relative difficulty of questions. It is thought, however, that, for the purpose of this study, the method of scoring is sufficiently accurate to give a fairly reliable idea of the amount gained as the result of a single reading.

METHOD OF EXPERIMENTATION

The series of experiments with the foregoing materials were conducted according to two methods: (1) a rough method in which no attempt was made to measure accurately the effect of motivation produced by an initial test previous to reading or the effect of an immediate recall upon a delayed recall; and (2) a more refined method in which an attempt *was* made to measure the effect of these factors. In all the experiments the pupils were allowed to take as much time as was necessary to complete the reading and the tests. Each pupil was allowed to proceed at his own rate. The elapsed time between reading and testing was in most cases merely long enough to allow a pupil to lay aside the reading and take up the test paper. Thus, inequalities in rate of reading were offset and the time elapsing between reading and immediate recall was approximately the same in all cases.

The general procedure in the first series of experiments was to give a test to measure the amount of previous knowledge of the material and then to follow this test by a single reading and an immediate recall. In this series, the initial test and the immediate recall test were the same. Later on, a delayed recall in

the form of the same test was given. Pupils were not told what the test was to be, but it is easily seen that the effect of this test was to motivate the reading in the first place and to furnish practice in taking the test in the immediate and delayed recall exercises.

In the later series of experiments the classes were divided into three groups by a chance selection of pupils and a different method of procedure was used with each group. The scores of each group were then used interchangeably to compute corrections for the effect of previous knowledge of the material, the effect of giving the initial test, and the effect of repetition of the test upon power of subsequent recall. In this series of tests every effort was made to keep the conditions of the experiment constant and to eliminate the effect of all uncontrolled variables. The pupils were encouraged to do their best work, not to guess at the answers, and to regard the experiments in the light of interesting exercises not affecting their class standing. The experimenter feels that in the large majority of cases the experiments successfully measured the effect of a single reading and that the pupils gave their best efforts to the experiments.

RESULTS OF THE EXPERIMENTS

The results of the experiments as conducted in four schools and involving in all 417 pupils are summed up in this section. Experiments with several of the articles, namely, *Peanuts*, *Abbreviations*, and *Admiralty Islands*, involved pupils in Grades IV to VIII, inclusive, in four schools. Experiments with the other articles were conducted in a single school. Three of the schools were typical Iowa public schools, and the fourth was the Observational School, State University of Iowa, Grades IV to VII, inclusive.

The following tables will give a general idea of the results of the experiments. Table 1 gives the distribution of scores made by Grades IV, V, and VI on the article *Peanuts*, after a single reading.

It is seen from Table 1 that the ability to reproduce the ideas in this article after a single reading preceded by an initial test

TABLE 1
DISTRIBUTION OF SCORES MADE AFTER A SINGLE READING OF THE ARTICLE ON PEANUTS

Interval*	Grade IV	Grade V	Grade VI
85-89.9	0	1	1
80-84.9	0	0	4
75-79.9	0	1	2
70-74.9	1	0	1
65-69.9	0	4	2
60-64.9	2	0	1
55-59.9	2	1	4
50-54.9	1	2	7
45-49.9	0	2	2
40-44.9	4	1	3
35-39.9	1	3	4
30-34.9	1	4	2
25-29.9	4	5	3
20-24.9	3	2	2
15-19.9	11	2	2
10-14.9	4	4	2
5-9.9	6	1	0
0-4.9	3	1	1
Total	43	37	43
Average	24.5	36.2	47.5
Median	13.9	31.8	46.2
Quartile Deviation	14.	15.5	14.9

*The intervals are in terms of percents of the total possible score. Thus, the score 85-89.9 indicates that the pupil who made this score performed correctly 85 to 89.9 percent of the total possible answers in this test.

varies widely among individuals in the same grade, that there is marked over-lapping of grades, and that distinct progress is shown from grade to grade. This distribution is typical of those obtained.

Table 2 gives a summary of the average initial scores and the immediate and delayed recall scores made by the different grades

TABLE 2
EFFECT OF A SINGLE READING AS MEASURED BY IMMEDIATE AND DELAYED RECALL

Selection	Grade	No Pupils	Initial Test	Range Immediate Recall	Range Delayed Recall	Range	
1. Peanuts	4	43	10.5	0-29.9	47.5	0-74.9
2. Peanuts	5	37	15.8	0-44.9	36.2	0-89.9
3. Peanuts	6	43	21.9	0-54.9	24.5	0-89.9
4. Adm'ty Islanders..	8	22	17.0	0-39.9	53.8	0-89.9	49.7 20-69.9
5. Adm'ty Islanders..	7	10	18.7	10-29.9	54.1	30-79.9	41.0 30-59.9
6. Adm'ty Islanders..	6	24	11.4	0-29.9	40.4	10-79.9	30.8 10-59.9
7. Adm'ty Islanders..	5	24	11.0	0-29.9	31.2	0-79.9	19.0 0-39.9
8. Adm'ty Islanders..	4	8	6.0	0-19.9	19.0	0-89.9	17.5 0-39.9
9. Abbreviations	8	8	28.0	16-42.0	46.0	28-70.0	47.0 28-66.0

With the first eight of these selections the controlled completion test was used, with the ninth a yes-and-no test, with paired answers to test recall. The time between immediate and delayed recall, in the experiment with *Admiralty Islanders* was 20 days; in the experiment with *Abbreviations*, 6 days.

Initial test is the test given to measure previous knowledge; *immediate recall* is the test given immediately following a single reading; *delayed recall* the test given after a lapse of 20 or 6 days.

(one group in each grade) in four schools on three different articles. The scores are typical of those found in all the experiments.

Table 2 shows that the amount retained after a single reading of the articles, uncorrected for the effect of motivation due to the initial test, ranges from roughly one-fifth of the total ideas in Grade IV to one-half in Grade VIII on the material *Admiralty Islanders*; on the article *Peanuts*, the range is from one-fourth in Grade IV to one-half in Grade VI; on *Abbreviations*, the amount is roughly one-half in Grade VIII. The effect of previous knowledge ranges from 6 percent in Grade IV to 30 percent in Grade VIII. The effect of the lapse of time on the retention of the facts in the article *Admiralty Islanders* represents a loss ranging from 4 percent in Grade IV to 12 percent in Grade VIII after 20 days. After 6 days the pupils in Grade VIII reproduced better than on immediate recall.

Table 3 summarizes the results of a series of tests in a sixth grade on various articles of different lengths. Two types of tests were used in measuring the effect of reading. The results are therefore only roughly comparable, but they are suggestive of differences due to the character and length of the materials.

TABLE 3
EFFECT OF A SINGLE READING ON VARIOUS TYPES OF MATERIAL IN A SIXTH GRADE

Selection	Initial Score	Immediate Recall	Delayed Recall	Test Used	Days Elapsing
1. Gov't of Switzerland.....	10.0	43.9	25.0	A	54
2. Medieval Castles	16.3	37.4	27.3	B	31
3. Chasing a Rainbow.....	34.8	78.0	70.3	A	39
4. Tuberculosis	14.8	31.6	21.1	B	36
5. Peanuts	21.9	47.5	...	A	..

A indicates a controlled completion test, B a test of short questions. The scores are in every case percents of the total possible score.

Assuming equality of tests, differences in the difficulty of the various materials are clearly indicated in the above table. The amount which pupils were able to score correctly before reading the article a single time ranges from 10 percent to 34.8 percent. It is possible that this amount is due partly to their ability to answer the completion test questions without reading the original article and that this ability is the direct result of native intelligence. It is probable, however, that the score made on the test

of short questions, Test B, is the result of previous knowledge, since in this test no chance was given to guess the answer; the form of the question required a knowledge of the fact. The range of correct answers after a single reading shows that either the ability to reproduce the ideas is not so great on factual material as on narrative material, or that the tests were very unequal in difficulty. It is true, of course, that the difference shown here may be due entirely to differences in the difficulty of the tests, rather than to differences in the difficulty of the reading matter.

The foregoing scores are representative of the gross average scores made by pupils in the series of experiments in which no attempt was made to measure any variable other than the effect of previous knowledge possessed by the pupil and the effect of a single reading preceded by an initial test. When the pupil read the article under such conditions, the reading was strongly motivated by the initial test. The result is a measure of a single reading under extremely advantageous conditions. The writer felt that in order to get at the effect of a single unmotivated reading, he ought to make an attempt to measure the effect of the repetition of the test on subsequent recall and the probable influence of the motivation on the single reading. This demanded another series of experiments, the results of which are set forth in the following tables.

The method of isolating the variables in these experiments was to divide the grade into three groups, A, B, and C. The teacher furnished a list of the pupils in each grade divided into three parts, good, medium, and poor pupils, according to their ability in reading. The experimenter then grouped these pupils into three divisions, one-fourth in Group A, one-half in Group B, and one-fourth in Group C, endeavoring to have an equal proportion of good, medium, and poor pupils in each group. Pupils were drawn at random by the experimenter from each group. When the divisions had been made, Group A was given an initial test, allowed to read the article once and then given an immediate recall. Group B was not given an initial test, but read the article once and then took an immediate recall test. Group C read the article once, but performed no test of previous knowl-

edge nor of immediate recall. Then, after a lapse of some days or weeks, all three groups were given a delayed recall. The scores of Group B were then corrected for the effect of previous knowledge by subtracting the initial scores of Group A from the immediate recall scores of Group B. In a like manner, the scores made by Group C were used for purposes of correction. The results of these corrections are given in the following paragraphs and tables.

The validity of this procedure rests, of course, upon the method of dividing the groups and upon the assumption that the groups when divided are equal in ability. The writer had to rely upon the judgment of the teacher in dividing the grade into good, medium, and poor pupils, and then upon random placing of these pupils into three representative groups. It would have been better to have divided the grades on the basis of their standard scores in silent reading, perhaps, but these were not available. As a means of making the resulting averages, obtained from the three different groups, somewhat more reliable, the writer smoothed them according to the following formula given by Rugg in his *Statistical Methods Applied to Education*, page 184.

The effect of this smoothing upon the original measures is shown below. The original grade averages on immediate recall, selection *Admiralty Islanders*, were:

Grade VIII	VII	VI	V	IV
53.8	54.1	40.4	31.2	19.0

The result of the first and second smoothings was to reduce the inequalities between the scores of the different grades as follows:

	Grade VIII	VII	VI	V	IV
1st Smoothing	53.4	49.4	41.9	26.8	23.0
2nd Smoothing	52.4	48.2	39.3	30.5	24.2

The averages, after the second smoothing, were used in computing the corrections and in estimating the effects of various factors in the experiment³.

³The writer believes that these smoothed averages represent more nearly what the actual averages would have been, had more pupils been measured. It is recognized that such a procedure is rather arbitrary and perhaps of dubious value, but the results obtained are at least suggestive that there are many factors operating in reading which are ordinarily not considered and which deserve careful study.

Table 4 gives the scores of Grades IV to VIII, inclusive, in three schools on the article *Admiralty Islanders*, after these averages have been smoothed in accordance with the method just mentioned. The general effect of this smoothing has been to reduce the irregularities in the grade averages which were probably due to faulty selection of the different groups within the grade and to differences in ability among the several schools. That is to say, in the long run, one would naturally expect Grade VIII to read better than Grade VII and Grade VII to read better than Grade VI.

TABLE 4
AVERAGE SCORES OF GROUP A WITH THIS ARTICLE ON ADMIRALTY ISLANDERS

Grade	Cases	Initial Test	Immediate Recall	Recall After 20 Days
8	9	16.9	52.4	48.7
7	10	15.6	48.2	48.1
6	8	18.2	89.8	81.7
5	8	10.1	80.5	28.5
4	8	8.5	24.2	22.8

Table 4 shows that the power to handle the various tests increased from grade to grade.

Table 5 shows the scores for Group B for immediate and delayed recall, but no initial test.

TABLE 5
AVERAGE SCORES OF GROUP B WITH THE ARTICLE ON ADMIRALTY ISLANDERS

Grade	Cases	Immediate Recall	Delayed Recall
8	17	87.8	82.5
7	21	84.6	80.1
6	20	29.8	26.0
5	16	24.7	19.9
4	16	17.0	16.1

The scores of Group C for the same selection, as measured by delayed recall only, are shown in Table 6.

TABLE 6
AVERAGE SCORES OF GROUP C, WITH THE ARTICLE ON ADMIRALTY ISLANDERS

Grade	Cases	Delayed Recall Only
8	10	18.2
7	8	16.8
6	10	15.9
5	9	18.9
4	8	18.6

By using the averages in the previous tables a correction of the various scores for the effect of different variables is attempted as shown in the tables that follow. Thus, in Table 7 it is argued

TABLE 7

EFFECT OF VARIOUS FACTORS AS MEASURED BY INITIAL TEST AND IMMEDIATE RECALL
(Using Scores of Groups A, B, and C on *The Admiralty Islanders*
Interchangeably for Correction)

Grades	VIII	VII	VI	V	IV
Effect of Previous Knowledge.....	16.9	15.6	13.2	10.1	8.5
Effect of a Single Reading.....	20.9	19.0	16.6	14.6	7.5
Effect of Motivation of Initial Test.....	14.6	13.6	9.5	5.8	7.7

that in our experiments there are three large factors that effect the retention of material read; namely, previous knowledge, motivation due to the initial test, and a single reading of the article. Now the effect of previous knowledge in the above table is indicated by the scores of Group A. This amount subtracted from the scores of Group B made on immediate recall, gives the effect of a single reading by Group B, or the figures under the caption "Effect of a Single Reading." But when there is subtracted from the immediate recall score of Group A, this effect of previous knowledge, there is still a remainder, as given under caption "Effect of Motivation." This may or may not be due to motivation. Probably it could be due to superior ability on the part of Group A, but there is a likelihood that motivation is a primary constituent in it, since it is found quite consistently in all the grades.

TABLE 8

EFFECT OF VARIOUS FACTORS AS MEASURED BY DELAYED RECALL
(Scores on *The Admiralty Islanders*)

Grades	VIII	VII	VI	V	IV
Effect of a Single Reading on Delayed Recall..	1.3	0.7	2.7	3.8	5.1
Effect of Immediate Recall.....	14.5	13.9	10.1	6.0	0.5
Effect of Reading and Two Tests.....	82.8	25.4	17.6	9.9	9.0
Effect of Reading and One Test.....	15.8	14.5	12.8	9.8	7.6
Effect of Two Tests.....	30.5	23.7	14.9	6.1	4.0
Effect of One Test.....	14.9	13.9	10.1	6.0	2.6

The effect of these various factors when measured by delayed recall is even more striking. By using the scores of Groups A, B, and C interchangeably to correct for the effect of motivation, repetition of the test, and previous knowledge as measured by delayed recall, we obtain the material embodied in Table 8. In

that table, to be more specific, the scores are obtained by subtracting from the scores of Group B on delayed recall, the amounts due to the effect of a previous knowledge, as shown by the initial score of Group A, and due to repetition of the test, as shown by the difference between the delayed recall scores of Groups B and C. In a like manner, by manipulating the various scores, corrections for the variable factors have been computed. It appears that, after the variable factors have been considered, the effect of a single reading upon power of delayed recall is very slight. The writer does not claim a high degree of precision for these statistical manipulations, but the general significance of the table is clear. The motivation due to the initial test and the effect of the repetition of the tests apparently far outweigh in importance the brief, though indispensable, contact with the material. This bears out the general laws of memory very clearly. Strongly motivated repetition is necessary if ideas of this kind are to be retained for any length of time, at least with children of the elementary grades.

CONCLUSIONS

There are no startling novel conclusions to be drawn from these data, but the conclusions of other experimenters who have been working along this line are made more secure through the addition of numerical evidence. Broadly speaking, the result of the experiments is to show how inadequate a single reading really is when taken alone and to suggest that in seeking for means to improve our methods of study we need to determine experimentally the relative efficiency of various devices for improving methods of studying. For instance, it is hoped that later experimenters will investigate the efficiency of various re-readings.

Some particular conclusions that have a direct bearing on our educational problems and which may be directly applied to the pedagogy of reading are enumerated below.

1. As far as the elementary school child is concerned, from a single reading of factual material like that we employed only a small proportion will be retained.

2. Giving an initial test that shall determine the amount of existing knowledge brings about better retention of the material subsequently read.

3. Repeated testing is an efficient method of securing permanent retention of material; whether more efficient or less efficient than other methods remains to be seen.

4. Ability to reproduce one type of material after a single reading does not imply equal ability to reproduce another type of material in equal amount. There are differences in the difficulty of reading due to the length of the material, its character, the number of facts it contains, and the interest it has for pupils, which deserve careful consideration.

5. A single reading without immediate recall, or review, of the ideas probably leaves little effect on the mind of an elementary-school pupil after a lapse of 20 or 30 days, unless the material is highly motivated or strikingly interesting.

6. The ability of pupils in the elementary school to reproduce ideas after a single reading increases from grade to grade, but cannot be regarded as highly developed even in the eighth grade.

7. There are wide individual differences in this ability, as in others. There are a few gifted individuals who can read material like ours once and retain 80 percent of its entire content (see Table 1), but the average child is far from this efficiency. The educational implication is therefore obvious.

8. Teachers will do well to investigate what takes place between the assignment of the new lesson and the recitation that follows in order to insure that more than a single reading of the new material takes place; particularly in schools where extensive reading occurs, must the reading and study habits of the pupils during the study periods be investigated.

CHAPTER VII

OUTLINING AND SUMMARIZING COMPARED WITH RE-READING AS METHODS OF STUDYING¹

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Much has been said and written by those working in the field of education concerning the value of outlining and summarizing as methods of studying. Nevertheless, there are so few scientific data on the subject that it seemed worth while to try to determine by direct experimentation in the classroom the comparative values of certain forms, at least, of summarizing.

I. THE VALUE OF THE SELF-MADE SUMMARY

The Problem

Stated briefly, the problem which we first set ourselves was: What is the value of making a "corrected summary-outline" of an article as compared with re-reading the same article for the same length of time?

The procedure in making what we may term a "corrected summary-outline," or a "self-made summary," involves the following steps:

1. The article is read once through as a whole.
2. A brief summary-outline is written from memory.
3. The article is glanced over to discover what points of importance have been forgotten or overlooked in making the summary.
4. The summary is corrected by adding points omitted or by altering incorrect statements.

¹ This study was completed at the University of Iowa under the direction of Professor Ernest Horn and embodied in Dr. Germane's doctorate dissertation.

Method of Experimentation

1. *Selection of Material.* After considerable preliminary experimenting, an eight-page article on "What We Should Know About Tuberculosis" was selected as being suitable for the purposes of this study. This article was adapted from a pamphlet issued by the New York State Department of Health. It was found not to be too difficult for the grades in which the study was conducted, nor did it contain material that was covered in the usual class work.

2. *Division of the Class.* In order to measure the efficiency of the corrected summary as a method of studying, it was necessary to divide the pupils taking part in this experiment into two groups as nearly equal as possible in comprehension ability in silent reading. This was done by having the teachers of the various classes rank their students according to their ability to comprehend what they read. The pupil who ranked 1 was placed in the first group, 2 and 3 in the second group, 4 and 5 in the first, etc.

The ranking of the teachers was compared with the pupils' ranks according to their intelligence quotients and the following Spearman correlations found: Grade V, .62; Grade VI, .71; Grade VII, .68; Grade VIII, .65; and Grade IX, .72.

3. *Method of Measuring Comprehension.* Two rigorous tests were used to measure the comprehension. The first was a question-and-answer test covering the material read and involving points of major and minor importance. The second was a recognition test. Four answers were suggested for each question, of which only one was correct, and the pupils were asked to underline the correct answer. This form of test was used in conjunction with the first because of the possibility of children being able to *recognize* an answer they could not *recall* and also because of the possibility of measuring finer differences.

4. *Method of Scoring.* One point was given for each correct answer. The questions were all worded in such a way as to admit of but one possible answer. All the papers were graded by the writer and a graduate student who had worked through the material and helped in the administration of the experiment.

5. *Administration of the Experiment.* This experiment was conducted in Grades V to IX, inclusive, of the Elementary and Junior High Schools of the State University of Iowa. The Summarizing Group was called Group A and the Re-Reading Group, Group B. Both groups worked at the same time but in different rooms.

The instructions to Group A were as follows:

"1. In the pamphlet is an article on 'Tuberculosis.' Read it through *once* as rapidly and carefully as you can, asking yourself as you read, 'What is it all about and what are the main points in it that I should know and remember!'

"2. Turn the article face downward and on the paper provided make a summary of what you have just read. That is, write down all the main points or ideas that you think this article contains. At the same time, try to organize the main points under headings.

"3. Take up the article on 'Tuberculosis' and again look it over carefully and as you read write down the main points omitted or correct those already written if they are wrong."

In order that the pupils in Group A might know exactly the method of procedure in the experiment, ten minutes were spent in class in summarizing three short paragraphs just as the whole article was to be summarized. In this preliminary the experimenter emphasized the necessity of speed and brevity. Thirty minutes were then allowed for reading and summarizing, and at the end of that time the two tests were given.

The method of procedure in Group B was as follows: The class was given the article on "Tuberculosis" and asked to read it as many times as possible in the thirty-minute period. At the end of that time, Group B was subjected to the same two tests as Group A.

Results

In Table 1 a summary of the results is presented.

TABLE 1

TOTAL SCORES MADE BY THE SUMMARIZING GROUP (A) AND THE RE-READING GROUP (B) IN THE FIVE DIFFERENT GRADES ON THE READING MATERIAL "TUBERCULOSIS"

Grade	V	VI	VII	VIII	IX
Group B	167	145	177	247	227
Group A	160	128	147	216	198
	<u>7</u>	<u>17</u>	<u>30</u>	<u>31</u>	<u>29</u>
Percent B Exceeds A	4.4	13.3	20.4	14.3	14.7

An examination of this table shows that in every grade the group that merely re-read the article retained more than the group that read and summarized.

Conclusions

Since this experiment was conducted in only one school and since only one type of reading material was used, too much emphasis should not be placed on the results. However, taken in conjunction with analyses of the summaries made by the pupils, they would seem to indicate that, given such summarizing ability as these students possessed at the time of the experiment, the following statements are warranted:

1. The Re-Reading Group (B) shows a consistent superiority ranging from 4.4 to 20.4 percent.

2. Since the Re-Reading Group excels in every grade tested, the relative value of a corrected summary as a method of study is distinctly questionable.

3. An analysis of the corrected summaries of many of the pupils indicates that much of the thirty minutes was spent in indiscriminate note-taking.

4. It is possible that the advantage of the Re-Reading Group lay in the fact that the pupils in it used the entire period re-reading the article *in its entirety* and perhaps also mentally summarizing it.

II. THE VALUE OF THE SUMMARY WHEN STIMULATED AND DIRECTED BY SPECIFIC PROBLEMS

As just indicated, the work of the pupils who participated in the first experiment led the writer to believe that some form of controlled summary would give better results. Consequently, the following study was undertaken.

The Problem

What is the value of attempting to interest pupils in an article and placing in their hands a set of questions on that article *before reading it* as compared with the re-reading of the same article?

Probably the problem would be better understood if at this point we anticipate our discussion of method by inserting an original set of instructions to the pupils. By reading these instructions, it will be seen how we sought to interest the pupils in their reading about peanuts by introducing two paragraphs of general information on the peanut industry. It was thought that by reading two such paragraphs in concert twice, a 'problem attitude,' or mental 'warming up' would be produced.

PEANUTS

INSTRUCTIONS TO THE PUPIL FOR SUMMARIZING THROUGH THE USE OF SPECIFIC PROBLEMS

To the Pupil:

The peanut industry in the United States has grown by leaps and bounds during the last 10 years. Last year's crop alone was valued at \$12,000,000, which was greater than the value of the entire peach and onion crop in the United States for the same year. The increased interest in peanut raising is due to many causes, the chief of which is *the use of the peanut as a food*, especially as a meat substitute.

Suppose that a number of Iowa farmers interested in growing peanuts came to you for advice, and raised the following 12 questions or problems listed below. WHAT WOULD YOU SAY IN ANSWER TO EACH OF THESE TWELVE PROBLEMS?

1. WHAT ARE YOUR REASONS FOR SAYING THAT THE RAISING OF PEANUTS IS PROFITABLE?
2. WHAT KIND OF SOIL IS BEST? WHY?
3. IN WHAT STATES DO YOU THINK WE COULD MOST SUCCESSFULLY RAISE PEANUTS?
4. WHAT EFFECT HAS BARNYARD MANURE ON THE PEANUT CROP? HOW SHOULD WE USE IT?
5. OF WHAT USE IS LIME AS A FERTILIZER? HOW SHOULD WE USE IT?
6. IN THE SELECTION OF PEANUTS FOR PLANTING, WHAT ARE THE QUALITIES WE SHOULD LOOK FOR?
7. WHICH SHALL WE PLANT, THE SHELLED OR UNSHELLED PEANUTS? WHY?
8. HOW CAN WE TELL WHEN THE PEANUTS ARE READY TO DIG?
9. WHAT METHODS ARE USED IN DIGGING PEANUTS? WHICH WOULD YOU ADVISE AS THE BEST?
10. WOULD YOU ADVISE STAKING OUR PEANUTS? WHY?
11. WHAT METHODS DO THEY EMPLOY IN PICKING PEANUTS? WHAT, IN YOUR OPINION, IS THE BEST METHOD?
12. WHAT PRECAUTIONS SHOULD WE TAKE IF WE WISH TO USE THE PEANUT VINES FOR FEEDING STOCK?

DIRECTIONS FOR READING:

In the booklet you will find an article on "Peanuts" which is taken from a bulletin of the United States Department of Agriculture. Read it through *once* rapidly and carefully. As you read, keep in mind these 12 PROBLEMS, OR QUESTIONS, of the farmers.

When you have finished reading the article through once, write down in the space marked "Time" the last number that you see on the blackboard. Then on the paper provided, write down the answers to these 12 problems. *Refer to the article as often as you wish in writing down these answers.*

BE SURE THAT YOU ANSWER VERY BRIEFLY AND YET VERY ACCURATELY THE 12 PROBLEMS.

NAME CITY
 DATE SCHOOL
 GRADE TIME
 GROUP

Method of Experimentation

1. *Selection of Material.* After considerable preliminary experimenting in the Elementary and Junior High Schools of the State University of Iowa, the following two selections were chosen as being suitable for the purposes of this experiment: (1) the article on "Peanuts" just mentioned, and (2) an article on "Immigration," adapted from Beard and Bagley's *American History*. These articles were both about 9 pages in length and were of such a nature that it was not difficult to give them the 'problem setting.'

2. *Division of the Class.* To conduct this experiment successfully it was necessary to divide the pupils into two groups of as nearly equal comprehension ability in silent reading as possible. An article on the "Sweating System," adapted from Towne's *Social Problems*, was used for this purpose. This article was chosen because the pupils in the grades in which the experiment was conducted were almost totally unfamiliar with the subject matter.

To validate and justify this method of dividing the class into two groups all three articles were given to a group of 20 students under similar conditions. The instructions for the tests were identical, to read the article twice and then answer a list of questions. The following Pearson correlations were obtained:

"Sweating System" and "Peanuts"	.64
"Sweating System" and "Immigration"	.90

These rather high positive correlations indicate that ability to comprehend one article is closely correlated with ability to comprehend the other articles.

3. *Method.* The experiment proper was conducted in Grades VI to IX, inclusive, of a representative public school in Iowa. The Summarizing Group was called Group A and the Re-Reading Group, Group B.

After the instructions to the Summarizing Group had been carefully read in concert twice and any questions answered concerning them (three minutes allowed for the reading and questioning), the signal to start was given. A period of 27 minutes was allowed for reading the article and answering the questions. At the end of that time the pupils were submitted to a rigorous 15-minute test.

The Re-Reading Group was told to read the article through carefully as many times as possible in the 30-minute period. The same 15-minute test was given to the pupils in this group at the end of their reading period.

It will be noted that the Re-Reading Group was given three minutes longer than the Summarizing Group. This addition of time seems justifiable, since the Summarizing Group, as we have seen, spent three minutes in 'warming up' by reading the two paragraphs of general information about the peanut industry.

Results

In Table 2 a summary of the results is presented.

TABLE 2
SCORES OF THE SUMMARIZING GROUP (A) AND THE RE-READING GROUP (B) WITH THE TWO TYPES OF MATERIAL, "PEANUTS" AND "IMMIGRATION"

Grade	Peanuts				Immigration	
	VI	VII	VIII	IX	VIII	IX
Group A	311	422	511	587	368	441
Group B	296	461	480	547	310	415
Difference	15	1	31	40	58	26
Percent A Excels B	5	0	7	8	17	6

Conclusions

1. The data of Table 2 seem to indicate that controlling the summary by presenting to the pupils a list of questions before read-

ing the article and trying to arouse their interest in it is a somewhat more efficient method than the re-reading of the article.

2. The Summarizing Group would have made a higher score, had the pupils known how to skim an article for answers to questions.

This statement is verified, first, by the fact that "time" was called before the pupils had finished answering all the questions, and second, by the fact that more or less confusion prevailed in the Summarizing Group during the study period. The method of looking up answers to questions rapidly and writing them was a new method of studying and an undue amount of time was wasted in turning from the questions to the reading material too frequently.

III. THE VALUE OF THE DIRECTED SUMMARY WHEN WRITING IS ELIMINATED

In the second experiment it was found that the pupils in the Summarizing Group were unable to finish answering all the questions on the summarizing forms given them because they lacked ability to express the answers briefly, and hence gave too much time to writing; and because the continuity of reading was broken by having to stop frequently to write the answers to the questions.

Accordingly, it was thought that a controlled summary in which writing was eliminated would be worth trying. To this end two experiments were conducted by the writer upon two quite different classes of students and with two specimens of reading material quite different in content and style.

A. *Experiment with College Students*

The Problem

What is the value of reading an article through once and devoting the rest of a given period to finding, but not recording, the answers to the test questions already placed in the hands of the students as compared with the re-reading of the article for the same length of time?

Method of Experimentation

1. *Material.* The selection used was a nine-page article on the Government of Germany, by Hazen. The subjects were 88 students, mostly sophomores, in two classes in Principles of Education in one of the colleges of Iowa.

2. *Division of the Class.* Monroe's Reading Test, No. III, was used for the purpose of dividing the class into two groups of equal reading comprehension ability. Thirty-five pairs who made practically identical scores on this test were selected out of the 88 students. In no case was there a pair whose difference in score was over two points.

3. *Administration of the Experiment.* The time allowed was 20 minutes. The Summarizing Group was told to read the article through once rapidly and carefully, then to take up the list of questions and answer them mentally, being sure to skim through the article for answers to any questions they might not be able to recall.

The Re-Reading Group was told to read the article through as many times as possible in the 20 minutes.

Only 20 minutes were allowed for reading the article, because only a few students could finish reading it twice in that time. This was judged to be the optimal time for the Re-Reading Group in view of the interest in the article and of its difficulty.

At the end of this period, each section was given a rigorous 10-minute test upon the material just read. This test comprised the same questions that the Summarizing Group had been mentally attempting to answer.

Results

In Table 3 the results are presented. It will be seen that Group

TABLE 3
SCORES OF THE SUMMARIZING GROUP (A) AND THE RE-READING GROUP (B) WITH THE MATERIAL "THE GOVERNMENT OF GERMANY"

	Aggregate Score	Range	Median	Third Quartile	First Quartile
Group A	732	9-32	21	24	17
Group B	561	5-24	17	20	11

A scores, in the aggregate, 171 points, or 30.5 percent, more than Group B, and that its curve shows superiority throughout.

Conclusions

1. These data seem to indicate that the use by the students of specific questions on the assignment is much more efficient than undirected reading occupying the same amount of time.
2. The Summarizing Group, we feel sure, worked more effectively because it did not waste time in writing.

B. Experiment with School Children

The problem here is identical with that of the preceding experiment with college students.

Method of Experimentation

1. *Material.* The material used in this experiment was the article on "Tuberculosis." It lends itself readily to this method of asking questions. The three big problems discussed in it are: (1) sources of tuberculosis, (2) symptoms of the disease, (3) preventatives.

2. *Division of the Class.* The subjects were pupils in Grades VI, VII and VIII of a representative public school of Iowa. Monroe's Silent Reading Test, No. II, was used for the purpose of dividing them into two groups of equal comprehension ability in silent reading.

3. *Administration of the Experiment.* The Summarizing Group (A) was asked to read the article through once and then quickly to take up the list of questions on their desks and answer them mentally. The pupils were told to refer to the article freely in their work. At the end of 25 minutes, they were given a rigorous 15-minute test. This test was made up of the same questions that they had been attempting to answer mentally.

The Re-Reading Group was told to read the article through as often as possible in the 25-minute period. At the end of that time, the pupils were given the same test as was given to those in Group A.

The Results

The results are, in summary, an aggregate score of 617 for Group A and 401 for Group B. The difference, 216, in favor of the Summarizing Group, is a 53.8 percent superiority.

Conclusion

The figures for the school children confirm and intensify the findings with the college students. They show that the use by the pupils of specific questions on the assignment is a much more efficient method of studying than the expenditure of the same amount of time in undirected reading.

CHAPTER VIII

MEASURING COMPREHENSION OF CONTENT MATERIAL

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INTRODUCTORY

Teachers have long complained that pupils do not know how to study. Particularly has this complaint been directed to the studying of those sources of information and knowledge commonly called the content subjects. It has remained for the recent change in emphasis which has taken place in the field of reading to bring out the fact that, after all, the difficulty is chiefly one of reading. Pupils who glibly read a paragraph orally fail miserably when confronted with an exact check on the meaning of what they have read. If we are to judge from the parrot-like precision with which they orally reproduce the printed page, we are almost convinced that they comprehend. However, when we carefully investigate their real understanding of what they read, we begin to have serious doubts as to the efficiency of our reading instruction.

The material described on the following pages was originally prepared for the purpose of determining something of the extent to which pupils in certain of the elementary school grades do comprehend easy, straightforward, factual material, when measured by a rather exacting test. The chief purpose in presenting it here is to show that it is perfectly possible and practicable for any teacher to reproduce these tests or devise other similar tests, superior to these, for the purpose of measuring the ability of her pupils in reading this type of material, or of training them in this kind of reading. The material presented is merely typical of what may be done. It does not represent a finished product. It is not a standardized test.

It should be pointed out at the outset that the measurement of silent reading represents a rather complex problem. There has

been a tendency to break up silent reading into a number of distinct abilities, chief among which are *rate of reading* and *comprehension of material read*. Other factors contributing to these two and often listed with them are: the ability to re-organize the material, the ability to recall the essentials at a later date, and the ability to read the proper kind of material with enjoyment. Stated briefly, these factors become, in order: organization, memory, and appreciation.

The objective measurement of rate of reading, while sufficiently complicated, has been more successfully accomplished than has the measurement of comprehension. In the data presented here the emphasis is placed on the factor of comprehension as measured by a distinct device, very objective and exacting in its character.

In general, the measurement of comprehension in silent reading follows one of three lines. In the first the subject is asked to read the selection and then to indicate his understanding of it by his ability to reproduce either verbatim or idea for idea, as much as possible of the material read. This plan is used in the test devised by Starch and by Gray.

The second type of test checks the comprehension by means of questions, either of the controlled or uncontrolled answer sort. The Thorndike Scale Alpha 2 is an example of the first of these, and the Curtis Series R, Test 2, of the second type.

The third type of test used has been called a "directions test." In tests of this character the subject is asked to indicate the understanding of the material read by the completion of some act, by the giving of some definite objective response which leaves a record. This idea was utilized in the original Kelly Silent Reading Tests, and followed again in Monroe's more recently developed tests. It is this third type of comprehension exercise which is utilized in the tests herein described, though with the difference that the material upon which the comprehension exercises are based is logical, factual, and related throughout. The understanding of the selection is indicated by certain definite responses to exercises covering the material. These responses are obtained in such a way that an objective record is obtained.

FIRST EXPERIMENT: THE 'WHEAT TEST'

The first of these tests¹ with which experiments were made by the writer is known as the "Wheat Test."

The following is an exact duplication of the directions, material, and exercises as presented to the pupils for testing.


I want to see how carefully you can read a short paragraph. After you have read it, you will be asked to answer some questions about it. In answering these questions there are three things you should be sure to remember. They are:

1. Give just the information needed to answer each question, but make sure that the answer you give is to be found in the paragraph.
2. If any question is asked for which you think there is no answer given in the paragraph, write on your paper "the paragraph does not tell."
3. You may read the paragraph as often as you wish to make sure that your answers are correct.

Now that you know exactly what to do, read the following paragraph and answer the questions just as you have been told, remembering that you may have all the time you need.

The chief wheat belts extend through the valleys of the Missouri, the Ohio, and the upper Mississippi. Of all the states in this region Minnesota raises the most wheat. There is another belt along the Pacific coast. The present center of wheat production is about 100 miles west of Des Moines, Iowa; since 1850 it has moved westward nearly seven hundred miles, and northward about one hundred miles.

Answer these questions.

1. Mark on the accompanying map the chief wheat belts of the United States by using a large letter "W" in the proper places.
2. Place a number one (1) in the state raising the most wheat, on the map.
3. Place a small cross (x) where the present center of wheat production is located.
4. Show by an arrow () the direction on the map in which the center of wheat production has moved 700 miles since 1850.
5. Show by a star (*) on the map about where the center of wheat production previous to 1850 was located.

The map to which reference is made in the directions was merely an outline map of United States. Names of states and cities were not shown, but the names of the river valleys mentioned

¹ The writer desires to acknowledge the guidance and co-operation of Dr. Ernest Horn in the development of these test devices.

in the paragraph were printed in with a small rubber stamp outfit (see Figs. 1 and 2). The paragraph itself was selected from a commonly used geographical reader which is judged to be easy enough to be read by children of the lowest grade in which the test was given.

The test was given to a number of children in Grades IV, V, and VI. The responses were scored by the writer on an arbitrary, but consistent basis, by allowing zero, one, two, and three points for a question, depending upon the exactness of the answer. Following is the key used for scoring the tests:

Question	Score	Basis
I	3	"W" marking the valleys of the Mississippi, Missouri, and Ohio rivers, and Pacific coast.
	2	"W's" marking the three river valleys.
	1	"W" marking one of the three valleys.
	0	No "W" correctly placed, or "paragraph does not tell."
II	3	A number one (1) in Minnesota.
III	3	(x) in western Iowa.
	2	(x) in Nebraska.
	1	(x) in South Dakota, or Kansas, or further west, or "paragraph does not tell."
IV	3	Arrow in Ohio pointing toward Iowa.
	2	Arrow elsewhere to east of Iowa pointing westward.
	1	Arrow elsewhere on map pointing westward.
	0	No arrow, or arrow not pointing westward, or northwest, or "paragraph does not tell."
V	3	A star (*) in Ohio.
	2	A star in Illinois, Indiana, Penn., or Ky.
	1	A star anywhere east of present center (100 miles west of Des Moines, Iowa).

On this basis the results presented in Table 1 were obtained. The table shows the percentage of pupils in each grade that earned the various scores for each question. Eight and three-tenths percent of the 24 fourth-grade children tested received the highest possible score of three points on the first question. Twenty-five percent of these 24 children scored two points, etc. These data show some very interesting variations in the difficulty of the exercises for the three grades under test. Clearly Exercises IV and V are the most difficult, when it is remembered that every child was given an opportunity to complete the test.

TABLE 1
PERCENTAGE OF PUPILS MAKING VARIOUS SCORES ON EACH OF THE FIVE EXERCISES
IN THE 'WHEAT TEST'

Exercise	Score	Grade Pupils	IV 24	V 11	VI 22
I	3		8.3	9.1	41.0
	2		25.0	54.5	31.7
	1		50.0	38.4	27.3
	0		16.7	0.0	0.0
II	3		20.8	72.7	63.7
	2		4.1	0.0	9.1
	1		8.4	0.0	0.0
	0		66.7	27.3	27.2
III	3		37.5	45.4	63.7
	2		0.0	27.3	9.1
	1		16.8	27.3	4.5
	0		45.7	0.0	22.7
IV	3		0.0	0.0	0.0
	2		8.4	9.1	0.0
	1		45.7	72.7	77.2
	0		45.8	18.2	22.8
V	3		0.0	0.0	4.5
	2		8.4	18.2	0.0
	1		20.8	27.3	13.7
	0		70.8	54.5	81.8

Table 2 shows the average score made per exercise by pupils of the three grades tested, and the total average score made on the test by each grade. The percent of possible score reported shows that the third-grade children scored 31.6 per cent of what it was possible for them to score on the test, etc. The fifth grade scored only slightly over one-half of what it might have made in the test. These results may be taken as an indication that in spite of the apparent simplicity of the reading matter, and evident definiteness of the comprehension test, this test is to be considered rather difficult, or else it must be admitted that the pupils tested are not able to read understandingly content material of this sort.

TABLE 2
AVERAGE SCORES PER PUPIL, FOR EACH EXERCISE IN THE 'WHEAT TEST,'
ARRANGED BY GRADES

Exercise	Grade IV	V	VI
I	1.25	1.86	2.14
II	.79	2.19	2.10
III	1.80	2.19	2.14
IV	.54	.91	.78
V	.37	.64	.24
Total Average Score	4.75	7.29	7.64
Percent of Possible Score	31.60	48.50	51.00

A compilation of types of responses given the different exercises shows some astonishing variability. The outline map (Figure 1) shows the types of answers given by fourth-grade children in response to Exercise V. Figure 2, which embodies the results to the same question of sixth-grade pupils, shows considerable improvement. In these figures a star is placed wherever a pupil placed it in attempting to answer the exercise. The numbers appearing by the side of the stars indicate the number of children in addition to the one first placing the star in the location shown who gave the same answer.

SECOND EXPERIMENT: THE 'INDIANS TEST'

A second attempt at checking the silent reading comprehension of elementary school pupils was made. The material selected for this test was taken from *Iowa Stories*, a compilation of local history written by Dr. Aurner, of the State University of Iowa. This material is written in an easy, interesting style, and is read with much interest and enjoyment by children in the third grade. However, it was felt that the rigorous comprehension test was too difficult for children of this grade so the test was used in Grades IV, V, and VI.

In addition to the two paragraphs comprising the reading matter, the test consisted of a page of ten exercises asking for specific things to be recorded on the outline map of the state of Iowa which accompanied the other material. The children were then given the same directions as were used in the "Wheat Test." All pupils were given time enough in which to complete the test. The two paragraphs selected and the exercises based on it are here reproduced. They were also given outline maps like those shown on a reduced scale in Figs. 3 and 4.

"PUSHING THE INDIANS OUT OF IOWA"

The Indians loved their hunting grounds along the eastern side of the Mississippi River and Chief Black Hawk wished to stay in the land where he was born. But the white people kept coming over the line between their land and the land which the redmen still claimed in Illinois. On the Illinois side of the big river were the corn fields of the Indian tribes and there the men and women and children had been allowed to live until trouble arose. Then the great war broke out which is known in history as Black Hawk's War, because that chief led the Indian warriors.



FIG. 1. RESPONSES OF FOURTH-GRADE PUPILS TO EXERCISE V.



FIG. 2. RESPONSES OF SIXTH-GRADE PUPILS TO EXERCISE V.

When the bitter fight was ended, the Indians were defeated and, of course, the government of the United States made them give up some more of their land. At that time a strip about fifty miles wide along the west side of the Mississippi River, except for a narrow strip along the Iowa River near its mouth, was sold to the United States for about fourteen cents an acre. The narrow piece of land which the Indians kept on both sides of the Iowa River was the hunting ground of a part of the tribes. Within this land and about twelve miles from the mouth of the Iowa River, was the village of Chief Keokuk, who was one of the great leaders of his people. In 1836 the narrow strip along the Iowa River which had protected the village of Chief Keokuk was sold to the United States government for about eight cents an acre. Keokuk and his people moved away to other Indian lands further west.

“PUSHING THE INDIANS OUT OF IOWA”

1. Show the location of the favorite hunting grounds of the Indians by putting the letter “H” in the proper places on the map.
2. If Chief Black Hawk loved his land along the Mississippi River, write the word “Yes” along the bottom of the map.
3. Show the location of the corn lands of the Indians along the Mississippi River by putting the letter “C” in the proper places.
4. Enclose with a line the strip of land which the Indians first sold to the white people.
5. Anywhere within the first strip of land sold by the Indians to the white people, write the figures showing what price the Indians were paid for each acre.
6. Mark with crosses (xxxxxx) the land along the Iowa River where the Indians kept their hunting grounds after Black Hawk’s War.
7. Place a star (*) about where the village of Chief Keokuk was located.
8. Write near the village of Chief Keokuk the date when he sold the remaining strip of land along the Iowa River to the white people.
9. If Chief Keokuk received ten cents an acre for the last strip of land sold to the white people, put a circle around the date just written. If he received about eight cents an acre, put a line under the date.
10. Show by an arrow the direction Chief Keokuk and his tribes moved when forced to leave their village.

This test was given in two schools, the University Elementary School and a public elementary school. The papers were scored by the writer by the following key:

Exercise	Score	Basis
I	3	One or more “H’s” along the eastern side of the Mississippi River.
	0	No “H” properly located, no reply.

II	3	“Yes” along the bottom of the map.
	2	“Yes” along either side of map.
	1	“Yes” along top of map.
	0	No response, “paragraph does not tell.”
III	3	One or more “C’s” along Illinois side of Mississippi River.
	0	No “C” properly located.
IV	3	Line not cutting Iowa River inclosing area along Missa. River above and below Iowa River
	2	Line parallel to and west of Mississippi River cutting Iowa River
	1	Line parallel to Miss. River cutting Iowa River, but inclosing one-third or more of area of state between river and the line
V	0	No response; line east of Missa. River, etc.
	3	Number 14 within area inclosed by line and the Mississippi River
	0	No figure; or figure outside area; “paragraph does not tell”
VI	3	x’s along both sides of Iowa River near its mouth
	2	x’s along both sides of Iowa River, but not near mouth
	1	x’s along one side Iowa River; not near mouth
	0	No x’s; or along another river, etc.
VII	3	Star on Iowa River near its mouth within area marked as hunting grounds of Indians
	2	Star on Iowa River but outside this area
	1	Star near headwaters of Iowa River
	0	No star; or away from Iowa River; etc.
VIII	3	Date 1836 near star above
	0	Date not near star as in above; no date given
IX	3	A line under the date 1836
	0	A circle around the date 1836; no answer; etc.
X	3	Arrow starting near star pointing westward
	2	Arrow starting near star pointing southwest or northwest
	1	Arrow pointing north or south
	0	Arrow pointing east; no answer; etc.

TABLE 3
AVERAGE SCORES PER PUPIL IN SCHOOLS A AND B FOR THE TEN EXERCISES
IN THE ‘INDIANS TEST’

Exercise	Grade School	Fourth		Fifth		Sixth	
		A	A	B	A	B	
I		1.4	2.3	2.85	2.6	2.07	
II		3.0	2.9	2.64	2.9	2.66	
III		2.8	2.7	2.50	2.5	2.72	
IV		1.1	1.0	.70	1.6	1.16	
V		2.1	2.7	1.46	2.4	2.00	
VI		1.4	2.1	1.28	2.1	2.16	
VII		1.8	1.6	1.23	1.9	2.67	
VIII		2.3	3.0	2.70	2.8	3.00	
IX		2.5	2.8	1.80	2.8	2.90	
X		1.9	2.2	1.60	2.5	2.28	
Total		19.8	23.3	18.74	24.1	23.62	
Percent of Possible Score		66.0	78.0	62.50	80.5	78.80	

Table 3 shows that a score of 1.4 was made on the first exercise on the average by fourth-grade pupils tested. This average score was increased to 2.3 by the fifth-grade pupils, and to 2.6 points by the sixth-grade pupils, etc. The average total score made by the fourth grade was 19.8 points, or 66.0 percent of what it was possible for the pupils to score. The fifth grade of School A made an average of 23.3 points, or 78.0 percent of the total possible score.

In this test, as in the former test, there are some interesting variations in difficulty of the exercises in the different grades. For example, the average score per pupil for the third exercise seems to indicate that it becomes more and more difficult as it advances through the grades tested. The final averages, however, show something of the expected grade growth.

In order to show something of the variation in the type of response given by fifth and sixth-grade children to this material Figures 3 and 4 are presented. In each case the map is an exact duplicate of the map used in the test. Figure 3 shows the types of answers given to Exercises VII and X by 35 fifth-grade pupils in School B.

If one may interpret these results somewhat freely, it may be said that the responses of the children tested by this type of test of comprehension literally do "scatter all over the map." In the light of these data, is it not logical to raise these two questions: Do children vary as widely in their comprehension of content material read silently as their responses to these tests seem to indicate? If such is the case, is it any wonder that we find the ignorance we do in certain of the content subjects?

To bring together the results of these tests, Table 4 is presented. The object of this table is to show at a glance how far the actual scores were from the highest possible score (100) in both tests, both schools, and in all three grades.

TABLE 4

Grade	IV	V	VI
Wheat Test (School A)	31.6	48.5	51.0
Indians Test (School B)	66.0	78.0	80.5
Indians Test (School B)	...	62.5	78.8

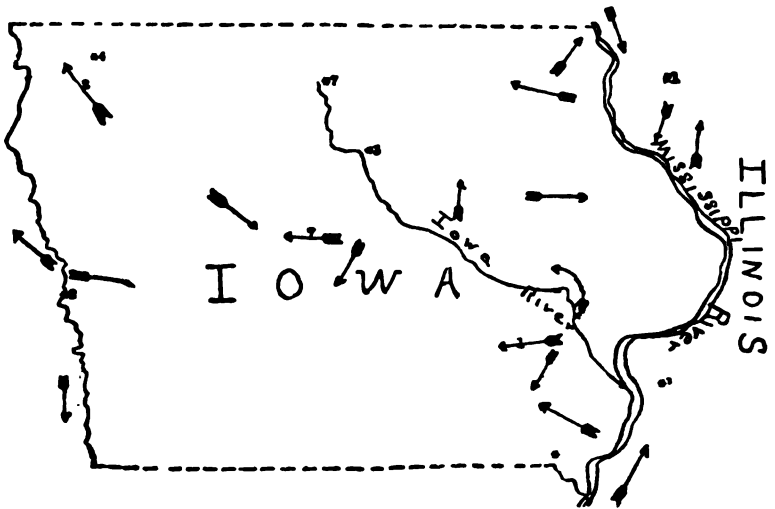


Fig. 3. Responses of 85 Fifth-Grade Pupils in School B to Exercise VII (asterisks) and Exercise X (arrows) in the 'Indian' Test. (No answer to Exercise VII by one pupil, none to Exercise X by six pupils. Numbers beside stars or arrows indicate number of pupils, in addition to the first one recorded, who made that response.)

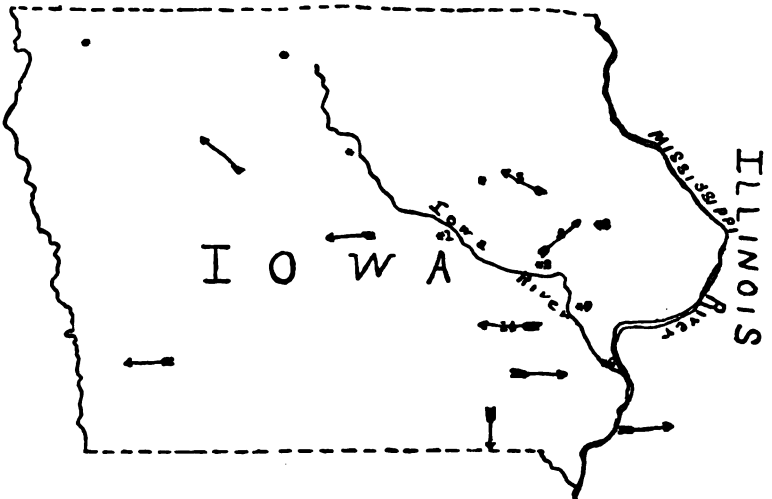


Fig. 4. Responses of 32 Sixth-Grade Pupils in School B to Exercise VII (asterisks) and Exercise X (arrows) in the 'Indian' Test. (No answer to Exercise X by four pupils. Numbers used as in Fig. 3.)

SUMMARY

In summary, it seems that the work with these tests warrants certain conclusions, though these, because the data are too limited in number of cases and scope of material, are confessedly tentative conclusions. Further experimentation with this type of material is going forward.

1. Children read and glibly discuss certain content material placed in their hands, but when they are held strictly to account by an objective indication of comprehension, the scores made are startlingly low. Among the factors which may affect the results: (a) silent reading ability; (b) geographical knowledge; (c) mechanical features of the tests; (d) lack of motive on the part of the pupils.

In respect to the second factor, it may be said that, so far as it was possible, lack of geographical knowledge was discounted by placing on the map itself labels indicating most of the geographical knowledge required. There is no comment on the third factor, except to say that the same mechanical difficulties were presented to all grades and to all pupils tested. The question of motive needs no discussion. The children were interested, and practically without exception took special delight in undertaking the tests.

2. By the use of material such as is described in this study, an objective determination of the ability of school children to read and to understand certain selected content material may be made.

3. Material of a similar nature covering a large range of subject matter may be selected and prepared by teachers and supervisors with the aid of limited school equipment. Outline maps of the type used in these tests may be purchased in quantities from publishers or may be made by the teachers with a hektograph. The manifolding of all sorts of testing and teaching material is made possible through the use of it and similar devices.

4. Information of the sort revealed by these tests should be of great importance to teachers in connection with their regular class work. Assignments can be adjusted to the ability of the class, and a better understanding of the difficulties of the individual pupils of the class will result.

5. In view of the apparent inability on the part of our school pupils to read and comprehend accurately, material of the type which constantly confronts them in their daily lesson assignments, it is evident that we need much more emphasis on drill on content material for the purpose of developing this ability. Suitable material is easily found. Straightforward, factual material that permits close checking is best. Map and diagram material is excellent for drill purposes. Charts, graphs, and tabular presentations of facts are excellent, and certainly we encounter material of that type frequently enough to warrant special emphasis on it at the present time. Much use of unstandardized material for drill purposes is to be recommended

CHAPTER IX

THE VOCABULARIES OF TEN FIRST READERS¹

J. L. PACKER

In the *Seventeenth Yearbook, Part I*, of this Society Mr. E. T. Housh, Superintendent of Schools, Carroll, Iowa, published a summary and analysis of the vocabularies of ten second-year readers. The present study is a similar investigation of the vocabularies of ten first readers from the following well-known series:

- | | |
|-----------------------|------------------|
| 1. Aldine | 6. Heath |
| 2. Beacon | 7. New Education |
| 3. Brooks | 8. New National |
| 4. Carroll and Brooks | 9. Riverside |
| 5. Cyr | 10. Wheeler |

Two tables are presented. The first is really a summary of the second; it indicates the total number of different words that appear in the ten readers with the frequency specified. This table will be useful in showing the number of words that need to be known in order to read various proportions of these readers as one proceeds from the words most commonly used toward the words that are least commonly used. It may be noted that of the 3,541 different words, 2,048 appear four times or less.

The second table specifies the words themselves in alphabetical order within descending frequency groups. It is to be interpreted thus: the word *the* is used 5,246 times in these ten first readers and is found in all ten of them, etc.

¹This study was undertaken by Mr. Packer when Superintendent of Schools at West Liberty, Iowa, and a graduate student in the State University of Iowa and was nearly completed when he died, January 19, 1918. In view of the many requests for the summarized lists which Mr. Packer was known to be preparing, the Graduate College made an appropriation for clerical assistance to complete the work, which was done by Dr. and Mrs. Harry Greene. The lists with a few words of explanation are transmitted for publication by Professor Ernest Horn.—*Editor*.

TABLE 1

SUMMARY OF THE NUMBER OF DIFFERENT WORDS OCCURRING WITH CERTAIN FREQUENCIES IN TEN FIRST READERS

Number Words	Frequency	Number Words	Frequency	Number Words	Frequency
15	700-5250	10	250-299	60	40-49
6	600-699	12	200-249	96	30-39
7	500-599	34	150-149	164	20-29
5	400-499	40	100-149	332	10-19
9	350-399	35	75-99	514	5-9
10	300-349	94	50-74	2048	1-4

TABLE 2

WORDS USED IN TEN FIRST READERS, ARRANGED ALPHABETICALLY BY FREQUENCY GROUPS TO SHOW THE NUMBER OF TIMES EACH WORD APPEARS AND THE NUMBER OF READERS IN WHICH IT APPEARS

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
	700 - 5250		has	350	10	away	186	10
the	5246	10	his	335	10	baby	182	9
and	3375	10	one	375	10	big	194	10
I	1929	10	so	355	10	bird	159	10
a	1899	10	there	371	10	by	174	9
to	1859	10	this	381	10	Dan	152	3
you	1859	10		300 - 349		down	176	9
is	1457	10	at	348	10	eat	188	10
it	1479	10	be	316	10	from	188	10
he	1015	10	go	304	10	get	181	9
in	1058	10	good	304	10	home	162	9
little	1037	10	how	334	10	house	173	10
she	804	10	some	335	10	into	173	10
will	855	10	them	312	8	know	198	10
not	732	10	then	317	10	man	158	9
of	707	10	tree	311	10	many	158	9
	600 - 699		your	311	9	mamma	158	4
are	667	10		250 - 299		may	155	9
do	693	10	as	264	9	nest	173	10
for	633	10	had	278	10	oh	170	8
said	609	10	here	252	9	our	161	9
see	674	10	him	281	10	put	150	10
they	680	9	mother	276	10	red	184	10
	500 - 599		no	253	10	run	191	10
can	562	10	now	298	10	shall	168	9
have	568	10	out	251	9	sing	156	9
her	520	10	play	279	10	take	164	10
me	529	10	too	258	10	us	182	9
on	561	10		200 - 249		very	177	8
we	565	10	birds	205	9	want	151	7
what	564	10	bay	232	9	where	165	10
	400 - 499		day	235	10	yes	157	9
like	450	10	did	219	10		100 - 149	
my	429	10	make	206	10	again	106	9
that	479	10	must	211	9	blue	128	8
was	493	10	old	231	9	came	132	9
with	427	10	pretty	206	8	cat	148	8
	350 - 399		think	207	9	could	118	10
all	380	10	up	240	10	dear	105	8
but	358	10	when	243	10	does	129	10
come	376	10	would	232	9	dog	133	7
				150 - 199		don't	134	6
			am	196	10	find	108	9
			an	157	10	fly	134	8
						Fred	117	6
						girl	122	9

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
give	142	10	Bessie	58	2	tall	52	6
going	133	8	blow	52	8	ten	50	7
hear	125	9	book	67	6	their	74	6
if	143	9	bread	55	8	these	51	7
Jack	118	8	bright	50	7	things	63	7
just	106	8	brook	61	6	Tom	51	4
leaves	116	8	brown	66	8	top	52	8
let	181	10	call	66	8	upon	54	8
long	101	9	cold	72	10	wants	62	7
look	140	9	corn	71	7	why	72	8
made	104	9	doll	61	6	window	63	8
never	116	9	drink	56	8	wings	56	9
over	149	9	drive	50	7	winter	62	7
ran	141	9	eggs	54	10	wish	56	7
saw	140	9	ever	51	9	won't	70	8
say	102	9	eyes	74	10	work	63	8
tall	189	10	fall	65	10	yellow	55	6
time	140	9	fine	58	7			
trees	107	9	fire	78	6			
water	135	9	gingerbread	50	3	40 - 49		
way	101	9	girls	69	9	across	46	4
well	135	10	Grace	51	4	after	40	7
went	126	8	grass	54	8	afraid	45	6
were	149	9	great	58	4	always	40	7
white	120	10	ground	51	9	barn	40	4
who	110	10	grow	72	9	bee	49	8
wind	135	10	Hans	58	1	before	46	7
			happy	50	7	best	42	6
			hat	51	7	better	44	7
			head	55	8	bring	43	8
			help	66	7	cake	49	7
			hen	74	5	called	45	8
			high	52	7	cannot	48	8
			hill	51	8	can't	48	6
			horse	69	9	coat	42	5
			I'll	56	5	comes	41	10
			Kate	63	5	coming	45	6
			keep	68	8	cried	41	3
			kind	53	5	daisy	48	6
			large	51	7	dead	46	5
			live	60	9	duck	40	6
			looked	59	8	each	44	7
			love	68	8	fan	45	3
			met	53	2	field	42	7
			mill	65	5	four	41	8
			Mr.	70	5	fun	40	7
			much	66	7	garden	47	7
			name	56	7	gave	48	8
			Nat	66	2	glad	44	6
			near	62	7	grandma	42	5
			new	60	8	hands	40	8
			night	78	3	heard	45	8
			off	55	7	I'm	49	4
			only	53	7	Mrs.	44	6
			papa	62	4	O	42	5
			pig	64	6	once	46	7
			please	66	7	other	45	6
			poor	53	5	pail	46	5
			rabbit	54	7	rat	41	3
			ride	58	7	read	41	6
			right	52	9	rest	42	4
			round	62	9	rose	49	6
			school	53	6	sand	40	6
			seeds	65	6	sat	46	8
			sit	52	9	seen	42	8
			sky	64	9	sheep	49	5
			small	57	9	show	44	7
			sometimes	50	8	sleep	49	7
			spring	50	9	something	49	8
			still	56	8	summer	47	6
			stop	74	10	swing	42	6
			such	51	5	than	47	6
						today	44	8
about	91	7						
Allen	88	1						
any	76	9						
apples	80	6						
back	82	9						
ball	99	4						
boys	96	8						
catch	87	8						
children	79	8						
cow	85	8						
every	78	10						
Fannie	90	2						
fast	86	8						
father	87	8						
flag	90	5						
flowers	77	8						
found	81	9						
green	85	10						
hand	94	6						
its	80	9						
likes	87	9						
milk	96	8						
more	87	7						
morning	85	9						
or	83	9						
rain	86	9						
says	87	8						
should	82	7						
snow	92	9						
soon	93	9						
sun	94	9						
three	80	10						
told	76	6						
two	87	8						
under	96	10						
50 - 74								
apple	68	7						
asleep	51	8						
beautiful	58	7						
bed	55	8						
been	54	7						

THE TWENTIETH YEARBOOK

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
walk	41	5	pan	88	4	eight	27	7
warm	46	8	party	89	5	Elsie	25	1
watch	40	6	picture	89	6	far	29	6
wheat	41	4	place	87	8	farmer	26	5
woods	45	7	plant	81	6	faster	21	4
			ring	88	5	feathers	28	6
			roses	88	6	fill	24	6
	20 - 29		sea	89	5	first	28	6
along	30	6	sell	86	5	flow	29	6
around	39	8	sick	81	4	flower's	27	1
ate	30	7	side	86	8	food	28	6
bear	32	3	singing	35	7	funny	25	5
because	38	5	sits	32	6	George	26	3
began	36	2	stay	30	4	goes	28	3
bell	39	4	supper	30	6	gone	26	7
black	35	6	took	84	7	grandmother	27	3
blows	36	7	town	31	3	ha	22	2
box	36	6	train	81	4	Helen	28	5
butter	38	6	try	88	4	helped	26	3
buy	31	6	violet	88	5	hide	26	6
buss	33	2	wanted	30	7	honey	28	4
calls	30	3	which	87	3	horns	21	5
care	32	7	while	83	7	hurt	22	5
carry	34	3	without	32	6	ice	28	5
chickens	37	6	write	37	6	ill	20	3
Christmas	38	7				isn't	27	2
clock	39	5		20 - 29		Jamie	25	2
cry	35	5	Alice	28	4	keeps	21	5
dogs	39	5	another	32	5	kite	26	5
door	34	4	ask	37	5	kitten	25	3
dress	32	5	basket	24	5	kitty	25	4
face	30	7	beat	21	5	knew	26	5
fat	32	7	bees	24	4	knows	23	9
feed	30	5	Bennie	21	1	lake	20	4
feel	32	8	Billy	28	1	lay	25	5
feet	38	3	birdie	22	3	leaf	28	7
fell	36	3	birthday	20	3	legs	24	7
fish	36	7	bite	26	4	light	24	3
five	31	9	blew	21	4	liked	20	4
flower	36	6	boat	24	6	looking	22	9
flying	34	5	books	23	4	Marion	25	2
Frank	39	4	bough	21	3	Mark	26	2
friends	32	4	how-wow	23	4	Mary	20	4
fruit	33	5	bridge	22	1	meadows	20	6
full	30	8	brings	23	7	meadow	27	5
gives	30	6	built	21	2	mean	20	2
goat	34	3	buttercup	20	3	might	24	6
goats	33	4	butterfly	28	7	mine	24	4
grandpa	36	5	cap	20	4	minute	21	3
gray	32	4	cart	24	5	Miss	27	3
grew	38	7	cats	28	2	most	28	3
gruff	32	1	cheese	22	2	Muffet	21	3
hard	35	7	chick	21	5	Nan	24	2
hawks	30	4	chicken	28	5	Ned	28	4
hay	30	4	chicks	20	4	Nell	29	2
he	31	4	close	21	6	nests	23	7
hold	30	3	cook	26	4	nine	21	5
horses	36	6	country	26	6	north	28	6
hungry	32	5	cows	28	6	outside	28	5
kittens	39	4	cradle	25	3	pads	23	2
left	35	7	creep	27	4	pan-cakes	21	2
lily	38	3	cross	27	4	pat	28	5
lion	35	3	crows	27	3	people	28	3
lived	34	6	crying	20	4	pet	21	5
lives	30	3	days	29	3	pick	21	5
looks	35	7	didn't	23	2	pie	21	4
makes	38	3	dolls	24	6	pink	22	4
nice	32	5	donkey	24	3	played	28	3
nuts	39	7	drum	24	5	playing	27	7
oak	30	6	dwarf	21	2	plays	25	7
often	31	5	ears	28	5	pussy	27	4
open	37	6						

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
ready	25	5	beside	17	5	dry	13	2
river	20	6	bit	10	5	ducks	19	5
robin	27	5	black-smith	10	1	ear	14	5
room	28	7	blocks	14	3	east	16	3
roots	20	5	blossoms	13	4	entan	10	2
Roy	29	1	blue-bird	17	3	eating	11	5
running	22	7	board	13	3	eats	13	7
runs	27	7	body	11	4	Edith	10	1
sail	20	6	both	12	4	egg	12	4
sang	22	5	boughs	13	3	else	13	3
seven	23	4	bow	12	6	engine	13	3
sharp	26	4	bowl	15	2	even	13	3
shining	24	3	breakfast	12	5	evening	13	4
ship	21	3	breeses	11	4	Ether	14	1
short	20	3	broom	10	1	eye	19	5
silver	22	4	brother	19	4	fairly	10	2
singer	27	1	brought	18	6	falling	12	4
sings	29	5	build	14	4	farm	18	6
sister	28	2	burn	12	3	farmers	16	2
six	28	7	buay	18	5	fear	19	4
sly	20	3	calf	10	2	fed	11	5
small	20	2	candy	14	4	fellow	10	3
soft	29	6	caps	10	4	Fido	14	1
south	20	5	captain	14	4	filled	10	3
spin	25	5	car	13	2	fin	11	2
squirrel	21	2	careful	10	2	flies	14	5
squirrels	25	4	carried	12	4	floor	13	4
stand	27	6	cars	11	3	flour	13	4
stores	25	2	caterpillar	14	3	flow	13	4
story	25	6	caught	15	7	foot	10	3
swim	20	3	cents	11	2	fond	11	3
table	25	4	chair	19	4	forest	13	3
tail	21	5	child	13	5	Fred's	12	4
takes	22	7	city	10	4	fresh	13	7
talk	26	6	clang	17	2	friend	13	4
Tatty	20	1	claws	12	3	frost	14	2
Ted	28	2	clear	13	4	fur	10	3
thank	24	7	clouds	13	4	gather	17	5
throw	20	4	cluck	16	2	geese	19	2
through	22	5	coal	18	2	gets	14	6
tired	27	5	coats	10	5	gold	14	5
tramp	20	2	cock	19	3	golden	14	3
wait	26	7	colt	19	2	goose	14	3
wake	26	7	cookies	10	1	got	13	4
wall	21	7	corner	13	4	grain	14	4
wee	24	5	cotton	18	2	grand-mothers	15	1
weat	23	5	couldn't	16	2	grand-pa's	11	3
wet	27	4	count	14	3	growing	13	5
wood	29	7	crab	12	1	grown	10	3
woodman	21	2	cream	10	4	grows	13	4
			creeps	10	3	guess	13	4
	10 - 20		cries	15	3	Gyp	15	1
air	19	5	cuddle	16	2	hair	13	6
almost	18	6	cup	14	5	half	11	2
anything	12	3	cut	10	4	half-chick	10	1
arm	13	4	daisies	10	3	Harry	19	4
arms	11	4	dance	11	3	hate	13	2
arrows	11	2	dandelion	16	3	having	11	5
asked	16	5	dark	18	7	hears	10	4
autuma	13	3	dash	10	1	herself	10	3
awake	13	4	deep	17	6	holds	16	5
baby's	10	6	den	12	2	hole	10	5
bark	19	6	diamond	12	4	hood	14	1
barked	14	4	dinner	11	4	Hood	15	1
bats	16	1	doctor	10	2	hop	13	5
beat's	15	1	doing	12	5	hoppity-akip	10	1
beauty	12	1	dolly	17	2	hot	12	4
begins	10	4	done	16	7	hour	13	3
behind	10	4	drake	11	1	houses	10	5
bench	12	2	draw	14	4	Indian	15	2
berries	13	2	dream	14	4	ink	11	2
						iron	10	2

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
Jenny	10	1	penny	11	3	spider	16	4
Jill	16	3	peep	14	6	spill	14	4
jump	16	3	pictures	18	4	span	10	3
jumped	12	5	pies	10	2	stands	18	6
kept	16	5	plants	10	3	star	16	6
kill	15	4	plum	15	4	stars	15	4
killed	12	2	plums	12	4	stem	15	3
king	15	2	pocket	13	3	stick	17	4
knife	10	2	pole	10	2	sticks	11	3
lamb	12	3	poles	11	1	stile	10	1
lambs	10	5	porridge	15	2	stone	16	4
land	13	5	pot	17	3	stool	16	4
last	15	5	pull	11	4	stopped	12	4
laugh	12	3	puts	13	5	stories	15	5
learn	11	2	queer	14	1	street	10	6
leave	10	6	rabbits	19	4	string	19	4
Lee	13	1	race	11	3	stripes	19	2
Leon	18	1	reach	10	3	strong	15	3
letter	12	3	rice	10	2	sugar	15	3
Chicken	17	1	Riding	17	1	summers	10	3
life	14	3	rill	16	3	sunshine	12	4
listen	16	4	ripe	18	5	suppose	12	1
load	10	4	road	11	3	sure	13	3
loads	10	3	robins	10	4	tea	11	3
loaf	10	3	rock	16	4	teach	16	4
lock	18	2	rock-a-bye	15	3	teeth	15	4
London	10	2	rocks	15	5	tells	19	6
longer	12	6	roll	10	2	that's	12	2
loose	11	1	rolled	10	2	thin	10	4
lost	18	5	rope	16	3	thing	13	6
loud	15	5	Rose	11	1	thinks	19	5
loves	10	4	row	11	4	those	11	4
low	13	4	rub-a-dub-dub	10	2	thought	13	6
luck	14	1	Ruth	15	3	sick	19	3
Lucy	12	1	safe	10	4	till	16	4
making	16	7	safely	12	3	times	19	6
malt	10	1	sailing	11	3	tiny	15	3
March	13	2	sailor	12	2	tip-top	10	1
market	11	2	sails	18	5	titty	15	1
mat	18	2	Santa	11	2	tock	10	3
May	17	1	Santa Claus	10	1	together	11	5
men	19	4	Saturday	12	3	tonight	10	2
merry	12	5	saying	11	3	touch	12	4
mew	11	3	season	10	2	traveler	10	1
nice	19	3	seat	17	2	tried	16	2
middle-sized	15	1	second	14	5	turn	13	4
mind	19	5	seed	18	4	turned	12	3
moon	14	4	seem	16	5	turtle	13	1
mothers	16	4	sees	19	6	uncle	12	2
mud	18	4	seemed	12	4	used	12	3
myself	16	4	seems	19	6	visit	19	5
names	11	4	sells	10	3	wagon	16	3
naughty	17	2	send	11	5	waiting	10	3
nearly	11	3	sent	15	4	web	14	2
neat	14	3	set	16	3	whooping	11	1
neck	11	3	shine	16	7	wicked	11	1
need	10	4	shines	14	5	willows	10	3
next	17	4	shoes	17	5	win	11	1
nibble	11	2	shoot	14	3	windows	10	5
none	10	4	sight	13	4	winds	15	6
nose	15	4	sir	10	2	Winnie	10	1
nothing	13	6	sitting	12	4	wise	10	3
ones	16	5	skate	11	3	wished	11	3
opened	11	6	skins	15	2	wolf	18	2
ought	12	3	sled	14	3	woman	11	3
own	19	4	sleeping	11	4	women	18	2
owl	11	2	sold	11	3	wonder	11	3
ox	14	1	soldier	12	2	wool	11	1
paint	12	2	soldiers	14	3	wow	12	2
Paul	12	1	song	18	7	wore	10	4
peas	11	2	sow	14	2	world	11	4
paper	14	3	speak	15	2	wouldn't	10	4

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
yard	15	4	cattle	5	2	felt	8	2
year	16	4	Charley	8	1	fence	9	2
years	15	4	chestnut	7	2	ferry	5	1
			chestnuts	5	1	fields	9	2
	5-9		chief	5	1	fireman	5	2
above	5	4	chin	5	2	firemen	5	2
ac	5	1	choose	9	2	fisher	5	1
ah	6	2	churn	5	1	flat	7	2
ails	7	2	Clark	5	1	Floesie	9	2
Allen's	5	1	Claus	6	1	forget	2	2
alone	9	5	clean	8	2	forlorn	5	1
among	8	3	climb	9	2	form	5	2
animals	9	3	climbs	7	2	forty	5	1
Anna	8	1	cloak	8	1	fort	5	2
answer	6	2	clocks	5	2	frog	1	1
ant	7	2	cloud	9	2	frollo	5	2
April	5	2	clover	9	4	front	5	2
apron	7	1	clovers	9	1	fruits	5	2
a-riddle	6	1	clucker	7	1	gay	5	2
attic	5	1	coat	6	2	gentle	5	2
awoke	9	2	cock-a-doodle-do	7	2	gentleman	5	2
ax	7	2	colors	7	2	gills	5	2
babies	5	3	coop	5	1	given	5	2
bad	8	2	course	5	1	golden-rod	5	2
bag	5	1	cover	5	2	good-bye	7	2
bake	9	2	covered	6	2	goodnight	5	2
baker	8	2	crack	5	2	grains	5	2
baker's	7	2	creek	5	1	grapes	5	1
band	5	2	creeping	6	1	grind	7	1
bare	5	2	crept	5	4	gun	7	1
barrel	5	2	crowd	8	2	hail	6	2
beach	6	2	crumpled	6	1	hammer	7	2
beans	6	1	curds	7	2	handle	7	1
became	6	2	daisy's	5	4	handsome	9	2
beef	5	2	dare	5	2	Hal	5	1
begin	8	4	Dan's	8	2	hark	7	2
bells	8	2	dates	5	1	harm	9	4
bellows	6	1	doesn't	7	2	Harold	5	1
Ben	8	1	Don	8	1	Harry's	8	2
bill	5	2	Dotty	5	1	harvest	5	1
birdies	9	2	dove	6	2	hasn't	6	2
black-board	7	2	dressed	9	4	hatch	5	1
blades	6	2	drill	5	1	hats	5	2
block	8	3	drinks	5	2	haven't	5	2
blossom	8	3	drives	8	4	hawk	8	2
Bo-peep	7	1	drop	7	5	hay-cock	7	1
bowls	7	2	dropped	6	2	heads	6	4
branch	5	3	drops	8	6	heart	6	4
branches	7	3	drose	5	2	heat	9	5
brave	9	2	drowned	5	4	heavy	7	4
brayed	5	1	drowzes	8	1	heaven	7	4
breaks	8	4	Duke	7	1	held	7	2
breast	8	2	dust	6	2	helping	5	2
breath	6	1	earth	7	2	helps	7	4
brightly	6	2	Edna	7	1	hens	7	2
broke	7	2	elm	6	2	hid	5	2
brooks	8	4	end	7	4	hills	6	4
buds	7	2	enough	7	2	himself	8	4
bugs	5	2	everywhere	6	4	hind	7	1
building	6	2	everything	8	4	hive	7	2
Bunting	6	1	faces	7	2	homes	7	5
burra	5	1	fair	7	2	hoo	5	1
bush	8	2	fairies	7	2	hope	7	1
bushes	5	2	fallen	5	2	hope	8	2
bushy	7	2	falls	8	6	horns	7	2
cape	6	2	Fan	9	1	Horner	7	1
calves	6	1	Fannie's	5	1	huge	9	1
candles	5	2	Fanny	5	1	hum	6	2
carriage	5	2	farmer	9	1	humming	6	2
Carl	6	1	farmer's	5	2	hung	9	2
carpenter	6	1	fasten	5	2	hunting	5	2
catches	6	2	feeler	5	2	hurrah	8	2

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
hurry	5	2	napkins	7	1	Robert	8	1
I'd	9	2	needle	7	2	rolls	9	4
indeed	8	4	Nick	7	1	roof	8	2
Indians	8	2	nights	5	2	rooms	7	2
insects	8	2	noise	9	1	rooster	6	1
it's	8	2	nowhere	5	1	rows	6	2
Jack-on-a-stick	6	1	oats	5	2	sad	8	2
Jack's	5	2	o'clock	9	2	Sadie	9	1
Jane	6	2	October	5	1	Sally	9	1
Jean	7	1	o'er	5	4	Sam	7	2
joy	5	2	older	5	2	sap	7	1
July	5	2	orange	7	2	saved	7	2
jumps	5	2	oranges	7	1	scales	7	1
June	5	2	orchard	6	2	scoold	5	2
Kate's	5	2	others	6	4	scratch	5	4
kid	5	1	Otto	7	1	seek	6	4
kindness	6	4	oven	8	2	selfish	5	2
kinda	7	2	overhead	5	2	seller	7	2
kings	5	1	owner	5	1	sets	5	2
kiss	8	2	pails	9	2	sew	5	1
kissed	6	2	paints	5	1	shade	5	2
kitchen	8	2	pasture	5	1	shake	9	2
lad	8	2	paws	7	2	shan't	9	1
laid	5	2	pay	9	1	shaven	9	1
lap	7	2	peach	9	2	shell	9	2
lark	7	1	peaches	6	2	she's	5	2
late	9	2	pear	6	2	shoe	8	2
learned	5	2	pears	7	2	shone	7	4
led	7	2	pans	6	2	shook	9	2
less	5	2	papoose	5	1	shop	6	2
letters	6	4	pens	6	2	showed	7	2
lets	7	5	peeped	7	2	shower	5	2
let's	7	1	picked	8	4	shut	6	2
lie	6	2	picnic	5	2	silk	6	2
lift	5	2	piece	6	2	skates	6	2
lifted	5	2	pigs	7	1	slate	6	2
lights	8	4	piggy	8	1	slates	5	2
lilies	6	2	pit-a-pat	8	1	slods	6	2
limbs	6	2	plain	8	1	sleigh	7	1
limp	6	1	plate	6	4	sleepy	7	4
lips	7	2	plates	8	2	slowly	7	2
locket	5	1	playmate	6	4	smells	8	2
locks	8	2	playmates	5	2	smiled	5	1
log	7	2	pleasant	8	4	smiles	2	4
lonely	7	2	pleased	5	2	smiling	7	2
longed	5	2	pool	5	1	smooth	6	2
lose	8	4	pond	6	2	softly	6	2
louder	5	2	pony	6	2	somebody	5	1
Louis	8	1	pop-corn	5	2	sometime	9	1
lurkey	6	1	pours	7	2	songs	8	2
mag-ple	7	1	porch	6	1	sorry	9	2
maiden	6	2	presents	7	2	sound	6	4
maple	7	2	proud	6	2	speckle	7	1
maples	8	2	pruned	6	2	sped	5	1
march	5	1	pudding	6	2	spins	5	2
mate	5	2	puff	7	2	spot	5	2
mates	8	2	pulled	5	2	Spot	8	1
matter	8	2	puppies	6	1	squeak	9	1
means	9	2	push	6	2	stairs	6	1
meat	7	2	quickly	5	1	star-fish	7	1
meet	7	5	quick	7	2	stayed	5	4
mend	8	2	quiet	5	1	stems	5	2
milked	6	2	rains	6	4	step	8	4
Miller	8	1	reached	5	2	stir	5	2
minutes	8	2	resp	6	1	stocking	8	2
mother's	8	2	red-breast	7	2	stockings	5	2
mouth	7	2	reindeer	5	1	stolen	7	1
mouths	5	2	ribbon	6	2	stood	7	2
motor	6	1	Richie	5	1	store	9	2
muddy	6	2	rides	9	5	stout	6	2
Muff	7	1	roar	6	1	stove	8	1
nails	7	2	Rob	6	1	straight	9	2

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
stranger	9	8	wig	5	2	August	2	1
stream	5	2	wild	9	2	aunt	2	1
stronger	5	2	Willie	9	2	autumn	1	1
struck	7	2	wing	5	2	awhile	1	1
stuck	6	1	wishes	6	2	axes	2	1
sun-beam	7	1	worked	9	4	babe	2	1
sweeps	9	1	worried	5	1	backs	1	1
sweets	7	2	wrap	9	1	backward	1	1
swimming	5	2	wraps	5	1	badly	1	1
swinging	6	2	yesterday	5	1	bag-pipe	4	1
swings	9	2	yet	2	1	bags	1	1
taking	8	5	York	2	1	baked	2	2
talking	7	5	young	7	1	bakes	2	1
teacher	8	2	you're	7	2	baking	1	1
thanksgiving	5	1	yourself	7	2	balls	2	2
that's	6	2				Ball's	2	1
thee	9	2				bananas	2	2
themselves	6	2				bang	2	2
there's	8	2	1-4			bangs	1	2
thick	6	2	aboard	2	1	bank	4	2
thinking	6	2	able	1	1	banks	1	1
third	6	2	ache	1	1	bank	4	2
thistle	6	2	acorn	4	2	barn	1	1
thumb	5	2	acorns	4	2	barnyard	1	1
threw	6	2	active	2	1	barrels	1	1
throne	5	1	acts	1	1	basin	1	1
ticket	9	1	ado	1	1	bashful	1	1
tick-tock	8	2	added	2	1	baskets	2	1
tight	6	2	admiral	1	1	bat	4	1
tin	6	2	against	2	2	bathing	1	1
tip	6	2	ago	4	2	bay	1	1
toes	6	2	ahead	1	1	bays	2	1
tomorrow	7	2	ahoy	2	1	beads	1	1
tools	5	1	all	4	1	beak	1	1
toot	9	1	alarm	4	2	beaks	1	1
tops	9	1	Alice's	4	2	beam	2	1
torn	5	2	already	1	1	bean-stalk	2	1
tossed	6	1	also	1	1	bears	1	1
tracks	5	2	amethyst	1	1	beard	1	1
trap	6	2	anchored	2	1	beast	1	1
tree-top	7	2	anew	1	1	beaten	2	1
trot	9	2	angels	1	1	beats	1	1
true	8	2	animal	1	1	beating	2	1
trunks	5	2	Annie	2	2	beasts	1	1
trying	8	2	Annie's	1	1	beautifully	1	1
tuffet	7	2	answered	4	2	become	2	1
turkey	6	1	answering	1	1	becomes	2	1
turnips	7	1	answers	1	1	beds	2	2
turns	6	3	ants	1	1	bedside	1	1
tweet	6	1	anvil	4	1	bedtime	1	1
twinkle	7	2	anyhow	1	1	beefsteak	2	1
use	7	2	anyway	1	1	beetle	1	1
valentine	6	1	anywhere	2	2	beets	4	1
valentines	5	1	ape	1	1	bedroom	1	1
violets	8	2	apes	1	1	beg	2	1
voice	7	2	appear	2	2	bezzar	1	1
walked	7	1	applesauce	1	1	beginning	1	1
walking	8	5	apple-tree	2	1	begone	1	1
war	8	2	aren't	1	1	begun	1	1
Washington's	6	1	a-riddle-ma-re	2	1	behave	1	1
wasn't	7	2	ark	2	1	behave'd	1	1
watched	7	2	arrow	2	1	believe	4	1
wave	8	4	a-rub-a-dum-dum	1	1	believed	1	1
waves	6	2	a-sailing	2	1	below	2	2
weather	6	2	ashamed	1	1	below	2	2
weep	7	1	ashore	4	2	bend	4	2
we'll	8	2	aside	1	1	bends	2	1
why	7	2	asks	2	2	Benny	4	1
whistle	5	2	assist	1	1	bending	1	1
whiteface	5	1	aster	2	1	bent	2	1
whole	8	5	asters	2	2	bent	2	2
wide	6	4	attend	4	1	besides	2	2
			attended	1	1	Beas	1	1
						Bessie's	1	1

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
between	3	2	bubbles	2	1	chance	2	1
bicycle	1	1	bubbled	2	2	change	4	2
bigger	1	1	bubbling	1	1	chase	2	1
bin	3	1	buckies	1	1	chases	1	1
biscuit	2	1	buckwheat	1	1	chased	1	1
bites	2	2	bud	2	2	chat	4	1
biting	2	1	buffalo	2	1	chatter	1	1
bitter	1	1	bug	2	1	chattering	1	1
black-birds	2	1	buggy	1	1	chats	1	1
black-smith's	1	1	builds	3	1	chest	3	2
blank	1	1	bumped	1	1	cheeks	3	2
blankets	2	1	bump	1	1	cheerful	1	1
blast	3	2	bunch	1	1	cherries	4	2
blaze	2	2	bunny	1	1	cherry	1	1
blazing	2	1	buns	3	2	cheer	2	1
bleat	2	1	Bunting's	1	1	children's	3	1
bleated	1	1	bureau	1	1	chill	3	2
bleates	2	1	buried	3	2	chills	1	1
bleeding	1	1	burned	4	1	chimney	1	1
blink	1	1	burning	3	1	chimneys	3	2
blinked	1	1	burst	1	1	chin	1	1
blinks	1	1	busily	1	1	chins	1	1
bloom	1	1	business	4	1	chip	1	1
bloomed	1	1	buttercups	3	2	chocolates	1	1
blossoming	1	1	butterflies	3	2	choke	1	1
blowing	4	3	buttered	1	1	chooses	2	1
blown	2	2	buttermilk	1	1	chopped	1	1
blue-birds	2	1	butts	1	1	Christmastide	1	1
Bluebirds	2	1	button	2	1	chuck	4	1
boar	1	1	buzzing	2	2	chuckled	1	1
boards	1	1	buzz-a-s	1	1	circles	3	1
boasted	1	1	cabin	1	1	citron	1	1
boatman	4	1	cake	4	2	clam	1	1
boats	4	3	caller	2	2	clams	4	1
Bobby	4	1	calling	3	2	clammered	1	1
bob-o-link	4	1	camp	4	2	clap	1	1
boobs	1	1	camping	2	1	clapped	1	1
boil	2	1	cane	2	1	claps	1	1
boiled	2	1	cans	1	1	Clark's	1	1
boiling	4	1	canvas	1	1	clay	3	1
bold	4	1	cannon	3	1	cleaned	1	1
bolt	1	1	cape	2	1	cleared	1	1
bolt	1	1	capes	1	1	clears	1	1
bone	3	1	capless	1	1	click	3	1
boo	1	1	capers	1	1	clicked	1	1
bore	1	1	capering	1	1	climats	1	1
born	1	1	caravan	1	1	climbing	1	1
bother	1	1	caraway	1	1	cling	2	1
bottom	3	2	capture	1	1	clinging	1	1
bought	3	1	captured	1	1	clings	1	1
bounding	2	2	carefully	1	1	cloaks	2	1
bow'ra	1	1	cares	2	2	closer	1	1
bows	2	2	Carlo	1	1	closest	1	1
bow-wow-wow	1	1	carries	4	3	closed	3	2
bran	3	1	camel	4	2	cloth	2	1
brand	1	1	camels	1	1	clothes	4	3
bray	2	1	case	3	1	clothing	2	1
braying	1	1	castle	1	1	closing	2	1
break	4	4	cat-bird	1	1	cloudless	1	1
breathed	1	1	cat-pillars	4	2	clucked	1	1
bride	1	1	cat-tails	1	1	clump	2	1
bright-eyed	2	1	caw	1	1	clumpity	1	1
brink	2	1	caws	3	1	clumsy	2	1
bringing	1	1	cease	1	1	coachman	1	1
broad	1	1	ceased	1	1	cobblers	1	1
broadcast	1	1	Cecil	2	1	ococon	1	1
broken	2	2	cent	1	1	coffee	1	1
broth	3	1	chain	1	1	colder	2	1
brothers	2	1	chains	1	1	colts	2	1
brow	1	1	chained	4	1	commence	1	1
brunette	1	1	chairs	4	2	comic	1	1
brush	2	1	chamber	1	1	common	1	1
brushed	1	1						

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
company	4	1	dandelion's	2	1	dreamed	2	1
cone	3	1	danger	2	1	dreamland	1	1
cones	1	1	darkness	1	1	dreams	1	1
cooked	1	1	darting	2	1	drearer	1	1
cooky	3	1	dashed	2	1	dreary	3	2
cool	4	2	date	3	1	drenched	1	1
cooling	2	2	daughter	2	1	dresses	1	1
cooper's	1	1	dawn	2	1	drew	3	2
cord	1	1	day's	2	2	dried	1	1
cords	2	1	daytime	1	1	drifting	4	1
core	1	1	deafness	1	1	drifts	1	1
corners	2	1	deal	4	2	drills	2	1
corn-popper	1	1	dearly	1	1	drinking	1	1
cost	1	1	death	1	1	dripping	1	1
cottage	2	1	December	3	1	driven	3	1
cottongin	1	1	decided	1	1	driving	1	1
couple	1	1	deeds	3	2	driveway	2	1
cousin	4	1	deeper	2	1	dropping	3	1
counting	1	1	deer	3	1	droop	1	1
countries	1	1	delight	1	1	drooped	1	1
country's	3	1	della	2	1	droopeth	3	1
country-side	2	2	desert	1	1	drooping	2	1
courage	1	1	depths	1	1	drown	2	1
covering	1	1	desk	4	1	drummer	2	1
cozy	1	1	dew	3	3	drums	3	2
cracked	1	1	dews	1	1	dug	3	1
crackled	1	1	Dick	2	1	Dukes	1	1
cramp	1	1	dickory	3	1	dull	4	2
crane	2	1	die	3	2	dumb	4	1
crane's	1	1	digging	1	1	during	1	1
crash	1	1	digs	3	1	dustpan	3	1
crate	1	1	died	1	1	dustpan	2	2
crates	2	1	dimple	3	1	dusty	2	2
crawl	3	2	dimpled	1	1	Dunstan	1	1
crawled	2	1	dining	3	1	Dutch	1	1
crawling	1	1	dine	1	1	dwell	3	2
creak	3	2	ding-dong	2	1	dying	1	1
creaked	3	1	din	1	1	eager	1	1
creaks	4	1	dip	1	1	eagerly	1	1
crimson	3	1	dirty	1	1	earned	4	1
cripple	2	1	disappear	1	1	earnestly	1	1
crisp	2	1	dish	1	1	ease	2	1
croak	1	1	dishes	1	1	easily	3	2
croaks	3	2	displayed	1	1	Easter	2	1
croak	2	1	distance	1	1	easy	3	2
crossed	1	1	dive	2	1	eastern	1	1
crossing	1	1	dived	1	1	esters	1	1
crow	2	2	divide	1	1	echoed	1	1
crowed	1	1	dizzy	1	1	Eden	2	2
crowded	1	1	dock	3	1	edge	1	1
crowded	2	1	dog's	4	1	either	1	1
crowns	2	1	dollars	3	1	eighteen	1	1
crumbs	4	1	dollie	1	1	eighty	1	1
Crusoe	1	1	doll's	4	2	elephant	1	1
crushed	1	1	dolly's	2	2	elephants	1	1
crutch	3	1	donkey's	1	1	elbows	1	1
cuff	1	1	doors	4	3	Elsie's	3	1
cuffed	1	1	doorway	2	1	emblem	1	1
cunning	2	1	doth	2	1	Ellen	4	1
cups	3	2	doubt	3	2	Emma	3	1
currant	1	1	dough	1	1	ended	2	2
current	1	1	downstairs	1	1	engage	1	1
curled	1	1	downy	2	1	engines	2	1
curtains	2	1	Dr.	4	1	engineer	4	1
curtly	1	1	drag	1	1	ends	1	1
daffodils	1	1	dragged	1	1	enjoy	2	1
dainty	3	2	dragging	1	1	Eva	3	1
dame	2	1	drank	4	3	evenings	2	2
damp	1	1	drawing	1	1	ever-green	2	2
danced	3	1	draws	3	1	everyone	1	1
dancing	2	2	dreadful	1	1	everybody	2	2
dandelions	3	3	dreadfully	1	1	evil	1	1

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
Eakime	4	1	flown	1	1	giant	1	1
Eakimos	4	1	fluffy	1	1	giants	1	1
expected	1	1	flutter	8	2	giant's	2	1
eyes	2	2	fodder	8	1	giddy	1	1
eyeball	1	1	fold	4	2	gifts	1	1
fabulous	1	1	folding	1	1	giggled	1	1
fail	2	1	follow	1	1	gill	2	2
faint	2	1	followed	8	2	gilded	1	1
fairest	4	1	following	1	1	gin	1	1
families	1	1	follows	8	2	giraffe	8	1
family	1	1	folks	2	1	girl's	1	1
fans	1	1	foolish	4	1	gloss	1	1
fare	2	1	foot-stool	3	1	glistening	1	1
farthest	1	1	fonder	1	1	glorious	1	1
fashion	1	1	forehead	1	1	glory	1	1
fastens	1	1	forests	1	1	glow	1	1
fastest	1	1	forget	1	1	gnawed	2	1
fathers	1	1	forgets	1	1	gobble	1	1
fatter	1	1	forks	4	2	God	3	2
fault	2	1	forms	1	1	song	2	1
fearless	1	1	forts	1	1	good-by	4	4
feat	8	1	fought	1	1	good-looking	1	1
feared	8	1	four	3	1	gooseberry	2	1
feather	8	2	forward	3	2	gorgeous	1	1
February	1	1	fowl	1	1	gowa	8	1
feeding	8	1	fowls	2	1	gnats	8	1
feeds	8	2	fox's	3	1	grand-ma's	2	2
feelings	1	1	foxes	2	1	grand-father	2	1
ferry-boat	1	1	fragrant	2	1	grasses	2	1
fetch	1	1	frail	2	1	grassy	1	1
fetched	1	1	Frank's	4	1	grate	2	1
fever	2	1	frame	1	1	grateful	1	1
fierce	2	1	Freddie	2	1	gravy	1	1
file	1	1	Freddie's	1	1	greatest	2	2
fifth	1	1	free	1	1	green's	8	1
filling	1	1	freedom	1	1	greenhouse	1	1
fills	2	1	freeze	4	1	griddle	1	1
finds	2	2	French	1	1	groceries	1	1
finger	2	1	freshness	1	1	grinds	4	1
fingers	8	1	Friday	2	1	growl	8	1
finished	4	1	friendly	8	2	growled	8	1
fins	2	1	frighten	8	2	grunt	1	1
finding	1	1	fright	1	1	grudged	1	1
finer	1	1	frightened	3	2	guide	2	1
fires	2	2	frill	1	1	guns	2	1
firefy	1	1	frills	8	1	hairs	8	1
fireside	1	1	frisked	1	1	hall	8	1
fished	1	1	frisky	2	1	ham	8	1
fishes	1	1	fritters	1	1	hams	2	1
fisherman	2	2	fro	8	2	hammers	2	1
fishing	2	2	frosting	1	1	handful	1	1
fit	2	1	froth	1	1	handed	2	1
fits	1	1	frowned	1	1	handled	1	1
flaps	2	2	frowns	1	1	hang	2	1
flakes	2	1	frozen	8	2	hanging	8	2
flap	1	1	furry	1	1	hangs	8	1
flash	1	1	gabbling	1	1	hall	1	1
flats	1	1	gaily	1	1	halls	1	1
fleece	1	1	gales	2	1	Hal's	1	1
flesh	1	1	game	1	1	happen	1	1
flip-flap	2	1	games	8	2	happened	4	1
flit	1	1	gate	4	2	happily	1	1
flits	1	1	gates	1	1	harder	2	1
floating	1	1	gathered	1	1	hardly	8	2
flock	1	1	gathers	1	1	harness	8	1
floated	1	1	gathering	1	1	hash	1	1
flog	8	1	gaudy	1	1	hath	1	1
floss	2	1	general	2	1	hatched	2	1
flower-bud	1	1	generous	1	1	haul	1	1
flowers	1	1	gently	4	8	hay-field	1	1
flowing	4	2	George's	2	1			
flows	1	1	getting	8	1			

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
heals	1	1	invite	1	1	lamp	4	2
healthy	1	1	Irish	1	1	lamps	1	1
heaps	1	1	island	1	1	landlord	1	1
hearing	1	1	itself	2	2	lands	4	2
hearts	2	2	I've	4	2	lane	2	1
heals	2	1	Jack-daw	1	1	lantern	1	1
Helen's	1	1	Ja	4	1	lanterns	1	1
heigh	2	1	jam	2	1	language	1	1
hello	4	1	James	1	1	lapped	1	1
he'll	1	1	Jamie's	2	1	larger	1	1
helper	1	1	January	1	1	latch	2	1
helpers	1	1	jar	2	1	later	2	1
Henry	1	1	jarred	1	1	laughing	1	1
heroes	1	1	jars	4	1	lary	2	1
her's	2	1	Jay	1	1	leader	1	1
he's	1	1	Jean's	1	1	loading	1	1
hey	4	1	Jelly	2	1	Lee's	1	1
hiding	2	1	Jennie	1	1	leafy	1	1
higher	2	2	Jenny's	1	1	leafless	1	1
highest	2	2	Jessie	4	1	leak	2	1
hillside	2	2	Jessie's	1	1	leaking	1	1
hillsides	2	1	Jig	1	1	leaked	1	1
hire	2	2	Jimmie	4	1	lean	2	1
hit	2	1	Jimmy	1	1	leap	1	1
hives	2	1	Jippy	1	1	leaps	2	1
holding	2	2	Joe	2	1	learning	2	2
holdeth	1	1	John	1	1	learns	1	1
hollow	1	1	Jokes	1	1	lease	2	1
homely	2	1	Jolly	2	2	leased	1	1
homelike	2	1	Joke	2	1	leaving	2	2
homemade	1	1	Jog	1	1	leaped	1	1
honey-bee	1	1	Joice	4	1	leg	4	2
honey-bees	2	1	Joice	1	1	leg's	2	2
hong	4	1	Jumping	1	1	lend	2	2
honk	4	1	Jewels	1	1	length	4	2
Hood's	4	1	Jewelry	1	1	lesson	1	1
hook	2	1	Jewish	1	1	lessons	1	1
hoop	2	1	kangaroos	4	1	liberty	2	1
hoops	2	2	Katy	1	2	lick	1	2
hopping	2	2	keeping	2	2	licked	2	2
Horner's	2	1	kennel	1	1	licking	1	1
horrid	1	1	kernel	2	1	lid	1	1
horse-car	1	1	kettle	2	1	lifts	1	1
horse-shoe	1	1	key	2	1	lightened	1	1
hospital	1	1	ki-l	2	1	lighthouse	1	1
hotter	2	1	kicked	1	1	limping	1	1
hours	4	1	kilt	2	1	line	4	2
house-keeper	1	1	kindly	1	1	Lina's	1	1
howl	1	1	kills	2	1	lingered	1	1
howled	1	1	killing	1	1	lions	1	1
however	2	1	kiases	1	1	lion's	2	1
hoy	1	1	kites	1	1	lip	1	1
Hubbard	1	1	kitten's	2	1	lisps	1	1
humble	1	1	Knapp	2	1	listened	1	1
hum-m	4	1	knee	4	2	listening	1	1
humming-bird	2	1	knits	2	1	list	2	1
hunter	1	1	knitting	2	1	listing	1	1
hunts	1	1	knives	4	1	litter	1	1
hunt-the-alipper	1	1	knelt	1	1	litters	1	1
hush	2	1	knock	1	1	lit	1	1
hut	1	1	knocked	1	1	living	1	1
hymns	1	1	knocking	1	1	lively	2	1
Ickory	1	1	knowledge	1	1	liveliest	1	1
improved	1	1	known	1	1	loaded	2	1
immense	1	1	labor	1	1	loaves	1	1
indigo	2	1	ladder	2	1	lobster	4	1
indoors	1	1	lady	1	1	logs	2	2
insect	2	1	lady-bug	1	1	loosened	1	1
inside	4	2	lady's	1	1	lot	4	2
intend	1	1	lain	2	1	loved	2	2
instead	1	1	lambakin	4	1	lovely	2	2
			lame	2	1	loving	1	1

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
lovely	8	1	mocks	2	1	Nichols	1	1
lower	2	2	mocking	1	1	nicer	1	1
lox	4	1	modest	1	1	nicest	1	1
lullabies	1	1	mold	3	1	night-cap	8	1
lullaby	2	1	Molly	8	1	ninety	1	1
lumber	3	1	Molly's	1	1	night-gown	1	1
lunch	4	2	moment	1	1	ninth	1	1
lungs	3	1	money	1	1	nips	2	1
lying	3	1	moo	2	1	nobody	1	1
Mabel	3	1	month	1	1	nod	2	1
Mack	4	1	months	2	1	nodded	3	2
Mack's	2	1	monster	1	1	nodding	2	1
main	2	1	moonlight	2	2	nods	1	1
managed	1	1	Moore	3	1	nook	1	1
man's	2	1	Moore's	2	1	ner	1	1
mamma's	3	2	mop	2	1	noes	3	1
manners	1	1	morn	3	2	noes's	2	1
marble	1	1	morning-glories	2	1	note	1	1
marbles	4	2	mornings	3	2	notion	1	1
marched	1	1	moas	3	2	November	4	1
marching	1	1	mosquito	2	1	numb	1	1
Mark's	3	1	mosquitos	3	1	numbness	1	1
marrow	1	1	mosses	1	1	nursery	1	1
married	3	1	mound	1	1	nut	3	3
Mary's	1	1	mourned	2	2	nutting	1	1
mask	4	1	mouse	1	1	oaks	2	2
mat	1	1	mountain	1	1	oatmeal	1	1
mats	4	2	move	4	1	obey	4	2
Mayflower	1	1	moved	1	1	object	1	1
May's	2	2	mowing	2	1	ocean	1	1
meal	4	1	mows	3	1	odd	3	1
meals	2	2	muffin	1	1	oddy	2	1
meaning	1	1	munching	1	1	offer	2	1
meant	4	2	music	2	1	oft	2	2
mechanic	3	1	musk	1	1	oho	2	1
medal	3	1	mustn't	1	1	omit	1	1
meeting	1	1	muscles	1	1	omelet	1	1
meets	2	2	mutton	2	1	oo-oo	3	1
melt	3	1	nail	2	2	Oh	1	1
melted	3	2	nailed	3	1	o-oh	1	1
melting	2	1	named	3	2	opens	4	2
mending	2	1	namesake	2	1	orchards	3	1
mends	1	1	Nanny	1	1	ore	1	1
merrily	1	1	Nan's	2	1	organ	3	1
merry-go-round	4	1	nap	3	1	orphans	2	1
mewing	1	1	napkin	2	1	ostrich	1	1
middle	4	2	narrow	4	1	ounce	1	1
mighty	2	2	Nat's	1	1	outer	1	1
mile	3	1	native	2	2	out-of-doors	1	1
miles	4	2	nearer	1	1	outdoors	1	1
mild	2	2	nearest	1	1	overboard	1	1
milk-can	1	1	neatest	1	1	owls	4	1
milk-man	1	1	neatly	3	1	owned	1	1
milks	2	1	necks	2	1	owners	1	1
milkweed	1	1	Ned's	1	1	owning	1	1
milkpail	1	1	needed	1	1	owns	1	1
Milton	2	1	needlecase	1	1	overflowed	1	1
miner	3	1	needs	3	2	pace	2	1
miners	2	1	negro	1	1	pack	2	2
mischief	3	1	negress	1	1	package	1	1
mischievous	1	1	neither	1	1	pad	1	1
missed	2	2	Nell's	1	1	page	3	1
misses	1	1	Nelly	1	1	pages	1	1
mis-givings	1	1	Nero	4	1	pain	4	2
mistaken	1	1	nestle	1	1	painted	2	2
Mister	1	1	net	3	1	painter	1	1
mistress	2	1	new-mown	1	1	palace	3	2
mirrors	2	1	news	2	2	pale	2	1
mite	2	1	nibbles	1	1	pair	2	1
Minnie	3	1	nibbling	2	1	pairs	1	1
mittens	3	2	Nick's	1	1	parrot	1	1
moans	2	1	nickle	1	1	pass	2	2

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
passed	2	1	plucked	1	1	railing	1	1
passes	2	1	poke	1	1	rail	3	1
passing	1	1	poker	2	1	rainbow	4	2
past	1	1	pokers	1	1	raindrop	2	1
pat-a-cake	4	2	pockets	2	1	raindrops	4	2
patch	2	2	pod	2	1	rag	1	1
patted	2	2	pod	2	2	raining	2	2
pattering	1	1	polite	1	1	rainy	1	1
path	1	1	pollen	4	1	rains	1	1
Paul's	2	1	poll	1	1	raises	1	1
pauper	2	1	pondered	1	1	rake	4	2
paveless	1	1	ponies	1	1	raked	1	1
Payne	2	1	popped	2	2	rakes	1	1
Payne's	1	1	popper	1	1	rank	2	1
peace	2	2	pops	2	1	ranks	2	1
peaceful	2	1	poppies	1	1	rapped	1	1
pecked	2	1	poppy	2	1	raps	1	1
peel	2	1	pork	2	1	rare	1	1
pains	1	1	post	1	1	rather	2	1
papa's	4	2	post-master	2	1	rats	2	2
park	4	1	potter	2	1	raw	1	1
parlor	2	1	potatoes	1	1	Ray	1	1
part	2	1	pour	4	2	rays	2	2
parts	2	1	pound	2	2	reader	1	1
pan	4	1	pout	2	2	reading	1	1
peeping	2	1	pots	2	1	roads	4	2
peeps	1	1	powder	2	1	real	1	1
peevish	1	1	power	1	1	really	1	1
pelt	1	1	powerful	1	1	reaped	2	1
perhaps	2	2	praise	1	1	rear	2	1
petals	1	1	praised	2	1	reared	1	1
petted	1	1	prank	1	1	reason	1	1
Peter	4	1	pranks	1	1	reckon	1	1
pick-ax	1	1	Pratt	2	1	redden	1	1
pick-axes	1	1	pray	2	1	red-hot	1	1
picking	4	2	prayeth	1	1	reins	2	1
pickles	1	1	preach	2	1	relish	2	1
picks	1	1	present	2	1	remedy	1	1
pieces	1	1	preases	1	1	remained	1	1
pigeon	1	1	prettiest	1	1	removed	1	1
pile	2	2	price	2	2	rend	2	1
piled	2	1	prick	4	1	replied	2	2
pillow	2	1	pricked	1	1	resting	2	2
pills	2	1	pride	1	1	rested	2	2
piled-up	1	1	priest	2	1	rests	2	1
pilgrims	1	1	primmer	2	1	refresh	1	1
pimple	1	1	problem	1	1	rice-bird	1	1
pin	1	1	probling	1	1	rich	1	1
pine	4	2	provoked	1	1	riding	2	1
pink	2	1	puddles	1	1	Ridinghood	1	1
pinks	2	2	pulling	1	1	Ridinghood's	1	1
pins	2	2	pulls	2	2	riddle	2	1
pippins	4	1	pump	2	1	riddles	2	1
pitcher	1	1	pup	2	1	rilla	1	1
pity	1	1	puppy	2	1	rim	1	1
placed	2	2	puppy's	1	1	ringing	4	2
places	4	2	pure	1	1	rings	1	1
plainly	2	2	purr	1	1	ring-tag	1	1
plan	4	2	purse	2	1	rinsed	1	1
plane	2	1	pushed	4	2	ripen	1	1
planes	1	1	pushes	1	1	ripening	1	1
plant	4	1	putting	1	1	rise	2	1
planning	1	1	quack	4	1	rivers	1	1
plans	1	1	queen	1	1	river's	1	1
planted	2	2	quietly	4	1	roars	4	1
planting	1	1	quill	4	1	roared	1	1
playful	1	1	quite	2	1	roaring	1	1
play-place	2	1	racers	1	1	roadside	1	1
playthings	2	1	race	2	1	roast	2	2
pleasantest	2	2	racing	2	1	roasted	1	1
pleases	2	2	rack	1	1	Robert's	4	1
plenty	2	1	rails	1	1	Rob's	1	1

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
robe	1	1	Scotch	2	1	showman	1	1
robin's	4	2	Scotchman	3	1	shows	4	2
rocked	4	2	Scotland	3	1	shouldn't	2	2
rocker	2	1	Scotland's	1	1	shrill	2	1
rocking	3	2	Scott	2	1	shuffled	1	1
rockinghorses	1	1	scour	1	1	shuts	3	1
Robinson	1	1	scoured	1	1	sicken	1	1
rode	4	1	scout	1	1	sickness	1	1
rogue	1	1	scouts	1	1	sides	2	1
rolling	2	2	scraps	1	1	side-walk	1	1
romp	3	1	scratched	3	2	sift	1	1
romping	1	1	scream	1	1	sifter	1	1
romps	2	1	screached	2	1	sigh	1	1
rooting	1	1	seabird	1	1	sighed	3	1
ropes	2	1	seahorse	1	1	sighs	4	1
rosy	2	1	seals	1	1	silky	2	1
roughly	1	1	search	2	1	still	1	1
rounded	2	1	searching	2	1	silly	2	1
Rover	3	3	sea-song	1	1	simmering	1	1
rowboat	1	1	seashore	4	2	Sim	1	1
rowed	3	2	seashells	1	1	Simmons	2	1
rowing	1	1	seated	1	1	simple	1	1
Roy's	2	1	seats	2	1	since	1	1
rubies	1	1	sea-worms	1	1	sink	1	1
rubbed	1	1	seedling	1	1	stink	1	1
rubber	2	1	seeing	1	1	slip	1	1
rude	1	1	see-saw	1	1	sisters	4	2
rudely	1	1	selling	1	1	sister's	2	2
rush	2	2	sends	4	2	sixty	1	1
rushes	1	1	sense	1	1	skating	1	1
rushing	4	2	September	3	1	skies	1	1
Russel	1	1	servant	1	1	skin	2	2
rustling	3	1	setter	1	1	skimmed	1	1
Ruth's	1	1	settle	1	1	skimmer	1	1
rhyme	1	1	several	1	1	skin	1	1
sack	1	1	sewing	3	1	skip	3	2
sacks	3	1	Shafto	3	1	skipping	2	2
safest	1	1	Shafto's	2	1	slap	4	1
sago	1	1	shakes	2	1	slaps	2	1
sailboat	1	1	shaking	1	1	slats	3	1
sailboats	1	1	shades	2	1	slay	3	1
sailed	1	1	shallow	2	1	soak	1	1
salad	1	1	sham	1	1	soaked	1	1
Sally's	1	1	shams	1	1	sob	1	1
salt	3	1	shape	1	1	sod	1	1
salute	1	1	shaped	1	1	soldiers	1	1
saint	1	1	shapes	1	1	solid	2	1
same	3	2	shear	1	1	somebody's	1	1
Sanders	2	1	shears	1	1	someone	1	1
Sammy's	1	1	sheets	2	1	somewhere	2	1
sank	1	1	shelter	4	1	sore	1	1
sash	1	1	she'll	3	2	sorrowful	1	1
satins	1	1	sheep's	3	1	sold	1	1
sauce	1	1	sheets	1	1	sole	1	1
save	1	1	shepherd	4	1	soundly	1	1
saws	1	1	shepherds	1	1	sour	1	1
sayings	1	1	shin	1	1	sowed	1	1
scale	1	1	shined	3	2	sowing	1	1
scamp	1	1	ships	4	2	space	2	1
scamper	1	1	shivering	2	1	Spain	1	1
scampered	1	1	shock	1	1	Spanish	3	1
scampering	1	1	shod	3	1	spark	1	1
scared	2	2	shoots	1	1	sparks	2	1
scat	3	1	shorn	3	1	speaking	1	1
scatter	2	2	shoulder	1	1	speaks	3	1
scattered	1	1	shoulders	1	1	spear	1	1
scatters	1	1	shout	2	2	spears	1	1
scent	2	1	shouted	1	1	sped	1	1
scepter	2	1	shouts	2	1	speed	1	1
scolded	1	1	show-case	1	1	spend	2	1
scolds	1	1	showers	4	3	spends	1	1
score	1	1	showery	1	1	spent	1	1

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
spice	8	8	sulkily	1	1	though	2	2
spiders	2	1	sun	1	1	thousand	1	1
spied	1	1	sun-beams	8	2	thumbs	2	1
spike	1	1	Sunday	1	1	three-legged	1	1
spilled	4	2	sung	2	1	throat	1	1
spills	1	1	sunlight	4	2	throwing	2	1
spines	4	1	sunning	1	1	thrushes	1	1
spinning	2	1	sunny	4	2	thrust	1	1
spirits	1	1	surely	2	2	thunder	1	1
spit	2	1	surprise	8	2	thundered	1	1
splash	4	1	swam	2	2	thus	8	8
spoons	4	1	swarm	1	1	thumped	1	1
sport	8	1	sway	1	1	thy	8	2
spots	8	1	awaying	1	1	thyme	1	1
spout	8	2	sweet	4	8	ticked	1	1
spread	2	1	sweeter	2	1	tickets	1	1
springs	2	2	sweetly	2	2	ticks	8	2
springtime	1	1	swell	2	2	tide	8	1
springtimes	1	1	swept	8	2	tied	1	1
spruce	2	1	swift	1	1	tightly	1	1
spy	4	2	swiftly	2	1	tilt	1	1
squaw	8	1	swims	1	1	Tim	2	1
stable	1	1	swords	1	1	timid	2	1
staid	1	1	syrup	8	1	tinkling	1	1
stalks	1	1	Tabby	1	1	ting	2	2
stall	8	2	table-cloth	1	1	ting-ling-a-ling	1	1
stalls	1	1	tables	1	1	tins	8	1
stamped	1	1	tacks	1	1	tipped	1	1
standing	8	8	tadpole	2	1	tip-toed	1	1
start	2	1	tag	4	2	tire	2	1
started	1	1	tailor	1	1	tires	1	1
state	4	2	tailors	1	1	'tis	8	1
states	2	1	taken	4	2	toad	2	1
station	8	1	tale	8	2	toe	1	1
staying	1	1	tales	8	2	toiled	1	1
stays	8	8	talked	1	1	toilers	2	1
steady	1	1	talks	1	1	tolling	1	1
steal	2	1	taller	2	1	Tommy	2	1
steamers	2	1	tallow	1	1	Tom's	4	8
steamships	1	1	tame	1	1	tones	1	1
steed	1	1	tangle	2	1	tool	1	1
steel	2	1	tapping	2	1	tore	2	1
steep	2	1	task	1	1	toss	8	1
steeples	1	1	taste	4	2	toward	4	2
stepped	1	1	tattered	8	1	towel	1	1
steps	1	1	tastes	2	1	toy	1	1
sticking	1	1	tatoo	2	1	toys	4	2
stiff	8	1	taught	8	2	track	8	2
stingy	1	1	teaching	2	1	trail	2	1
sting	4	2	teapot	1	1	trails	1	1
stitching	1	1	tears	1	1	tray	1	1
stock	2	1	tease	8	2	treat	2	1
stones	8	8	Ted's	1	1	treats	1	1
stoop	1	1	telling	4	8	treasure	2	1
stopping	8	2	tend	2	2	tree-tops	2	2
stops	8	8	tended	1	1	tricked	1	1
stored	8	1	tender	2	1	tricks	4	1
storekeeper	8	1	tends	2	1	tries	4	1
storm	1	1	tent	1	1	trill	2	1
strangest	1	1	tents	1	1	trills	1	1
stray	1	1	thank	1	1	trimmed	1	1
streams	1	1	thanks	2	2	trims	1	1
stretched	1	1	thaw	8	1	trip	8	1
strike	1	1	thaws	1	1	tripping	1	1
strings	4	2	theater	1	1	tropical	2	1
stripe	1	1	their's	1	1	trotted	2	1
stroll	1	1	they'll	1	1	trots	8	2
stump	1	1	they're	1	1	trousers	1	1
stung	1	1	thimble	2	1	tug	2	1
suddenly	1	1	thirsty	8	1	tumbled	1	1
suffer	1	1	thirteen	2	1	tumblers	1	1
suffered	1	1	thistles	8	1	tumbling	1	1

Word	Frequency	Readers	Word	Frequency	Readers	Word	Frequency	Readers
Turkey	1	1	walls	4	3	whittled	1	1
turning	3	3	walnut	3	2	whiteness	2	1
turnip	2	1	wander	1	1	whose	1	1
twelve	1	1	wanders	2	1	wick	1	1
twig	3	3	warmed	3	1	wife	3	3
twill	1	1	warmer	2	2	wigwam	3	1
twilling	1	1	warms	3	2	wildly	1	1
twin	1	1	warmth	1	1	wildwood	1	1
twine	1	1	warp	1	1	willing	4	3
twins	2	1	washes	1	1	willingly	1	1
twists	1	1	waste	1	1	willow	1	1
'twould	1	1	watches	2	2	Will's	1	1
ugly	1	1	watching	3	2	willy	1	1
umbrella	2	1	water-cresses	1	1	windmill	3	1
uncles	1	1	watered	2	2	window-pane	1	1
underneath	1	1	waters	4	1	windy	2	2
understand	1	1	water-melon	1	1	Winkie	4	1
unfairly	1	1	watermill	1	1	Winnie's	2	1
unkindness	1	1	water-pail	1	1	winters	2	2
upper	2	2	waved	1	1	wipe	3	1
upset	2	1	waving	1	1	wisest	1	1
upsetting	1	1	wax	2	1	witch	2	1
upstairs	4	2	ways	2	2	withdrew	1	1
upside	1	1	weak	2	1	wither	1	1
upward	1	1	weary	2	1	withered	1	1
urchin	2	1	weave	2	1	within	1	1
urchins	2	1	web-feet	1	1	woke	3	1
unto	1	1	webs	1	1	won	2	1
useful	1	1	we'd	1	1	wonderful	2	2
uses	1	1	weed	1	1	wooden	4	2
utensils	1	1	weeds	1	1	woodland	1	1
vain	1	1	wee-haw	2	1	woodman's	1	1
valley	1	1	week	2	2	woodmen	3	1
van	2	1	weeks	3	1	woodmice	3	1
vase	2	1	welcome	2	2	words	4	3
vegetables	3	1	welcomed	1	1	worker	3	2
veins	2	1	wells	1	1	working	4	2
velvet	1	1	wend	1	1	works	4	4
vest	3	1	wept	4	3	worm	3	1
viewed	1	1	we're	1	1	worms	2	1
vines	1	1	wetter	2	1	worn	1	1
visited	1	1	wetting	1	1	wrath	2	2
visits	2	2	wets	2	1	wound	3	1
vessel	1	1	whatever	1	1	wreck	1	1
vessels	1	1	whats	3	2	wrecks	1	1
wade	1	1	wheel	1	1	wren	1	1
waded	3	2	wheel barrow	2	1	wren's	1	1
wages	2	1	whoels	2	1	wrestled	1	1
wagging	1	1	whenever	2	2	wrists	1	1
wagons	1	1	wherever	1	1	writing	1	1
waist	1	1	where's	1	1	written	2	1
waited	3	3	whichever	3	1	wrong	1	1
waiter	4	1	whined	1	1	yarn	3	1
waits	2	1	whipped	1	1	you'll	2	2
waked	1	1	whisper	1	1	yours	3	2
wakened	2	2	whispered	1	1	you've	2	2
wakes	2	1	whistled	1	1	zeal	1	1
walks	4	3						

CHAPTER X

THE CONTENTS OF READERS

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THE PROBLEM

The problem of this investigation was to determine, first, to what extent current textbooks in reading agreed or differed (*a*) with regard to the nature of the material included and (*b*) with regard to specific pieces or selections; and second, to what extent there are changes or differences in the nature of the material from the first grade to the eighth grade. This problem is important in connection with the larger problem of determining what the content of readers should be. A considerable amount of work has been done on similar problems in other fields, notably in spelling and arithmetic. Little has been done in the field of reading. The problem also has an important bearing on the choice of readers for schools.

MATERIALS AND METHOD

The present investigation¹ was carried out by making an analysis of the contents of ten textbooks used in each of the eight grades.

In the following list of readers analyzed, the numbers in parentheses are the dates of publication, and the numbers following the parentheses are the grades of which the texts were analyzed:

Aldine (1916), 1, 2, 3.
American Literary, 8
Baldwin and Bender (1911), 1 to 8.
Blodgett (1910), 2 to 7.

¹ This work was carried out with the co-operation of Miss Elizabeth A. Garrity, Miss Katherine T. Larkin, Mr. H. A. Boyle, Miss Margarita E. Burns, Miss Helen L. Button, Miss Anne Green, and Miss Faith D. Thayer, members of the writer's course in the Psychology of School Subjects in the summer session of Harvard University, 1920.

Brooks (1906), 3 to 8.
 Carroll and Brooks (1911), 2 to 8.
 Child Life (1900), 1, 3.
 Cyr (1904), 2.
 Edson-Laing (1913), 1, 2.
 Elson (1909, 1913), 1 to 8.
 Golden Rule (1912), 4 to 8.
 Golden Treasury (1909, 1912), 1, 2.
 Graded Literature (1900), 3 to 8.
 Halburton (1912), 8.
 Heath (1903), 3, 6.
 Holton-Curry (1912), Primer and First Reader.
 Horace Mann (1915), 4, 5.
 Jones (1904), 2 to 8.
 Progressive Road (1913), 3.
 Riverside (1911), 7, 8.
 Standard Classics, 1.
 Stepping Stones (1897), 4 to 8.
 Wide Awake (1908), 2, 3.

These textbooks are not necessarily the most widely used nor the best books. They were chosen because they were available for the investigation and are probably fairly representative of current and recent books.

The analysis was made by classifying all of the material in each book into seventeen classes as indicated in the table. At the same time, the number of pages devoted to each class of material and the percentage of these pages to the total number of pages in each book was calculated.

The classification of the content material here adopted is very similar to that used by Woody³ in his study of second-grade readers. The chief difference consists in combining all material relating to animals, such as pets, fowls, birds, and insects, into one class and in adding some additional topics, such as classics, adventure, geography and travel, which are either absent or very insignificant in second-grade books but which occupy considerable space in upper-grade books.

³ Woody, C. "The Overlapping in the Content of Fifteen Second Readers." *Journal of Educational Research*, II, 1920, 465-474.

RESULTS

Table 1 gives a summary of the results of the classification of the material. The content of each reader was analyzed and the percentage of the number of pages devoted to each type of material was computed. The numbers in the table are average percentages of the ten readers used in each grade. Thus the table states that the ten first-grade readers devote 28.8 percent of their pages to "animals," 16.8 percent to "boys and girls," 15.4 percent to "folklore," etc.

TABLE 1
AVERAGE PERCENTAGE OF EACH CLASS OF MATERIAL IN THE TEN READERS OF EACH GRADE

Class of Content	Grade							
	I	II	III	IV	V	VI	VII	VIII
Animals	28.8	21.5	10.0	9.2	7.9	3.6	1.8	2.5
Boys and Girls.....	16.8	18.5	13.1	10.5	9.6	5.8	1.4	0.0
Folklore	15.4	13.3	2.1	1.7	4.1	0.1	0.7	1.2
Fables	3.4	5.4	8.4	2.7	0.4	0.1	1.4	0.0
Plants	5.8	4.1	7.1	0.5	0.4	1.7	0.0	0.2
Elements (Wind, Water, etc.).....	2.4	1.2	4.7	1.8	0.4	1.0	6.2	1.4
Fairy Tales	1.9	13.3	15.4	12.4	4.1	1.8	3.5	0.0
Plays and Games.....	1.9	0.1	2.7	0.3	0.7	1.6	2.0	0.0
Classics	0.7	0.5	2.2	10.7	15.3	24.4	3.2	34.1
Geography and Travel.....	0.6	0.1	4.6	1.9	3.0	4.7	5.8	3.8
History and Patriotism.....	0.3	1.0	10.1	7.0	12.4	17.4	20.4	9.8
Myths	0.0	0.0	0.3	5.7	1.2	0.1	1.2	0.5
Conduct (Manners)	0.0	0.2	1.2	7.2	0.5	4.1	0.4	2.0
Biography	0.0	2.1	1.1	4.5	2.5	2.7	5.2	9.4
Adventure	0.0	0.0	1.2	2.1	9.4	1.2	11.7	1.5
Poetry	15.4	17.4	13.4	15.5	21.3	26.5	25.8	23.4
Miscellaneous	6.7	0.8	2.2	6.0	6.4	2.5	9.2	4.4

It is evident that the contents of the lower-grade readers are very different from that of the upper-grade books. Aside from poetry, the three leading classes in the first grade are "animals," "boys and girls," and "folklore." These three groups, together with poetry, constitute over three-fourths (76.4 percent) of all the material. On the other hand, the four chief classes in the eighth grade are "classics," "history and patriotism," "biography," and "poetry." These four groups constitute over four-fifths (81.7 percent) of all the material, aside from poetry.

The three leading classes in the first grade gradually drop off from grade to grade to almost zero in the eighth grade. The leading classes in the eighth grade begin with practically no space in

the first grade and gradually increase to the maximum in the seventh and eighth grades. Poetry begins as a large item in the first grade and increases steadily up to the eighth grade to substantially double its space in the first grade. These points become clearer in the graphs of Fig. 1.

Two classes of material, namely "fables" and "fairy tales," occupy a slightly larger place in the intermediate grades than in

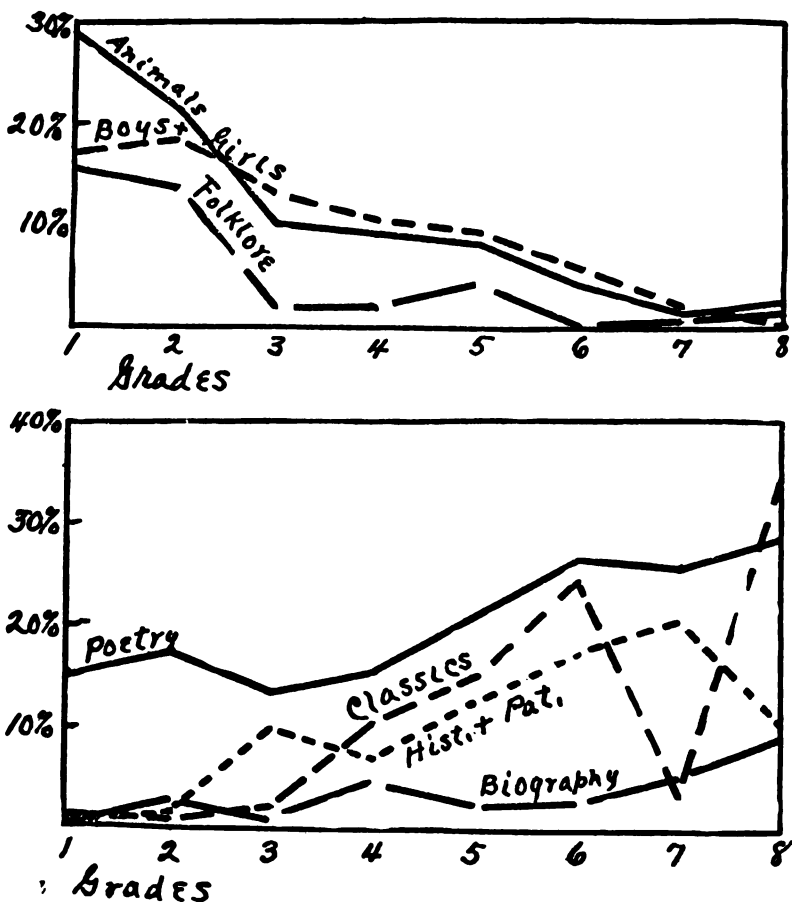


Fig. 1. Alterations in the Amount, in the Readers of Various Grades, of the Three Leading Classes of Content in the First Grade and the Four Leading Classes of Content in the Eighth Grade.

either the lower or higher grades. "Adventure" has its largest share in grades five to seven. All the other classes occupy very small space in practically all grades.

The reliability of these figures obviously depends to some extent upon the judgment of the persons analyzing the material. The lines of division between the various classes cannot be clearly drawn in every case. However, the fundamental facts are probably represented fairly accurately.

It is interesting to note, in the next place, the wide range of difference in the proportion of the various classes of material in the various readers for a given grade. The table for all readers in all grades here analyzed would be too long to reproduce. The table for the fourth grade, here reproduced as Table 2, is typical.

TABLE 2
PERCENTAGE OF EACH CLASS OF MATERIAL IN EACH BOOK (FOURTH GRADE)

	Blodgett	Baldwin and Bender	Eison	Jones	Carroll and Brooks	Horace Mann	Brooks	Graded Literature	Stepping Stones	Golden Path	Range	
Animals	0.1	13.5	6.6	11.1	19.5	14.8	8.4	1.7	6.1	0.0	0.0	-19.5
Boys and Girls	30.8	22.0	6.8	1.4	15.2	0.0	15.5	11.2	1.4	0.0	0.0	-30.8
Folklore	2.2	8.6	0.0	0.0	3.4	0.0	7.3	0.0	0.0	0.0	0.0	- 7.5
Fables	0.0	2.9	0.0	0.0	0.0	5.2	4.5	0.0	0.0	14.2	0.0	-14.2
Plants	0.0	0.0	1.6	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	- 2.9
Elements	7.1	1.6	4.2	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0	- 7.1
Fairy Tales	7.4	7.1	13.9	8.1	14.2	0.0	13.6	27.8	19.9	14.1	0.0	-27.8
Plays and Games	0.0	0.0	0.0	0.0	1.3	0.0	1.8	0.0	0.0	0.0	0.0	- 1.8
Classics	41.3	1.3	7.5	18.5	3.4	12.9	0.4	4.3	9.7	7.4	0.4	-41.3
Geography and Travel	0.0	0.0	0.0	3.1	5.7	1.3	1.5	6.2	0.7	0.0	0.0	- 6.2
History and Patriotism	2.5	9.0	24.6	1.4	2.2	8.1	2.9	4.7	9.1	4.6	1.4	-24.6
Myths	1.3	0.0	0.0	4.1	8.9	6.5	10.6	7.2	6.6	12.6	0.0	-12.6
Conduct	0.0	9.5	0.0	8.5	0.0	4.4	6.1	4.5	10.0	28.7	0.0	-28.7
Biography	1.5	2.9	3.4	7.7	3.2	7.7	5.3	11.0	2.2	0.0	0.0	-11.0
Adventure	0.0	0.0	8.3	3.3	0.0	9.7	0.0	0.0	0.0	0.0	0.0	- 9.7
Poetry	8.0	22.6	17.5	15.5	8.5	12.7	13.7	16.5	26.9	13.3	0.0	-26.9
Miscellaneous	0.0	3.6	5.5	15.9	9.4	3.5	5.1	4.5	7.1	5.0	0.0	-15.9

The range in amount of material of a given category is very wide. In other words, there is little uniformity among the different readers in the amount of space devoted to a given subject. For example, "classics" varies from 0.4 percent in one text to 41.3

percent in another; "fairy tales" range from zero to 27.8 percent, "history and patriotism" from 1.4 to 24.6 percent, etc.

The next problem was to determine the amount of specific material common to the readers for a given grade. Here, again, the complete table for all eight grades would be too long to reproduce here. Table 3 shows the data for the sixth grade.

TABLE 3
SPECIFIC SELECTIONS, STORIES OR POEMS COMMON TO THE TEN SIXTH-GRADE READERS

	Elson	Jones	Heath	Carroll & Brooks	Golden Key	Stepping Stones	Blodgett	Baldwin & Bender	Graded Literature Series	Brooks	Totals
Horatius at the Bridge.....	x	x	x		x	x				x	6
Chambered Nautilus.....		x	x								4
The Daffodils.....		x	x	x			x				4
Rip Van Winkle.....		x		x		x			x		3
Washington Irving.....	x						x				3
The Flag.....				x	x			x			3
To a Waterfowl.....		x	x						x		3
Pied Piper of Hamelin.....	x			x	x						3
Mr. Winkle on Skates.....				x					x		3
Miss Barker's Tea Party.....		x	x								3
A Voyage to Lilliput.....		x							x		2
Christmas at the Cratchets.....								x	x		2
Little Daffydawndilly.....	x				x						2
Ralph W. Emerson.....	x										2
James R. Lowell.....	x		x								2
Lexington.....	x				x						2
Hail Columbia.....	x					x					2
Arnold Winkleried.....	x					x					2
Sir Galahad.....				x					x		2
Rime of the Ancient Mariner.....		x	x								2
Abou Ben Adhem.....	x				x						2
Dying in Harness.....	x									x	2
Lochinvar.....				x		x					2
For A' That and A' That.....					x	x					2
The Humblebee.....				x			x				2
The Rhodria.....		x							x		2

This table is typical of the amount of overlapping of the various readers. One poem was found in six of the ten readers. Two selections were in four readers, five in three readers and eighteen in two readers. All the other selections appeared in one reader only.

SUMMARY

1. Four classes of material—"animals," "boys and girls," "folklore," and "poetry"—constitute three-fourths of the content of lower-grade readers.

2. Likewise, four classes of material—"classics," "history and patriotism," "biography," and "poetry"—constitute four-fifths of the content of upper-grade readers.

3. The differences in relative proportions of the various classes of material in the readers for a given grade are very great. There is no approximation to an accepted amount of material of a given class which authors agree should be in a book. For example, the division of "boys and girls," which constitutes one of the chief items in the fourth grade, varies from no space in one reader to over thirty percent of the space in another. If material of certain types is more interesting or appropriate or valuable than material of other types, then there ought to be greater uniformity in the proportions of the different classes of content.

4. The amount of specific content, such as selections, stories, poems, etc., common to three or more of ten books for a given grade is very small.

SECTION 2

EXERCISES FOR DEVELOPING ABILITY IN SILENT READING

It is the object in this section of the Yearbook on Silent Reading to present a few only of the many interesting practical exercises that have been actually employed in the classroom to develop skill in reading.

The contribution from Miss Heller and Mr. Courtis recounts efforts made at Detroit to train primary-grade pupils and embodies also suggestions for a simple scale of reading ability.

The contributions from Denver, Cedar Rapids, Racine, and Iowa City, being less elaborate, have been assembled in one group.

Readers who find the material of Section 2 of interest will get further suggestions from the first report of the Society's Committee on New Materials of Instruction, which was published as the *Nineteenth Yearbook, Part I*. Chapters I and II are particularly pertinent.

I

EXERCISES DEVELOPED AT DETROIT FOR MAKING READING FUNCTION

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THE PURPOSES OF PRIMARY READING

Reading is carried on primarily for the purpose of controlling behavior. A citizen reads the campaign statements of the various candidates in order to cast his vote intelligently, or the advertisements in his daily paper to find out where to go to buy the articles he desires. To be sure, in poetry and other forms of artistic expression, aesthetic appreciation seems at first sight far removed from action; but in the last analysis, all reading of whatever type or kind modifies the behavior of the reader.

In attempting to train children to read, schoolmen have usually made the mistake of beginning with the type of reading whose effect is most difficult to trace; namely, reading involving aesthetic appreciation. The coming of exact measurement, however, has revealed the inefficiency of past training and led to a desire for lesson material which shall both emphasize the need for comprehension of what is read and furnish the teacher a measure of the success or failure of the child to comprehend.

The belief is steadily growing that a large part of children's reading in the early grades should be reading for a more direct and simple purpose than interest or appreciation; that, important as these elements are, they themselves must be considered as the direct products of comprehension of meaning, and that all meaning comes from experience, action. The first reading a child does must, from this point of view, serve in a direct and easily recognized way to modify or guide the child's behavior. To read incorrectly must be seen by the child to result in defective action. To know one has

read correctly must give immediate satisfaction, and in case of failure one must be able to tell for oneself whether or not the fault lies in the reading. Self-directed, purposeful reading of directions that call for action satisfies these requirements when a group of children are able to compare the objective consequences of their actions with objective standards and to determine themselves the causes of their differences.

Of the various types of reactions employed to improve the ability to comprehend what is read, drawing, cutting, and construction work were especially stressed for some months last year in the primary grades of the Detroit schools.

The children's natural love for drawing and the desire to produce a picture, furnished a motive for careful reading. To take advantage of this interest a series of exercises were planned, the products of which gave the child and the teacher objective evidence of the accuracy and efficiency with which the pupil read.

EXERCISES IN READING

At the outset types of exercises such as the following were used with first-grade children. The selections were written on the board and the teacher directed the children to read silently, then draw a picture or make a cutting to illustrate what they had read.

Up in the tree
A little bird sings,
Under the tree
A little girl swings.

The Easter Bunny is sitting in the grass.
He has a new spring coat as white as snow.
He has beautiful pink eyes.
He is carrying a basket of Easter eggs
for the children.

For the second grade a variety of exercises were given in which the directions to draw or cut were included as part of the reading. A sufficient number of exercises were printed to supply each child with a different selection. In this way the child remained uninfluenced by the work of his neighbor.

The examples listed below show eight different types of the exercises used:

1. Directions for Illustrating Nursery Rhymes

(a) *“There was an old woman who lived in a shoe,
She had so many children she didn’t know what to do.”*

Cut out a large shoe.

Put a little window in the shoe.

Color the shoe black.

Cut out six children.

Make two of the children peeking over the top of the shoe.

Make three children peeking out of the window.

Make one peeking over the toe.



FIG. 1. ILLUSTRATION BY A SECOND-GRADE PUPIL, AFTER READING THE DIRECTIONS IN 1a.

- (b) *“Little Miss Muffett sat on a tuffet,
Eating her curds and whey,
Along came a spider and sat down beside her,
And frightened Miss Muffett away.”*

Make two pictures of this rhyme.
In the first, draw Miss Muffett sitting on a tuffet.
Draw her bowl of curds and whey.
Draw a spoon in her hand.
In the second picture, draw a big spider.
Make him black with yellow stripes.
Put six legs on him.
Draw Miss Muffett running away.
Draw her bowl fallen to the ground.

- (c) *“Hickory, dickory, dock,
The mouse ran up the clock,
The clock struck one,
The mouse ran down,
Hickory, dickory, dock.”*

Draw a big clock.
On the face put the numbers from one to twelve.
Draw the big hand at twelve.
Draw the little hand at one.
Draw a pendulum hanging down from the clock.
Draw the mouse running down the clock.

2. Directions for Illustrating Stories

Read over the story—

- (a) *“The North Wind at Play.”*
in Elson One, page 100.

Draw the apple tree before the North Wind came.
Draw it after the North Wind had come.
Draw the corn field before the North Wind came.
Draw it after the North Wind had come.
Draw the little white lily before the North Wind came.
Draw it after the North Wind had come.

- (b) *“The Three Little Pigs.”*

Draw the pigs' house.
Draw the mother pig at the door.
Make the three little pigs going away.
Draw the first little pig when he met the man with some straw.
Draw the house of straw.
Make the pig looking out of the window.
Draw the wolf at the door.
Draw the second little pig when he met the man with the wood.
Draw the house of wood.
Make the pig looking out of the window.
Draw the wolf at the door.

3. Directions for Constructing Toys

(a) "How to Make A-B-C Blocks."

Fold your paper into sixteen squares.
 Cut off one row of squares.
 Make three cuts on each side like this:
 In square one, print a capital A.
 In square three, print a small a.
 In square two draw a picture of an apple.
 In square four draw a picture of an acorn.
 Fold like a box and paste.

(b) "How to Make a Red-Riding-Hood Doll."

Cut out a little girl doll.
 Paste it on cardboard.
 Make a little red hood.
 Paste it on your doll.
 Make a little red cape.
 Paste the cape on your doll, too.
 Cut a basket and color it brown.
 Put it on your doll's arm.

4. Directions for Illustrating Social Studies

(a) "Wash Day"

We shall hang out our washing today.
 Draw a clothes line across the top of your brown paper.
 Cut out a towel and paste it on the line.
 Cut out a pair of stockings.
 Hang them on the line, too.
 Cut out a shirt and paste it on the line.
 Cut out a little dress.
 Paste it on the line.

(b) "Gardening Tools"

Fold your paper into four squares.
 Cut out a watering-can.
 Paste it in the first square.
 Cut out a rake.
 Paste it in the third square.
 Cut out a shovel.
 Paste it in the second square.
 Cut out a hoe.
 Paste it in the fourth square.

(c) "Objects for an Indian Sand Table: an Indian Wigwam"

Get three sticks about six inches long. Tie them together at the top with string. Spread them out at the bottom so they will stand. This will make the framework of the wigwam.

Take a piece of brown paper nine by twelve inches. Cut a half circle from it. Make it as large as you can. This is the skin covering for your wigwam. Draw some Indian pictures on the skin. Fasten the skin covering around the frame work. Fold back the flaps for a door.

(d) "An Indian Brave"

You will need a clothespin, some clay, some bright colored cloth and some small feathers.

Make a ball of clay over the head of the clothespin. Put in the eyes and nose and mouth. Try to make it look like an Indian face. Put two feathers in the top of the head. Make a square block of clay and press the bottom of the clothespin in it so the Indian will stand. Make a blanket of the bright colored cloth and sew it on your Indian. When dry, paint the Indian's face reddish brown. Paint his eyes and hair black. Make an Indian squaw in the same way, but do not put any feathers in her hair.

5. Directions for Drawing, Picking out a Portion of the Text, and Writing it in a Specified Place

(a) "The Three Little Kittens"

"The three little kittens washed their mittens,
And hung them out to dry.
'Oh! mother dear, look here, look here,
See! we have washed our mittens.'"

Draw two clothespoles and color them black.

Draw the clothes line between them.

Draw the three pairs of mittens on the line.

Draw the mother cat and the three little kittens standing near.

Under your picture write just what the little kittens are saying to their mother.

(b) "The Bluebird"

(This exercise is complicated by requiring the children to search for an appropriate selection in their readers.)

Draw a branch of an apple tree.

Draw some little pink blossoms and green leaves on it.

Draw a bluebird perched on the branch.

Make his cap deep blue.

Make his vest a reddish brown.

Make his coat and tail deep blue.

Make his bill and feet dark brown.

Make his eye black.

Look for a bluebird poem in your book.

Copy one stanza of it on your spelling paper.

Put your picture and your poem together to make a little book.

6. Type Demanding the Reading of a Short Description to Carry Out the Directions

"The Goldfinch"

In the summer, father goldfinch wears a bright lemon-yellow suit. He has a black cap, black wings, and a black tail. His little wife's dress is a dull green or olive yellow.

Mr. and Mrs. Goldfinch build a tiny little nest shaped like a cup. It is made of fine grass and moss. They are very fond of thistles and dandelions for they can line their nests with the fluff from these little weeds. Then they can eat the seeds for their dinner.

Draw a father goldfinch.

Make him perch on the branch of a little thorn bush.

Color his feathers to show the way he looks in the summer time.

In the crotch of the thorn bush, draw his nest.

Under the thorn bush, draw two weeds that he is very fond of.

Under your picture write a title for the drawing.

There are many possibilities of developing lessons of increasing difficulty along these lines.

7. Type Based upon Geography for Fourth-Grade Children and Necessitating Accurate Placing of the Drawing

Trace a map of the United States.

Put a star on the place where the greatest lake port in the world is located.

Color brown that part of Michigan in which copper is found.

Draw a ship at the greatest lake port in the west.

Draw a bale of cotton at the largest cotton port in the world.

Draw a mill in the greatest milling center of the world.

Draw some fish in the river from which we obtain great quantities of salmon.

Color blue the longest river in the world.

Draw an automobile at the place in Michigan where most automobiles are manufactured.

Draw a tree in the state in which the largest trees in the world are found.

8. Illustrating the Compositions of Other Children and a Sample Scale of Reading Ability

Third-grade and fourth-grade children enjoyed illustrating each other's compositions. Original riddles or stories were exchanged. The child receiving the composition, after reading it thoughtfully, illustrated the ideas. The papers were then returned to the writers, who, knowing the number of ideas they sought to express, were able to check the efficiency of the other child's reading, as shown by his illustration. Whether or no the reader gleaned all the ideas depended upon his ability to get the thought, and the ability of the writer to express his thought clearly. The following is typical:

“One day I was playing with another boy in some weeds. A snake ran in front of me. We each took a club and killed it.”

The examination of the results from each class disclosed very definitely the number of ideas which were gleaned by the young readers. While some readers represented every idea, there were others who could represent only a few or perhaps just one of them. For example, in the directions, which are given below, for making the pot of tulips, some drawings showed that the reader had not understood how many tulips were to be drawn, that both buds and flowers were to be shown, or that small leaves as well as large leaves were to be made.

Cut out a flower pot.

Color it brown.

Cut out four tulips.

Make two look like buds.

Make two wide open.

Color them yellow.

Make some green leaves, big ones and little ones.

Paste them in the flower pot.

Put a back on the flower pot so that it will stand.

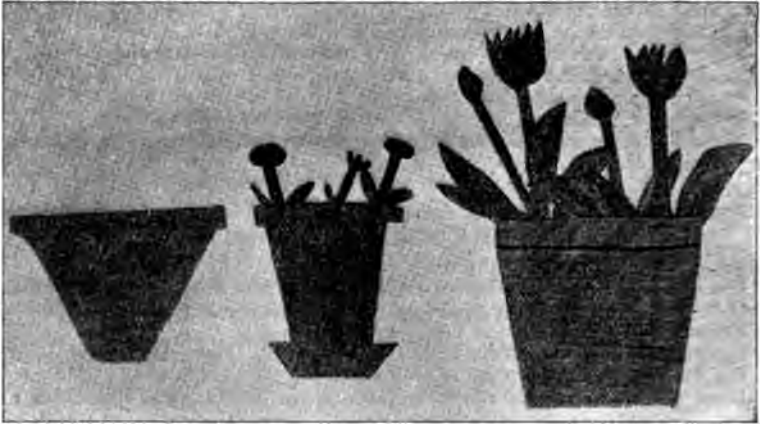


FIG. 2. THE POORST, THE AVERAGE, AND THE BEST POT OF TULIPS
PRODUCED BY THE CLASS

A SCALE OF READING ABILITY

A study of these results suggested the possibility of constructing a scale to measure the development from the first through the fourth grades of the ability to read silently and reproduce the ideas through drawing. It was also expected that these results would throw some light on problems in free-hand drawing.

The following scale was constructed and administered by the primary supervisors throughout the first four grades in five representative schools:

- Draw a bird house.
- Make it blue.
- Put it in the top of a little tree.
- Make a bluebird flying over the bird house.
- Make another bluebird standing on top of the bird house.
- Put a little red worm in his mouth.
- The bird house is in a garden so draw a round flower bed near the bird house.
- Draw some yellow tulips in the middle of the bed and some red tulips around the outside.
- Draw some low bushes with red blossoms on them in the garden, too.
- Now think of a name for your picture and print it with black crayon at the top of your paper.
- Draw a little square in the lower left-hand corner of your paper.
- In the upper half of this square print the initial of your first name in green.
- In the lower half of the square print the initial of your last name in brown.

The scale gradually increases in difficulty; the first directions are simple enough in vocabulary, sentence structure, and thought for first-grade children to understand. It was intended that the last directions be difficult enough to tax the ability of fourth-grade children. When administered, it was found that only 36 percent of them were able to reproduce all of the forty-four ideas or items it contains.

The benefits derived from exercises of the type indicated seemed to be very marked, not only from the point of the development of reading ability, but in terms of those other educational products of even greater importance, self-direction, self-appraisal, self-control. As the work was wholly experimental, no exact measurement of results was attempted.

During the coming year, however, the experiment will be continued and an effort made to construct formal tests and scales which may be used to furnish exact measures of the effect of this type of training.

II

SILENT READING EXERCISES DEVELOPED AT DENVER, CEDAR RAPIDS, RACINE, AND IOWA CITY

Comprehension is for the most part insured by the very nature of the responses to such exercises as follow. The teacher must guard, however, against mere formalized responses. Exercises which require every child to respond each time a card is 'flashed' are superior from the standpoint of class administration. For example, the entire class may react in concert to the card—"Point to the north." The teacher can easily detect any pupil who does not carry out such directions accurately.

I. THREE SILENT READING DEVICES FROM DENVER, COLORADO

(Reported by Helen R. Gumlick, Colfax School)

The questions or sentences are printed upon strips of heavy manila paper, $4\frac{1}{2}$ inches wide and as long as necessary. The type used makes the small letters 1 inch high and the capitals $1\frac{1}{2}$ inches high. The ink is black. The words can easily be seen from any part of the room.

The questions are flashed before the child. He does not say what is on the card but gives an oral answer to what appears there. The exercises have been used in 1A and 2B.

1. Silent Reading Exercise Based upon the Flag

- Card 1. Whose flag is this? Child's oral answer, "Ours."
- Card 2. For what country does it stand? Child's oral answer, "The United States."
- Card 3. How many colors? Child's answer, "Three."
- Card 4. What is the blue for?
- Card 5. What is the red for?
- Card 6. What is the white for?
- Card 7. How many stripes?
- Card 8. How many red stripes?
- Card 9. How many white stripes?
- Card 10. What do the stripes represent?
- Card 11. How many stars?
- Card 12. What do the stars represent?

- Card 13. Who made the first flag?
 Card 14. Who asked her to make it?
 Card 15. What is another name for our flag?

2. Silent Reading Device Based upon Local Directions

- Card 1. Point to the north.
 Card 2. Point to the south.
 Card 3. Show me the east.
 Card 4. Show me the west.
 Card 5. Stand in the northeast corner.
 Card 6. Go to the northwest corner.
 Card 7. Name something on the east wall.
 Card 8. What part of Denver is this?
 Card 9. What is the main street on this side of the city?
 Card 10. On what street is our school?
 Card 11. How many blocks is Byers School from Broadway?
 Card 12. Name three streets east of Broadway.
 Card 13. Name three streets west of Byers School.
 Card 14. Which direction from here do you live?
 Card 15. Which direction from Broadway do you live?
 Card 16. What direction do we go to get to town?

3. Silent Reading Device Based upon Table Etiquette

- Card 1. The plate belongs—— Child's oral answer, "Directly in front of you."
 Card 2. The napkin belongs——
 Card 3. The knife is placed——
 Card 4. The fork is placed——
 Card 5. The glass belongs——
 Card 6. The host sits——
 Card 7. The hostess sits——
 Card 8. The guest of honor sits——
 Card 9. Elbows are not——
 Card 10. The knife is not put——
 Card 11. Lips must not——
 Card 12. Chairs must not be left in——
 Card 13. Spoon must not be left in——
 Card 14. Serve people to the——
 Card 15. Remove dishes from the——
 Card 16. If you wish something passed, say——
 Card 17. If asked to have more, say——
 Card 18. If you wish to leave the table, say——

II. READING LESSONS BASED ON PROJECTS, FROM CEDAR RAPIDS, IOWA

The following lessons were developed by various teachers under the direction of *Miss Grace Shields, Primary Supervisor, Cedar Rapids, Iowa*. Lack of space prevents the printing of other similar exercises, which were uniformly excellent; the lessons given, however, are sufficiently representative. Other types of exercises based on the same material may be readily constructed.

There are two great advantages in this type of work. First, being based on actual experiences, they tend to guarantee more adequate comprehension on the part of the child. Second, they are based on factual material and accordingly may be carefully tested.

While these lessons may be regarded as primarily dealing with the development of comprehension, they involve also organization and remembrance. They could be made into speed exercises by having the pupils work under time pressure.

1. "Making Tallow Candles"

(Reported by Ella Flynn, Grade II, Harrison School, Cedar Rapids, Iowa)

Subject—The Pilgrim home in America.

Problem—How was the Pilgrim home lighted at night?

Project—To make a tallow candle.

Method of Approach

Interesting phases of our November work brought about the discussion of the Pilgrim home in America. The children were interested in the primitive method of living, and especially in the process of candle making.

Method of Procedure

We procured a tin candle mold which would hold twelve candles. This mold was ten inches high. We purchased one ball of candle wicking and two pounds of tallow. The wicking was twisted and put through the molds double, being held in place at the top by a short stick. The tallow, sufficient for six candles, was then melted, poured into the molds, and allowed to cool until the next day. The mold was then immersed in warm water two or three times. The children pulled upward on the stick at the top of the mold and the candles were easily released.

The following day, one of these candles was placed in a candle stick and it burned readily. The candles will be used for our Christmas party.

The following questions may be duplicated in order that each child may have them before him, or they may be written on the blackboard or flashed on cards. The child's comprehension is indicated by his answers to the questions. Such exercises serve not only as lessons in reading, but also as an excellent type of review work.

Questions to Be Used for Silent Reading

1. What did the Pilgrims use for light?
2. Where did they get candles?
3. What did we use in making candles?
4. Where do we get tallow?
5. Why do we use a wick?
6. How did you place the wick in the mold?
7. What did you do next?
8. Of what use is the mold?
9. How long did you leave the candles in the mold?
10. How did we remove the candles from the mold?
11. How many candles did we make?
12. When are we going to use the candles?

2. "Drying Corn"

(Reported by Miss Byrd Snyder, Grade I, Taylor School, Cedar Rapids, Iowa)

The first step in this exercise was a discussion of the preparation of food for winter use. The second step was a project in drying corn. The project served as a basis for Lesson 1, which was developed with the pupils. The questions in Lesson 2 were read silently from the blackboard, and answered orally by the pupils.

Lesson 1

Miss Snyder brought some corn to school.

It was sweet corn.

We dried the sweet corn.

First we took the husks and silk off.

Sometimes there was a worm on the corn.

We shook the worm in the waste basket.

Then we cut the bad places out of the corn.

We cut the corn from the cob.

We found milk in the corn.

We put the corn in the pans.

We put the pans in the oven.

It took two days to dry the corn.

The corn is brown and hard when it is dry.

We have put it into a bag until we have our Thanksgiving party.

Lesson 2. Silent Reading

1. Why did we dry the corn?
2. Could we have kept it any other way?
3. How did we get the corn ready for drying?
4. What did we sometimes find on the ears?
5. How did we dry this corn?
6. Could we dry it any other way?
7. How long did it take to dry it in the oven?
8. When shall we use it?

3. "Our Visit to the Fire Station"

(Reported by Miss Byrd Snyder, Grade I, Taylor School, Cedar Rapids, Iowa)

After a story and talk about fires and how they can be prevented, the following questions were given as a silent reading lesson.

1. What day is to-morrow?
2. Why do we have Fire Prevention Day?
3. Who helps us when we have a fire?
4. Who pays the firemen?
5. How do the firemen know when we need them?
6. Why do we have a fire drill at school?
7. How can boys and girls help prevent fire?
8. Tell some rules we should obey.
9. Would you like to visit a fire station to-morrow?

The following lesson was developed with the children as a summary of their trip.

Our Visit to the Fire Station

On "Fire Prevention Day" we went to the fire station. When we got there, the fireman invited us in.

We all went around on one side of the truck.
 We saw the tank of chemicals.
 They use chemicals whenever they can, instead of water.
 Water spoils the furniture.
 In the back of the truck we saw a big hose.
 Then the fireman showed us the engine.
 Laurence turned the crank and we heard the siren.
 Ruby rang the bell.
 These tell the people to get out of the way.
 While we were still looking at the truck, there was a real fire.
 After they had gone, we went outside a little while.
 Then we went upstairs and saw their boots and the beds where
 they sleep.
 Soon the firemen came back.
 The fire was out.
 Then the firemen let Paul and Albert go down the pole.

The following questions were given as a silent reading lesson after the visit to the fire station:

1. What did we see on the side of the truck?
2. Why do they use chemicals?
3. What did we see in the back of the truck?
4. Who turned the crank?
5. Who rang the bell?
6. Why did they have these?
7. What happened while we were looking at the engine?
8. Where do the firemen sleep?
9. Why do they stay at the station all night?

4. "The Making of a Johnny Cake"

(Reported by Carolyn Pangburn and Lucile Pogge, Grade III,
Cedar Rapids, Iowa)

Problem and Project

Problem: How did the early settlers prepare corn and use it for food?

Discussion:

- a. Where settlers first got the corn
- b. Indian method of growing corn
- c. Indians taught the settlers to plant corn
- d. How corn was cultivated
- e. Present day methods of milling
- f. Uses of corn as food

Project:

- a. Grinding or pounding corn into meal
- b. Making of corn bread

Materials:

- a. Mortar and pestle to pound corn into meal
- b. Corn, either white or yellow
- c. Materials for corn bread

Method of Procedure:

- a. Pupils shell corn
- b. Pupils place the corn in the mortar and, working in groups, pound corn into meal

- c. Pupils arrange a table with materials and utensils for making corn bread, using the following recipe:
 1 pint of corn meal
 $\frac{1}{2}$ pint of flour
 1 teaspoon of salt
 2 tablespoons of molasses or sugar
 1 scant teaspoon of soda dissolved in a little hot water
 2 tablespoons of melted shortening
 2 eggs
 Sour milk enough to make a soft dough
- d. Mix, turn into greased baking pan
 e. Bake in moderate oven thirty minutes.
 f. Pupils eat corn bread for lunch

Silent Reading

1. Did the early settlers know anything about corn before coming to America?
2. Where did they first find corn?
3. Who taught them how to use corn for food?
4. How did the Indian plant corn?
5. Why did the Indian put fish in each hill of corn?
6. How did the Indian use green corn?
7. How was corn prepared for meal?
8. What things were needed to make corn meal?
9. Is corn meal made in the same way to-day?
10. Of what use is corn meal to us?
11. Why is the germ removed from corn in making corn meal to-day?
12. Why is our meal better?
13. What materials are needed to make corn bread?
14. What utensils are needed?
15. How did the settlers bake their bread?
16. How long should corn bread be baked?
17. Why do we use less corn bread than the settlers did?

5. "Bird Observation"

(Reported by Miss Ella Flynn, Grade II, Harrison School, Cedar Rapids, Iowa)

Subject: Bird observation.

Problem: To provide shelter and protection for a bird.

Project: Building a bird house.

Method of Approach

During the month of April we discussed the return of the birds from the south. The children reported from time to time the arrival of different birds. We became interested in the Junior Audubon Bird Club in which we might hold membership by paying an annual fee of ten cents. The object of this club is to attain a greater knowledge of our wild feathered friends and to protect them from being wantonly killed.

The Audubon Society furnished leaflets describing ten of the best-known Iowa birds, together with information about food, nests, and eggs and a small pocket guide for each child.

The children thought they could better observe and protect the birds by building bird houses and having the birds live near their homes.

Suggestions Brought Out in Discussion

1. The roof must extend beyond back of house for drainage.
2. A small rest for the bird before entering house.
3. Sandpapering windows would prevent the birds' plumage from being torn or lost.
4. The construction should be snug and secure, because it may serve as a home for some winter bird.
5. Perches were suggested.
6. Dimensions:

Pieces	Dimensions	Use
1	6 x 10	Bottom
2	4 x 8	Sides
2	4½ x 6	Ends
1	4 x 10	Roof
1	4½ x 10	Roof

Procedure

After considering the bird houses from the standpoint of comfort, the children constructed them. They were brought to school and the children told which were most practical for the different birds. The houses were then placed in trees or on posts near the homes of the children.

Excursion

One afternoon early in May we went to Ellis Park to observe the birds. We took with us our Junior Audubon pocket guides and checked the different birds observed. We also discovered a number of nests containing eggs.

Several phases of our bird work formed a language basis. Celia Thaxter's poem, "The Robin," took on an added meaning after the pupils had actually heard a robin singing during a spring shower.

Questions for a Silent Reading Lesson

1. What is the name of the bird club to which you belong?
2. What did you promise when you joined this club?
3. How did you think you could help the birds near your home?
4. What material did you use in your bird house?
5. How high and how long did you build it?
6. How many doors and windows has it?
7. What kind of roof does your bird house have?
8. Where did you place the house when finished?
9. What birds came to live in the home you built?
10. How do you think you have helped any bird this year?
11. How do you think the birds have helped us?

Reference: National Association of Audubon Societies, New York, N. Y.

III. SILENT READING EXERCISES FROM RACINE, WISCONSIN

The following exercises were developed under the direction of *Miss Myrtle Farnham, Supervisor, Racine, Wisconsin*. Special credit for the pre-primer and first grade exercises is due to *Miss Jessie Jensen, Lincoln School; Miss Christie Mainland, Knapp*

School; Miss Mayme Fahey, Miss Catherine Fahey, Washington School; Miss Alice Williams, Miss Vera Graham, Franklin School; Miss Ruth Reid, Fratt School; Miss Ellen Murphy, Winslow School.

The practicability of each exercise has been assured by having it taught by a large number of teachers.

A. The Kindergarten

Beginnings are made in the kindergarten which train the child to find out for himself the meanings of the printed or written word and to use ideas given in phrase, word, or sentence. Four illustrations are here presented.

1. Assignments to 'Committees'

One problem centers about finding out who are to be the committees for the day or week. A card is illustrated by the teacher for the bulletin board which indicates by name who will look after the tables, chairs, plants, blocks, etc. Each child in the room is responsible for finding out whether he is on one of these committees and who are his associates in the work. That part of the bulletin board is a popular place, and much discussion over names and pictures takes place, together with good planning by the committees. The assignments are made by a card bearing pictures and the names of pupils, like this:

Table (Picture of table)	David Mary
Chair (Picture of chair)	Charles Harry
Sand table (Picture of sand table)	Lucile John
Cupboard (Picture of cupboard)	Helen Jennie
Floor (Line for floor)	Jack James

2. Phrase Cards in Drawing Work

Giving parts of a story or ideas suggested by a phrase or a group of phrases in rapid drawing, we find, makes for concentration and quick interpretation. The phrase cards are distributed about the room. A number of children with their chairs, drawing boards, paper and pencil, move from one to another, illustrating rapidly. The teacher observes, suggests, corrects. Such phrases as *The big bear's chair*, *The little bear's chair*, *The middle-sized bear's chair*, *The big bowl*, *The middle-sized bowl*, *The big bed*, *The little bed*, *The middle-sized bed* are used with the story of "*The Three Bears*." At first the phrases are with the pictures, then they are taken away, one by one.

3. Phrase Cards in Dramatisation

In dramatization some stories lend themselves to the indications of characters or articles necessary by means of word or phrase cards, thus: *Garden*,

where the little red hen lived; *Santa Claus Land* or *A Christmas Store*, where the labels read "A Walking Doll," "A Talking Doll," "A Singing Doll." A Mother Goose Village carried many signs to be correctly interpreted in finding places and assuming characters for the dramatization; "Mary Contrary" must find her watering can and the places in the room designated "Garden" and "Flowerbeds." Jack and Jill must get their pail and find the place designated "Hill."

4. Labels in Games and Plays

Games and plays lend themselves to attaching meanings to printed words in one of the most natural and necessary forms: Goals are marked *One, Two, Three*, etc., and are called in races; Captains' names are placed on the blackboard for score keeping; their companies' names are also placed there, and each child is held responsible for knowing in that way where his place is in the company.

B. Pre-Primer, Primer, and First Reader

Good silent reading habits were developed in connection with reading units based on nature study. The special subject was "Birds in the spring" (February to June). The problems in Nature study used as a basis were: "What do birds do in the world?" and "How may we attract them?"

In this work the following were some of the phases of development:

1. Observation and personal acquaintance with the birds; associated with near-by trees in gardens, yards, and fields.
2. Arrival and identification of a few for all of the class. This is not to be limited for those children who can learn of more.
3. Watching, recording, reporting and solving problems connected with the study of nesting and care of young.
4. Birds in picture, song, and story.

For pre-primer and primer classes words and phrases were quickly visualized to increase span of recognition. There was also silent reading in the class of individual record cards. The children read other cards than their own and told results of the other pupil's observations.

Three cardboards, each 6 by 9 inches, and ruled to answer the two questions "What?" and "When?" were given each child to take home the first of March and to be kept until they had a record of one bird on each card, then returned and used in silent reading in class work. At first, there were individual reports; then all were fastened to the bulletin board and grouped by the pupils through silent reading of content. This was worked out by groups. Through silent reading all of the reports on the robin were arranged together, all of those on the bluebird together, and so on. A study of food calendars followed this work. The home work, the class silent reading, the reproduction and the bulletin grouping were carried out as with the charts of arrival.

The charts of arrival and the food calendars were developed like these samples:

Chart of Arrival

What?	When?
Robin	March 8th
Woodpecker	March 9th
Wren	March 15th

Food Calendar

Food of Robins
 Worms
 Food of Hairy Woodpecker
 Cocoons
 Eggs of Beetles

The foregoing represent beginnings which were added to during the term.

We also use in silent reading descriptive cards of the birds. These are worked out with the teacher in class composition. After they are finished, one child holds the card for the class to read silently. Another child finds that picture of the bird on the bulletin board which answers the card description.

Cards 12 by 14 inches, like the following, were used:

I make a nest in the trees.
 I make it of sticks
 mud
 dry grass.
 I live in a bird house.
 It is in a tree.
 It is small.

The same idea is carried out in individual records contributed by children and written by the teacher on the blackboard. This is one illustration:

In the orchard there is a bird's nest.
 It is a robin's nest.

Hectographed slips or printed slips, the content taken from primers and library books, are mounted on cardboard and are read silently to get information needed in carrying on the nature study work.

Two of the card lessons were derived as follows:

- a. How to help the wrens.
- b. How to help the robins.
 (From "Little Kingdom Primer," by Sawyer. Publishers, Rand-McNally Co.)
- c. Up to the sky.
 (From "Character Building Series" Part I, Book I, by Kenyon and Werner. Publishers, Hinds, Noble, and Eldridge.)

IV. A LESSON TO TEST AND DEVELOP THE ABILITY TO COMPREHEND CERTAIN WORDS AND PHRASES

(Submitted by Emma Watkins, First-Grade Teacher, University Elementary School, State University of Iowa)

The calendar used for these exercises is of the ordinary sort distributed as advertising by commercial houses. It was mounted on a large sheet of cardboard in order to give the required stiffness. The words, phrases, and sentences were printed on pieces of cardboard, care being taken to print the entire phrase or sentence in one line. After seating the pupils as close to the calendar as convenient, the lesson is begun by telling the pupils that they are to be shown flash cards upon which are printed words which will tell them what to point

to on the calendar. Pupils are directed to stand as soon as they understand the meaning of the first phrase which is flashed. The pupil who finishes first is allowed to stand before the calendar and point to the appropriate place indicated by the flash card. This pupil continues the exercise, reading additional cards, until he makes an error, when his place is taken by some other pupil who can read that exercise. The lesson as described here is given under time pressure. It presupposes that the words and phrases which are used have been already developed with the class. The class is an advanced first-grade class.

1. Phrases

yesterday	the last day of the month
today	the first quarter of the moon
tomorrow	new moon
next week	full moon
this week	last quarter of the moon
the month	Sunday
the year	Monday
the date	Tuesday
week after next	Wednesday
a week from tomorrow	Thursday
two weeks from tomorrow	Friday
a week ago yesterday	Saturday
day after tomorrow	the day before the last day
day before yesterday	of the month
in two days	the sixteenth
the first day of the month	the fifteenth, etc.
the first day of the week	next Monday, etc.
next Saturday	next month
last Thursday, etc.	last Monday

2. Sentences

On what day do you go to Sunday-school?
 What will be the last day of school this week?
 (Other similar sentences.)

Information Concerning the National Society for the Study of Education

1. **PURPOSE.** The purpose of the National Society is to promote the investigation and discussion of educational questions. To this end it holds an annual meeting and publishes a series of Yearbooks.

2. **ELIGIBILITY TO MEMBERSHIP.** Any person who is interested in receiving its publications may become a member upon application to the Secretary and subsequent approval by the Executive Committee. Membership may not be had by libraries or by institutions.

3. **PERIOD OF MEMBERSHIP.** Applicants for membership may not date their entrance back of the current calendar year, and all memberships terminate automatically on December 31st, unless the dues for the ensuing year are paid as indicated in Item 6.

4. **CLASSES OF MEMBERS.** Application may be made for either active or associate membership. Active members pay two dollars dues annually, receive two copies of each publication, are entitled to vote, to hold office and to participate in discussion. Associate members pay one dollar dues annually, receive one copy of each publication, may attend the meetings of the Society, but may not vote, hold office or participate in discussion. The names of active members only are printed in Part I of each Yearbook. There were in 1920 about 250 active and 800 associate members.

5. **ELECTION FEE.** New active and new associate members are required the first year to pay, in addition to the dues, an election fee of one dollar.

6. **PAYMENT OF DUES.** Statements of dues are rendered in October for the following calendar year. By vote of the Society at the 1919 meeting, "any member so notified whose dues remain unpaid on January 1st, thereby loses his membership and can be reinstated only by paying the election fee of one dollar required of new members."

7. **DISTRIBUTION OF YEARBOOKS TO MEMBERS.** The Yearbooks, ready each February, will be mailed only to members whose dues for that year have been paid. Members who desire Yearbooks prior to the current year must purchase them directly from the publishers (see Item 8).

8. **COMMERCIAL SALES.** The distribution of all Yearbooks prior to the current year and also of those of the current year not regularly mailed to members in exchange for their dues is in the hands of the publishers, not of the secretary. For such commercial sales, communicate directly with the Public School Publishing Company, Bloomington, Illinois, who will gladly send a price list covering all the publications of this Society and of its predecessor, the National Herbart Society.

9. **YEARBOOKS.** The Yearbooks are issued in parts (usually two) every February. They comprise from 250 to 500 pages annually. Unusual effort has been made to make them on the one hand of immediate practical value and on the other hand representative of sound scholarship and scientific investigation. Many of them are the fruit of cooperative work by committees of the Society.

10. **MEETINGS.** The annual meeting, at which the Yearbooks are discussed, is held in February at the same time and place as the meeting of the Department of Superintendence of the National Education Association.

Applications for membership will be handled promptly at any time on receipt of name and address, together with check for the appropriate amount (\$8.00 for new active membership, \$2.00 for new associate membership).

GUY M. WHIPPLE, Secretary-Treasurer.

University of Michigan,
Ann Arbor, Michigan.



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LIST OF YEARBOOKS PUBLISHED SINCE 1912
(All Earlier Yearbooks are Available Also.)

	Pamphlet
Eleventh Yearbook, 1912, Part I.—Industrial Education. F. M. Lewis, G. A. Mirick, M. W. Murray, J. F. Barker, H. N. Wilson, C. F. Perry, A. L. Safford, P. Johnston, M. Blomfield, D. W. Johnson. 75 cents net; (weight 10 oz.)	.83
Eleventh Yearbook, 1912, Part II.—Agricultural Education in Secondary Schools. A. C. Mesahan, R. W. Silman, D. J. Crosby, W. H. Franck, H. P. Sutton, F. E. Crane, W. R. Hart, G. F. Warren. 75 cents net; (weight 10 oz.)	.83
Twelfth Yearbook, 1913, Part I.—The Supervision of City Schools. J. F. Dobbitt, J. W. Hall, J. D. Wolcott. 75 cents net; (weight 10 oz.)	.83
Twelfth Yearbook, 1913, Part II.—The Supervision of Rural Schools. A. C. Mesahan, L. J. Hartigan, J. E. Warren, Wallace Bond, U. J. Hoffman, A. E. Ouel, E. M. Rapp, Jackson Davis, J. D. Wolcott. 75 cents net; (wt. 10 oz.)	.83
Thirteenth Yearbook, 1914, Part I.—Some Aspects of High School Instruction and Administration. H. O. Morrison, E. K. Brudick, W. A. Jessup, and L. D. Hoffman. 75 cents net; (wt. 10 oz.)	.83
Thirteenth Yearbook, 1914, Part II.—Plans for Organizing School Surveys. E. L. Smith; Summary of Typical Surveys, Charles H. Judd. 75 cents net.	.75
Note: North Central High Schools, W. B. Jessup and L. D. Hoffman. Reprinted from the Thirteenth Yearbook, <i>Year 136</i> .	.26
Fourteenth Yearbook, 1915, Part I.—Minimum Essentials in Elementary-School Subjects. H. N. Wilson, H. W. Holmes, F. E. Thompson, E. G. Jones, H. H. Overill, W. S. Gray, F. M. Freeman, A. O. Fryer, J. F. Helm, W. A. Jessup, W. C. Bagley. 75 cents net; (weight 12 oz.)	.83
Fourteenth Yearbook, 1915, Part II.—Methods for Measuring Teachers' Efficiency. Arthur Oliver Hayes. 75 cents	.75
Fifteenth Yearbook, 1916, Part I.—Standards and Tests for the Measurement of the Efficiency of Pupils and School Systems. G. W. Strayer, Edw. T. Halvick, E. H. Goodingham, M. B. Taylor, E. W. Hallou, D. G. Miles, H. G. Callida, S. A. Davaris, E. P. Gosholmer, Charles H. Judd, George Melcher, E. T. Oberholzer, J. H. Sears, Donald Brown, and G. M. Whipple. 75 cents net; (weight 12 oz.)	.83
Fifteenth Yearbook, 1916, Part II.—Relationship between Pupils' Lives in School and Home Conditions. Charles Thomas Dickey. 75 cents net; (weight 10 oz.)	.81
Sixteenth Yearbook, 1917, Part III.—The Junior High School. Asher Augustus Douglas. 75 cents net; (weight 12 oz.)	.83
Sixteenth Yearbook, 1917, Part I.—Second Report Committee on Minimal Essentials in Elementary-School Subjects. H. N. Wilson, W. S. Gray, C. F. Munson, J. H. Hunkin, and F. M. Freeman; H. G. Fryer, W. W. Charters, W. G. Monroe, G. M. Wilson, W. C. Bagley, Street Surv. 95 cents net; (weight 14 oz.)	\$1.00
Sixteenth Yearbook, 1917, Part II.—Efficiency of College Students as Conditioned by Age and by Size of High School. R. F. Dittenger. 75 cents net.	.83
Seventeenth Yearbook, 1918, Part I.—Section I. Third Report of the Committee on Economy of Time in Schools.—<i>Efficiency, Reading, Geography, Vocabulary, Composition, Spelling, Voice, History, Reading, Progress of Historical Instruction in Seventh and Eighth Grades.</i> W. C. Bagley, J. G. Dealy, O. A. Ellwood, E. H. Green, A. D. Hart, W. H. Miles, H. Mesahan, and others. 75 cents net.	.83
Seventeenth Yearbook, 1918, Part II.—Measurements of Educational Products.—A Report to the National Association of Directors of Educational Research.—S. A. Davaris, E. H. Green, W. W. Charters, F. W. Rudin, W. B. Monroe, Executive Committee. Price 50 cents. (Part 2, 1919)	1.00
Eighteenth Yearbook, 1918, Part I.—Professional Preparation of High School Teachers.—H. L. Miller, T. W. Gooding, M. H. Coffin, L. V. Cook, A. E. Mead, G. B. Oehr, F. D. Wainman, G. Ferguson, M. H. Foster, and Bibliography. \$1.50 net; (weight 23 oz.)	1.50
Eighteenth Yearbook, 1918, Part II.—Report on Economy of Time in Learning (Fourth Report of Committee on Economy of Time in Schools).—H. N. Wilson, F. N. Froehke, W. L. Gray, Emma Harp, W. S. Munson, T. U. Aze, U. K. Sowards. \$1.00 net; (weight 14 oz.)	1.10
Nineteenth Yearbook, 1919, Part I.—New Materials of Instruction.—Prepared by the Society's Committee on the Materials of Instruction. \$1.00 net; (weight 15 oz.)	1.10
Nineteenth Yearbook, 1919, Part II.—<i>Some Problems in the Education of Gifted Children.</i> by G. H. Harvey. 50 cents net; (weight 14 oz.)	1.00
Twentieth Yearbook, 1921, Part I.—<i>New Materials of Instruction.—Second Report</i> by the Society's Committee. \$1.50 net.	1.50
Twentieth Yearbook, 1921, Part II.—<i>Factors Influencing Results in School Reading, and Experiments for Making Reading Efficient.</i> W. W. Swanson, May Joyce Burgess, Wm. S. Gray, J. A. O'Brien, J. H. Harvey, H. A. Finkler, G. S. Greenman, H. A. Bennett, J. L. Palmer, David Gooding, S. H. Taylor and M. A. Davaris. \$1.00 net; (weight 15 oz.)	1.10
Twenty-First Yearbook, 1922, Part I.—<i>General Principles of Instructional Training.</i> E. L. Thorndike, H. S. Galtier, Gerald Gray, G. M. Whipple. Part II.—<i>Administrative Data of Instructional Trainers.</i> H. W. Holmes, W. S. Layton, Helen Davis, Agnes J. Moore, Pauline Prince, M. H. Taylor, W. B. Miles, Louis Lee Campbell, and others. The two parts are bound together in one volume of 200 pages. Price \$1.50 net.	1.50

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