

COMPARATIVE STUDIES IN GEOGRAPHY--TEXTBOOK AND
FREE MATERIALS VERSUS TEXTBOOK AND
LIBRARY SUPPLEMENTS

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CHAPTER I

INTRODUCTION

Statement of the Problem

"The teaching of geography has had a chequered career, and it is only within the past few decades that the subject has begun to come into its own in the school."¹ Subject matter, procedures, and objectives have undergone many transformations. These are of extreme importance in the teaching of geography and are worthy of detailed study. The problem involved in this study was to carry on an experiment of two methods of teaching eighth-grade geography and to compare the two. An analysis has been made of the different methods of teaching, and the merits of each have been evaluated. Briefly stated, the problem of this thesis was to determine the value of the use of free materials as compared with library supplements.

Purpose of Study

Teachers of geography have long questioned the use of out-of-date textbooks, library books, and courses of study.

¹H. C. Barnard, Principles and Practice of Geography Teaching, p. 2.

H. Harrison Russell,² a member of the subcommittee appointed by the Yearbook Committee of the National Society for the Study of Education, made a study of the status of geography in the junior high school in 1932. Of the 126 cities surveyed, the report showed that some cities had no courses of study; that some had old, time-worn courses that were proving unsatisfactory; and that in others the courses were being revised. In this rapidly changing world, the writer saw no value in memorizing facts as they were in 1932 or earlier and making no attempt to find out, other than through the daily newspapers and radio, something of the economic activities of the American people in relation to environmental conditions. Her theory was that many outstanding industries, chambers of commerce, travel bureaus, and government agencies of the United States had more valuable and more interesting information about their products and their geographical relation to mankind than any textbook or library book ever contained. With this idea in mind, a collection of free materials was begun on food, clothing, shelter, tools and materials of industry, and luxuries.

Scope of Study

This problem was limited to an experiment in teaching with two types of materials as practiced in the eighth-grade

²M. C. Graham, H. H. Russell, and Z. Thralls, "Geography in the Junior High School," Thirty-Second Yearbook of the National Society for the Study of Education, Part IV, p. 267.

geography classes of the Lamesa, Texas, Elementary School for the school term of 1941-42. The writer believes the data are of sufficient significance to justify the drawing of tentative conclusions regarding the problem.

Method of Procedure

In order to determine the value of free materials in teaching geography as compared with ordinary library materials, two groups, each comprised of thirty-seven eighth-grade pupils, were chosen. These groups, which were designated by B and C, were paired as far as possible by the Otis Quick-Scoring Mental Ability Tests, Beta Form A, Buckingham-Stevenson Information-Problems Tests in Geography, United States Form I, and B E C Personality Rating Schedule. Results of the tests are included in Tables 1, 2, 3, 4, and 5. To some degree, teachers' judgments also entered into the grouping.

As Lamesa, Texas, is a town of about six thousand population, there is only one elementary school; therefore, the children in each section considered in this study represented practically all types of homes found in Lamesa. Departmental work was done in these two sections by six different teachers. Both classes in geography were taught by the writer of this thesis. Group B was taught through the use of the textbook and free materials, while group C was taught through the use of the textbook and library supplements.

Definition of Terms

In this study the term "free materials" means materials, such as maps, pamphlets, booklets, graphs, posters, pictures, and exhibits which were obtained from government agencies, chambers of commerce, travel bureaus, and industrial establishments. These materials were obtained merely by writing a postal card and asking for them.

Sources and Treatment of Data

The following sources provided lists of free materials which were collected and used by group B to supplement the textbook:

1. Allegheny County, Maryland, Board of Education, Free and Inexpensive Teaching Aids for Junior and Senior High Schools, (1939), Cumberland, Maryland.
2. F. K. Branom, "Free or Inexpensive Geographic Materials," Chicago Schools Journal, XII (Sept.-Oct., 1940), 26-37, Chicago Teachers College, 2800 Stewart Ave., Chicago, Ill.
3. H. W. Wilson Co., Verticle File Service Catalog, (1940), 905-972 University Ave., New York City, N. Y.
4. National Educators Society, Inc., International Index (1940), 1510 Yecker Ave., Kansas City, Kansas.
5. The Continental Press, The Educator's Directory (1939), Harrisburg, Pennsylvania.

The basic text by W. R. McConnell, The United States in the Modern World, Rand McNally and Co., New York City, New York, was used by group C. A list of the library supplements, magazines, and newspapers also used by this group is found in Appendix B.

The data in this study are based upon the results obtained by a comparison of the two groups as determined by the following tests: Buckingham-Stevenson Information-Problems Tests in United States Geography, Forms I and II, Teacher's Achievement Test, B E C Personality Rating Schedule, Interest Index on Subjects Studied in Elementary School, and also upon the research in reading materials from the latest authorities in the field of geography.

CHAPTER II

GROUP B--TEXTBOOK AND FREE MATERIALS GROUP

Objectives

As the two groups of pupils considered in this study had been taught the previous year in seventh-grade geography class by the writer, she felt that she knew them and their needs well enough to set up objectives at the very beginning of the term and to do some planning for the activities before the first day of school. One of her primary aims was to make the child, not the subject, the center of the school. She realized that:

The chief end in teaching geography is not information, but ability to think geographically. The outstanding educational objective of geography, in other words, is to help make purposeful thinkers and successful doers, not to create animated gazetteers. In order to think geographically, pupils need something suitable to think about, an inducement to think, and appropriate guidance in thinking.¹

With these ideas in mind the following general objectives, which represent a composite list from different sources, were set up:

1. To develop an understanding of the relationships of man to his natural environment.

¹C. J. Miller, Geography, How to Teach It, p. 1.

2. To develop an ability to use accurate understandings of that nature in solving everyday problems.
3. To develop distinctive tool-using abilities that will enable one to acquire for himself further geographic information and more skill in its use.²
4. To develop an understanding of man's relation to man socially and economically.
5. To give a working knowledge of the information necessary in ordinary life concerning place, surface features, political divisions, natural phenomena, and of how to interpret such information in maps, charts, museums, etc.
6. To give the child an understanding of the influences of geographical conditions on political events.
7. To give a sympathetic understanding of the conditions and peoples of other countries.³
8. To develop an appreciation of the work and workers of the world and their contributions to society.
9. To develop an understanding that human progress in the contemporary world depends upon the interdependence of men and of nations.
10. To develop the ability and willingness to investigate materials with the view of making new discoveries.
11. To give an understanding of how man's control over nature has constantly increased and the effects on man's control over nature.
12. To develop a scientific attitude, i.e., the disposition to assemble all data possible so that conclusions may be based upon sufficient evidence.
13. To develop desirable traits of character such as loyalty to principles, cooperation, respect for the rights of others, tolerance, unselfishness, leadership, the ability to follow, responsibility, open-mindedness, and mental alertness.⁴

Specific objectives for the course were the following:

1. To present a simple but adequate study of the economic activities of the American people in relation to the environmental conditions.

²E. P. Parker, "Major Conclusions to be Drawn from the Investigations," Thirty-Second Yearbook of the National Society for the Study of Education, Part II, p. 161.

³H. L. Smith and W. M. Wright, Tests and Measurements, p. 268.

⁴Texas State Department of Education, Teaching Social Studies in Junior and Senior High Schools of Texas, p. 218.

2. To show how American economic interests and problems are related to the rest of the world.⁵

From these objectives, it is seen that the teaching of geography has moved from the mastery of textbook facts to the child's preparation to meet situations involving relationship problems more effectively. This change in aim has brought about many changes in teaching. From reading and memorizing facts, and sometimes making a notebook, learning experiences have changed to an endless variety of activities. "The question-answer method where she-who-knows-the-answer asks the question of those-who-do-not-know-it cannot be justified as a process for developing a well-adjusted individual."⁶

Subject Matter and Content

The subject matter and content of the course studied by group B was based on the textbook The United States in the Modern World by W. R. McConnell and free materials which were collected by pupils and teacher. The textbook contains the following subjects which comprise the eight units used in this experiment:

- I. What We Have to Help Us Live Well and Win Success
- II. Living and Working on American Farms
- III. Fishing in American Waters
- IV. At Work in the Woods
- V. At Work in Mine and Quarry
- VI. Sources of Power
- VII. At work in Mill and Factory
- VIII. Trade and Transportation

⁵W. R. McConnell, "Preface," The United States in the Modern World, p. vii.

⁶J. M. Lee and D. M. Lee, "Social Experiences," The Child and His Curriculum, p. 313.

These units were considered as sub-divisions of one large unit which was called "Living and Working in the United States." The writer was pleased with the organization of the units in the text and with the hope expressed by the author:

that the student may carry away from its pages the realization that one of the greatest and most ennobling things in the world is honest labor; that the economic life of our own country is inextricably linked up with that of the rest of the world; and that the geographic significance of a nation is determined not by what it produces or consumes but by how well it makes use of its natural resources in the interest of world progress.⁷

Since the first copyright of this text was 1932, the writer knew that much had been written on each unit since the text was published. An investigation revealed that industrial establishments, government agencies, travel bureaus, and chambers of commerce had ample material which they were anxious to put in the hands of teachers and pupils. A list of these free materials which were collected by pupils and teacher and used in connection with the study of each unit in this experiment is given in the Appendix A under the eight unit titles with their subdivisions.

Materials Used

Materials used, as previously stated, in teaching group B came from two main sources: the basic text The United States in the Modern World by W. R. McConnell and free materials listed in the Appendix. The latter materials may be classified

⁷McConnell, op. cit.

as follows: pictures, maps, graphs, statistics, charts, posters, pamphlets, booklets, and exhibits.

Method of Presentation

It would require too much space to give a detailed account of each sub-unit studied during this experiment. Therefore, the general method of presentation used for the unit "Living and Working in the United States" is presented in condensed form. Later in this chapter, a descriptive interpretation of one of the sub-units is included.

Previously, it has been stated that departmental work is done in the Lamesa Elementary School. Each teacher is given his assignment and schedule for the term. No attempt is made to specify areas for each grade in which the teacher will select appropriate units, or in any way to list a number of units for each grade from which the teacher and class may choose. Pupils are issued textbooks, and the way in which they are used is left entirely up to the teacher of that particular subject.

Many educators would object to calling this type of work, in a school where departmental work is done, and where each teacher goes busily about his own work, a unit. In the writer's opinion, it approached a unit in so far as it is possible to teach one in departmental work. However, "it does not follow from the establishment of principles of teaching geography that geographic subject matter becomes a fixed body

of material to be presented in a fixed way; there will always be more ways than one of achieving a given outcome."⁸

Introduction of the unit in Section B.--The geography period in section B came in the morning at 10:40 o'clock. As this was the first week of school, the weather was warm, and the pupils seemed tired. Many of them, who had not seen each other during the vacation, were anxious to account for the happenings of the summer. Some of the pupils asked the teacher how she had spent the vacation. The class period was turned into a socialized recitation in which each child who wished to volunteer told of his most interesting experience during the summer. At the close of the period, several pupils had not told of their experiences; so the teacher promised them they might do so later.

The second day for geography class-period, the teacher appeared with a set of Otis Quick-Scoring Mental Ability Tests. After reading the sample questions on the front page of the test and showing the pupils how they could easily indicate the answer by placing a cross in one of the circles, the pupils were asked if they would like to take the tests. They were all anxious to try, as the questions appeared to resemble puzzles. The teacher suggested that the pupils in section B

⁸E. P. Parker, "Investigating the Value of Geographic Offerings," Thirty-Second Yearbook of National Society for the Study of Education, Part II, p. 73.

were running a race with section C in this test and that they should do their best, although they would not find it wise to hurry. Evidently these pupils had not been given an intelligence test before, because not one of them seemed to recognize it as such.

When the pupils had finished the questions, someone wanted to know what the purpose of the test was. The teacher replied that it was a test to see how well the pupils could think.

At the next meeting of the geography class, some of the pupils reminded the teacher that they had not told about their vacations. From different reports it was found that members of the class had visited several sections of the United States. One pupil had been to Nova Scotia and had seen the small fishing vessels come in with their catch. The teacher gradually led the pupils into a discussion of the industries they had seen on their trips. She asked them if they had noticed that their geography was about the United States this year rather than about foreign countries. They were then asked to turn to the table of contents in section II of the text.

"How would you like to bring some postal cards to class tomorrow and write to companies representing these industries for some free materials which they will send you?" asked the teacher.

As these pupils had not done this sort of thing before, they did not know what the teacher meant. She showed them a

brightly colored booklet entitled The Silver Harvest of the Sea. Immediately hands went up, all except two or three.

The next day all the pupils except six returned with postal cards. Many had two or three. The teacher had written names of products or industries about which the class would study on slips of paper, together with the name of the company and the address to which the pupils could write for free materials. As she read these names, or the title of booklets or exhibits which the company would send, the pupils chose the thing which seemed to appeal to them most. Many asked for addresses from which they could obtain material on special subjects such as airplanes, railroads, and boats. As this unit was a broad one, the teacher was prepared for such requests and could usually supply an address.

With the help of the teacher, a letter was written to the United States Department of Agriculture, Forest Service, Washington, D. C., requesting the booklet New Forest Frontiers which was to be used in the unit on forestry. The letter was written on the board so that the pupils might use it as a model. Each pupil then took his card and wrote to the address which he had been given asking for material. The cards were handed to the teacher so that she might check them for errors. They were then returned to the pupils in order that they might enjoy mailing their own cards.

Planning period.--During the following days many questions about the cards were asked, such as the following: "Will this material be sent to me?" "How long will it take for me to get a reply from New York?" "If I bring some more cards, will you give me another address?" "What are we going to do with this material?"

"How would you like to use these materials which you have ordered in studying geography instead of using books from the library as we did last year?" asked the teacher. The class seemed to agree that this would be fun.

While waiting for the material to arrive, planning was done on the part of the teacher and pupils concerning the things they were interested in doing in geography class. In addition to this planning, there was The Geography of Texas, a supplement in the textbook, to be studied. This work required about two weeks and was not included in the experiment.

Activities or learning experiences.--This list of activities was made up of things suggested by the pupils and teacher and done during the semester for which this experiment was made.

1. Writing

- a. Writing a letter of request for free materials.
- b. Writing a story.
- c. Writing a "thank-you" letter.
- d. Writing a poem.

- e. Writing a geographical letter.
 - f. Writing geographical descriptive guess sentences and paragraphs.
 - g. Making a bibliography.
2. Talking
- a. Telling a story.
 - b. Making an oral report.
 - c. Explaining how some product is manufactured, how some plant is cultivated, or how some product is obtained.
 - d. Telling about an imaginary or real trip.
 - e. Interviewing people and making reports to class.
 - f. Playing the question-and-answer game.
3. Listening
- a. Listening to radio programs.
 - b. Listening to talks.
 - c. Listening to music.
4. Constructing
- a. Making a geography booklet of American industries and products.
 - b. Preparing an exhibit, individually or in groups.
 - c. Making geographical posters.
 - d. Making a model ship, airplane, etc.
 - e. Making geographical cross-word-puzzles.
 - f. Beginning a geography museum.
 - g. Arranging exhibits on bulletin board from day to day.
 - h. Setting up the exhibit for Parent Teachers Association.

5. Collecting

- a. Collecting news clippings, articles, and pictures of geographical interest.
- b. Collecting free materials to be used in class.
- c. Collecting labels from grocery stores and homes to show the source of our food supply.
- d. Collecting specimens of different products studied in the course, labeling them, and putting them on exhibit.

6. Seeing

- a. Seeing a picture show in the auditorium, geographical pictures.
- b. Looking at pictures through the stereoscope.
- c. Studying a map and locating regions, cities, rivers, lakes, mountains, and plains.
- d. Studying the globe.

7. Representing graphically

- a. Making a map, such as products map.
- b. Making a chart.
- c. Making a graph.

8. Experimenting

- a. Planting seeds of plants not adapted to our part of the state.
- b. Testing the potato for starch.
- c. Comparing different kinds of sugar.

9. Reading
 - a. Reading and looking at pamphlets, booklets, and materials collected by class.
 - b. Reading lesson in textbook.
 - c. Reading a story.
10. Dramatizing
 - a. Playlets.
 - b. Conversations.
11. Drawing. Pictures or cartoons to illustrate geography booklets of stories.
12. Exhibiting. Exhibiting materials collected individually and in groups, for own class work, for section C, and for visitors.
13. Listing
 - a. Listing products, manufacturing cities, products made from certain articles, etc.
 - b. Listing "Do You Know" statements.
 - c. Listing prices obtained from merchants.
14. Visiting
 - a. Visiting egg plant, coal station, and cotton gin.
 - b. Visiting cotton-seed oil mill. (These visits were made after school since short periods in departmental work causes field trips to interfere with other classes.)

An Illustrative Unit: The Growing of Sugar Beets

The following illustrative unit is a sub-unit of "Living and Working in the United States" which was used in section B in the experimental work for this thesis.

Approach.--The tackboard was cleared of all materials which the class had collected on vegetables and fruits, and an entirely new exhibit was viewed by the pupils. An enormous wall chart, thirty-eight by fifty inches, which showed the story of sugar from the field to the finished product, was found on one end of the tackboard while the remainder of the board was filled with sixteen photographs of the sugar beet industry and an outline map of the United States with the sugar beet areas printed in black. All of this material was supplied by the United States Beet Sugar Association, Washington, D. C. On the teacher's desk, there were also the following booklets: The Silver Wedge from the same source; Sugar Beets in Michigan and Producing Sugar Beets from Michigan State College Agricultural Experiment Station, East Lansing, Michigan; and America's Own Sugar from the Spreckles Sugar Company, San Francisco, California.

Interest story.--No interest story was needed; there it was in picture form, spread over the whole tackboard.

Big ideals.--The following big ideals were chosen:

1. The United States is the greatest sugar-consuming nation.
2. The process involved in the growing of sugar beets and the

manufacture of sugar show how man meets his functional needs through an increasing control over physical environment or adaptation to it.

Specific objectives.--The following specific objectives were set up:

1. An interest in the source of our sugar supply.
2. An appreciation of the labor necessary to produce our sugar.
3. A knowledge of the geographic and climatic conditions required for the growth of the sugar beet.
4. A knowledge of the principal sugar beet areas of our country and the rest of the world.
5. A knowledge of how sugar is extracted from the beet.
6. A knowledge of the principal processes involved in the growing and harvesting of the sugar beet.
7. A knowledge of the value of sugar-beet by-products in the development of the livestock industry.
8. A knowledge and appreciation of how the culture of sugar beets improves the yield of crops which follow it in the cycle of rotation.
9. An appreciation and knowledge of how the production of beet sugar contributes to other American industries by its use of transportation facilities and its consumption of coal, coke, cotton, oil, machinery, etc.
10. A knowledge of the importance of sugar in the individual's diet.

11. An appreciation and knowledge of the fact that such cultivated crops as the sugar beet has reclaimed thousands of acres of land.

12. An appreciation of the fact that such cultivated crops as the sugar beet has enabled thousands of farmers to raise their standards of living.⁹

Activities.--Many of the activities engaged in by section B which are listed here were suggested in The Sugar Beet--A Unit of Work for Intermediate and Upper Grades by the United States Sugar Beet Association, Washington, D. C. All activities were not done by each pupil; some did only one, while others did several; but the class received the benefits of the experiences of all when the final results were given.

1. Read about sugar beets in the text, pp. 63-64, and in the free materials booklets found on the desk.

2. Report on "Sugar Beet Growing in Kansas" by a pupil who had lived there.

3. Study and discuss wall chart and photographs on tack-board.

4. Tell how beet-sugar is made. (See the chart and The Silver Wedge, Chapter VI.)

5. Look at and discuss pictures, maps, and graphs in text on pp. 16, 17, 32, 33, 36, 63, and 64; Figures 26, 47, 53, 64, 96, 100.

⁹The United States Beet Sugar Association, The Sugar Beet, a Unit of Work for Intermediate and Upper Grades, pp. 11-12.

6. Answer questions in text referring to the figures above. (See the text, pp. 65, 66.)
7. Write a letter asking for sample of sugar beet seed.
8. Tell how water for the irrigation of sugar beets is obtained, as shown in plate 4.
9. Collect pictures of the sugar beet industry for your booklet of American industries.
10. Trace the map of the United States on p. 283. On it show both the sugar cane and sugar beet regions of the United States.
11. Complete the chart on p. 66 of your text for sugar cane and sugar beets.
12. Go to a grocery store and ask for samples of cane sugar and beet sugar. Compare them.
13. Write letters to the companies from which the free materials for this unit were obtained and thank them for it.
14. Make a graph showing the amount of cane sugar and beet sugar produced in the United States. (See the text, fig. 98, p. 65.)
15. Ask your mother if she can detect beet sugar from cane sugar when used for cooking purposes. Report her answer to the class.
16. Ask your father or mother about sugar rationing during the World War, and if they think it will be necessary to ration it during this war.

17. Read accounts of the attempt by the Mormons to introduce the beet sugar industry into Utah. (See The Silver Wedge, pp. 22, 23.)

18. Soak some sliced potatoes in a little water and leave over night. Pour off the water and examine the material soaked out. Does this help you understand anything about the sugar beet?

19. Read "The Beet and the Animal." (See The Silver Wedge, pp. 35-39.)

20. Make a large map of the world. Show the beet sugar areas and the cane sugar areas. (See the text, p. 66.)

21. List the chief sugar-producing countries of the world. (See the text, p. 66.)

22. List the chief sugar-producing states. (See the map in text, p. 63, and map on the tackboard.)

23. Find out the price of sugar per pound. How much does your family use per week, per year? What does it cost?

Survey of results.--This test used as an evaluation in section B was adopted largely from the one given in the booklet The Sugar Beet, a Unit of Work for Intermediate and Upper Grades published by the United States Sugar Beet Association, Washington, D. C.

I. Draw a line under the word that makes each statement true.

1. Most of the sugar produced in the United States comes from

beets

cane

sorghum

honey

2. The sugar beet makes most sugar when grown in an average temperature of

60°

70°

80°

95°

3. The country leading in the consumption of sugar is

United States

Germany

Japan

Russia

II. Fill the blanks in the following sentences with words that make the statements true:

1. Sugar supplies _____ to the body.

2. The by-products of the sugar-beet have made _____
_____ a large industry in the _____ States.

3. At the usual rate of consumption, our total production both of beet sugar and cane sugar would last the people of the United States only _____.

4. We get most of our sugar from _____.

III. Draw a line from the phrase in Column A to the phrase in Column B that belongs with it.

A

B

Louisiana

Most imported sugar

Live stock feeding

Energy

Raw sugar

Beet pulp

Colorado

Beet sugar

Sugar

Cane sugar

IV. Answer the following questions:

1. Why is the beet sugar industry centered in our Western States?

2. Why is Germany adapted to the growing of sugar beets?
3. Why does the same land produce better crops of all kinds after sugar beets have been introduced into the cycle of rotation?

V. Below are some sentences related to the beet sugar industry. Select those that you think give the most important reasons why the beet sugar industry is a beneficial economic unit in the United States.

1. Sugar is packed in cotton bags or paper boxes.
2. Beet sugar is concentrated and non-perishable and can be shipped long distances.
3. Sugar is a chemical compound.
4. Sugar is produced in more than sixty countries.
5. Automobiles, trucks, leather, steel farm machinery and tools are used extensively in the beet sugar industry.
6. The vegetable by-products of the sugar beet are converted into meat and milk, and what is not sold in these forms is returned to the soil as manure.
7. Napoleon gave beet sugar to the world. Since his day beet culture has spread to every nation in the Temperate Zone.
8. There are 100 sugar beet factories in sixteen states from Ohio to the Pacific Coast.

Lead out.---One of the pupils said that his father had been to Cuba, the island from which we secure much of our cane sugar, and that he would probably tell the class about his visit. This father was the principal of the elementary school. An invitation was extended to him to visit our class the next day and tell us about the growing of sugar cane in Cuba, as this was our next sub-unit for study. He accepted the invitation and gave an interesting account of his visit to Cuba.

CHAPTER III

GROUP C---TEXTBOOK AND LIBRARY SUPPLEMENTS GROUP

Objectives

As the experiment used in this thesis was a comparison of two groups, taught with two different types of materials, it was necessary to use the same objectives in teaching group C as were used in teaching group B. These objectives are listed in Chapter II, and it does not seem necessary to repeat them in this chapter.

Subject Matter and Content

The subject matter and content of the course studied by group C was based on the textbook The United States in the Modern World by W. R. McConnell and library supplements. In this course, the unit "Living and Working in the United States" was also used with the eight units which were listed in Chapter II treated as sub-units. A list of the library supplements, magazines, and newspapers used in this course and found in the Lamesa Elementary School Library is included in Appendix B.

Materials Used

Materials used in teaching group C came from two main sources: namely, the basic text The United States in the

Modern World by W. R. McConnell and library supplements. As no free materials were collected by this class, the pictures, maps, graphs, statistics, and charts used were found in these two sources and occasionally in magazines and newspapers. The globe, a world map, and a large political wall map of the United States with a physical map inset were used. Exhibits were made up of products which were obtained from the local community or which the children, by chance, happened to have at home.

Method of Presentation

In this course as in the one studied by group B, it was intended to give an understanding of the varied natural environment of the United States, the human adjustments to each, and the need of adjustment as the population increases.

The teacher realized

that the emphasis on junior high school geography should be on exploratory, vocational, cultural, and citizenship training values, and that she must select such material and organize and teach it in such a way as to give the pupils the conscious thought that they were meeting with real and genuinely new experiences.¹

She tried to keep in mind that the textbook was a tool and that both she and the pupils must use it in a profitable manner. The textbook, then, formed the basis upon which the units were built, and the library supplements supplied much additional and valuable material. It is hoped that each unit was treated

¹Committee of National Council of Geography Teachers, "Geography in Junior High School," Journal of Geography, 26 (Sept., 1927), 207-209.

in such a manner that there were lasting impressions left in the child's mind, that he had acquired the ability to think geographically, and had not received merely a knowledge of facts alone.

Introduction of the unit in section C.--The geography period for section C came in the afternoon from 12:45 to 1:20 o'clock. In this class as in section B, the teacher asked if the children would like to tell of some interesting experiences which they had had during the summer rather than have a geography lesson. They, too, were pleased to relate the story of an exciting fishing trip, a Boy Scout summer camp, or a trip to Carlsbad.

The second day for geography class period, the teacher approached section C with the question of taking the Otis Quick-Scoring Mental Ability Tests. As in section C, no one in this section seemed to recognize the test, either. It seemed to be quite amusing to some to answer questions by placing a check within a circle.

On the third day, the reports on summer experiences were resumed as several pupils had not told of their experiences and still seemed anxious to do so. One little girl had spent the whole summer in California and told the class of the beautiful orange groves, peach orchards, and vineyards which she had seen. The teacher asked her to tell about some of the things she saw on the route to California, such as the ranching country

of the Trans-Pecos, the high mountains, the desert, and the copper mining regions of Arizona.

She then asked, "How many different things do you suppose you saw people doing to make a living while on this trip?" As several of the pupils had been to El Paso and some to different points in New Mexico, they joined in listing the occupations.

The pupils were asked to turn to the table of contents in the text and read some of the sub-units they were to study. Someone remarked, "This year our geography is about the United States instead of foreign countries."

Planning period.--In order to learn more about living and working in the United States, the pupils were asked to see how many things they could think of doing in geography class which would be interesting and at the same time help them learn geography. Two or three activities were written on the board. The pupils supplied others and were asked to list all the activities they could think of before the next geography period.

Planning continued in section C, as in section B, while the class studied The Geography of Texas which was not considered a part of this experiment.

Activities or learning experiences.--The list of activities made by the teacher and pupils of section C, and engaged in during the same semester in which the experiment was performed in section B, is practically the same as listed in

Chapter II, with the exception of all those activities which had to do with free materials. The source of those activities was changed to the textbook and library materials rather than to free materials.

An Illustrative Unit: The Growing of Sugar Beets

The same illustrative sub-unit of "Living in the United States" is given here as in Chapter II with the method of presentation used in group C, so that a comparison of the two methods may be more easily made.

Approach.--As one of the activities for this group was making a geography booklet of American industries and products, practically every day the pupils brought some pictures or clippings to class to ask the teacher what she thought of them. Often, children were asked to place them on the tackboard, especially if the sub-unit to which they pertained was to be taught within the next few days. The tackboard had been fairly well supplied with pictures of the fruit and vegetable industry, but when it came to the sugar-beet industry, only small pictures which had been pasted on a page for a booklet were found on the tackboard. These pictures showed a small map of the United States with the sugar-beet area shaded, land being cultivated for sugar beets, and flat cars of sugar beets going to the factory.

Interest story.--The pupils of this section had enjoyed the adventures of Edward and George in Seeing America Farm

and Field by Pitkin and Hughes; so the teacher read the story of their visit to a Colorado sugar beet field.

Big ideals.--The following big ideals were set up for section C:

1. In some years the United States pays out more money for sugar than for any other import.

2. What would we do if our sugar supply from the outside should be cut off?

3. The process involved in the growing of sugar beets and the manufacture of sugar show how man meets his functional needs through an increasing control over physical environment or adaptation to it.

Specific objectives.--The specific objectives set up for section C were the same as for section B since each group was trying to reach the same goal but through a different medium.

Activities.--The activities in group C coincide as nearly as possible with those done in group B. Some of the activities were suggested in the library supplements. As in group B, all activities were not engaged in by any one pupil. The following list of activities was used by group C:

1. Read about sugar beets in the text, pp. 63-64 and in at least one of the following books:

Frank G. Carpenter, How the World is Fed, pp. 338-342.

Elizabeth F. Fisher, Resources and Industries of the United States, pp. 56-60.

Pitkin and Hughes, Seeing America Farm and Field, pp. 286-289.

L. C. Rusmiser, Industrial-Commercial Geography of the United States, pp. 94-96.

2. Invite the pupil from section B who had lived in Kansas to give a report on "Sugar Beet Growing in Kansas."
3. Study and discuss pictures and graphs shown in books listed in activity number 1 to see if you can find any relation in the climate and physical regions to the sugar beet industry.
4. Tell how beet sugar is made. (See How the World is Fed, pp. 341-342.) (See Resources and Industries of the United States, p. 60.) (See Industrial and Commercial Geography of the United States, pp. 95-96.)
5. Look at and discuss pictures, maps, and graphs in the text on pages 16, 17, 32, 36, 63, and 64; figures 26, 47, 53, 64, 96, and 100 to see the relation of the physical region, temperature, growing season, and rainfall to the sugar beet industry.
6. Answer questions in text which refer to the figures listed in activity number 5. (See text, pp. 65-66.)
7. Go to a grocery store and see if you can get sugar-beet seed.
8. Look at the picture on page 64 of the text. How may the water be supplied to this field?

9. Collect pictures of the sugar beet industry for your booklet of American industries.

10. Trace the map of the United States on page 283 of the text. On it show both the sugar-cane and sugar-beet regions of the United States.

11. Complete the chart on page 66 of your text for sugar cane and sugar beets.

12. Go to a grocery store and ask for samples of cane sugar and beet sugar. Compare them.

13. Partially fill a glass with sugar, cover it with water, and allow to stand several hours. If a blue scum appears, you have beet sugar. (See Industrial and Commercial Geography of the United States, p. 96.)

14. Make a graph showing the amount of cane sugar and beet sugar produced in the United States. (See text, figure 98, p. 65.)

15. Look up the latest Yearbook of the Department of Agriculture and see what the total production of beet sugar and cane sugar in the United States was. Compare these figures by means of a graph.

16. Ask your father or mother about sugar rationing during the World War, and if they think it will be necessary to ration it during this war.

17. How and by whom was it discovered that sugar could be made from the beet? (See Resources and Industries of the United States, Fisher, p. 56.)

18. Soak some sliced potatoes in a little water and leave over night. Does this explain anything about the sugar beet?
19. Give some other uses of the sugar beet. (See Resources and Industries of the United States, Fisher, p. 60.)
20. Make a large map of the world. Show the beet-sugar areas and the cane-sugar areas. (See text, p. 66.)
21. List the chief sugar-producing states. (See map in text, p. 63 and graph in Resources and Industries of the United States, p. 58.)
22. List the chief sugar-producing countries of the world. (See text, p. 66.)
23. Find out the price of sugar per pound. How much does your family use per week, per year? What does it cost?
24. On an outline map of the United States, outline with a blue crayola the region where sugar beets are now produced. On the same map, outline with a red crayola the region where they can be produced. (See How the World is Fed, pp. 338-339 and Resources and Industries of the United States, pp. 58-59.)
25. What railroad lines would carry a shipment of beet sugar from Garden City, Kansas, to Butte, Montana? (See text, p. 259.)
26. See how long a list you can make of the uses of sugar.

Survey of results.--For an evaluation, the same test was given to group C as was given to group B. This test is found in chapter II.

Leads out.--One pupil in section C had visited in Louisiana and volunteered to tell the class about the sugar cane which she had seen. This report led to the next sub-unit on sugar cane.

CHAPTER IV

COMPARISON OF THE TWO GROUPS

As the comparison of the two groups studied was based upon the results of the Buckingham-Stevenson Information-Problems Test in Geography, B E C Personality Rating Schedule, Interest Index on Subjects Studied in Elementary School, and Teacher's Achievement Test, the data taken from these sources will be explained and compared in this chapter for the purpose of determining the results of the experiment. The data will be presented in tabular form.

Since the tests were given by the same teacher, on the same days, and under as nearly the same conditions as possible, the results obtained are considered typical of each group.

The writer realizes that some of the most important aspects of teaching cannot be measured.

The shift in emphasis has been from the memorization of facts of geography, of history, or of civics to the effort to develop adequate habits of thinking about social problems, based on accurate information, and to guide pupils in acquiring proper social attitudes which will result in their later engaging in socially desirable behavior.¹

According to M. E. Branom,² scientific testing in geography, as well as in other phases of social science, is still in the

¹M. E. Broom, Educational Measurements in the Elementary School, p. 225.

²M. E. Branom, "Testing in the Field of Geography," Thirty-Second Yearbook of the National Society for the Study of Education, Part V, p. 341.

developmental stage and has not been able to keep up with this shift in emphasis. Standard achievement tests still measure primarily factual information. Because of the desire to measure more than this, other tests were given which will be explained in this chapter.

Table 1 shows the distribution of the two groups on the basis of the actual scores made on the Otis Quick-Scoring Mental Ability Tests, Beta Form A, in September.

TABLE 1

NUMBER OF PUPILS IN EACH GROUP THAT FELL INTO EACH CLASS INTERVAL, DISTRIBUTED ON BASIS OF SCORE EARNED WHEN TESTED IN SEPTEMBER WITH OTIS QUICK-SCORING MENTAL ABILITY TEST, BETA FORM A

Groups	Class-Interval Scores					Total
	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	
Group B	1	9	18	7	2	37
Group C	1	7	19	8	2	37

Table 2 shows the distribution of the two groups on the basis of the I. Q. when tested with the Otis Quick-Scoring Mental Ability Test, Beta Form A.

TABLE 2

NUMBER OF PUPILS IN EACH GROUP THAT FELL INTO EACH CLASS INTERVAL, DISTRIBUTED ON BASIS OF I. Q. WHEN TESTED WITH OTIS QUICK-SCORING MENTAL ABILITY TEST, BETA FORM A

Groups	I. Q.						Total
	70 to 79	80 to 89	90 to 99	100 to 109	110 to 119	120 to 129	
Group B	1	3	10	17	5	1	37
Group C	1	3	10	17	5	1	37

Table 3, showing the median and mean, shows group B higher in I. Q. when computed on the mean, but when computed on the median, they are identical in I. Q. The mean chronological age shows group C to have an advantage of one month plus. The median chronological age also shows group C to have an advantage of four months. However, this is not enough to make any appreciable difference.

TABLE 3

THE MEDIAN AND MEAN CHRONOLOGICAL AGE, SCORE, AND I. Q. OF GROUP B AND OF GROUP C IN SEPTEMBER

Group	Median			Mean		
	C. A.	Score	I. Q.	C. A.	Score	I. Q.
Group B	12-5	43	101	12-8	44.	100.9
Group C	12-9	44	101	12-9	44.57	100.7

Table 4 shows groups B and C distributed on the basis of the actual scores made in September on the Buckingham-Stevenson Information-Problems Test for United States Geography, Form I. On Part I, Information, the median is the same for both groups; however there is a difference of .16, with group C higher when computed on the mean. On Part II, Problems, when computed on the median, group B is 1 point higher and also .48 higher when computed on the mean.

For the purpose of measuring social attitudes, the teacher chose the B E C Personality Rating Schedule. Although this test was prepared under the direction of the Business Education Council for students of commercial work, it provides for checking social traits which the teacher wished to consider in this experiment. The major traits with the subscales listed under each are as follows:

- I. Mental Alertness
 - 1. Grasp of Instructions
 - 2. Profit from Mistakes
 - 3. Active Attention
 - 4. Intellectual Curiosity
- II. Initiative
 - 1. Self-Instituted Activity
 - 2. Assignment Preference
 - 3. Voluntary Contributions
 - 4. School Leadership
- III. Dependability
 - 1. Trustworthiness
 - 2. Persistence
 - 3. Punctuality
 - 4. Obedience to Rules
- IV. Cooperativeness
 - 1. Group Work
 - 2. Effect on Group
 - 3. Altruism
 - 4. Receptivity to Suggestions

TABLE 4

NUMBER OF PUPILS IN EACH GROUP THAT FELL INTO EACH
CLASS INTERVAL IN SEPTEMBER FOR EACH PART OF
BUCKINGHAM-STEVENS ON INFORMATION-PROBLEMS
TEST UNITED STATES GEOGRAPHY--FORM I

Scores	Part I Information		Scores	Part II Problems	
	Sec. B No. of Pupils	Sec. C No. of Pupils		Sec. B No. of Pupils	Sec. C No. of Pupils
49-50			25		
47-48			24		
45-46			23		
43-44			22		
41-42			21		
39-40			20	2	1
37-38		1	19	1	2
35-36	2	1	18	2	2
33-34	1	1	17	2	2
31-32	4	2	16	5	3
29-30	1	3	15	4	6
27-28	3	4	14	4	3
25-26	4	3	13	3	2
23-24	5	4	12	1	2
21-22	3	4	11	2	4
19-20	3	2	10	3	2
17-18	3	3	9	2	3
15-16	2	3	8	4	1
13-14	1	2	7	1	1
11-12	2	1	6		4
9-10	2	2	5		
7-8	2	2	4		
5-6			3	1	
3-4			2		
1-2			1		
0			0		
Total	37	37	Total	37	37
Median	23	23	Median	14	13
Mean	22.49	22.65	Mean	13.16	12.68

- V. Judgment
1. Sense of Values
 2. Deliberativeness
 3. Tact
 4. Worth of Opinions³

Each pupil was rated on the subscales, somewhere between the points of 0 and 5, by each teacher who taught a subject for these two groups. The rating on each principal scale was then computed by averaging the ratings on the appropriate subscales. These ratings were made first in September and again in January.

Table 5 shows the median and mean for groups B and C on the B E C Personality Rating Schedule as rated by the teachers in September.

TABLE 5

MEDIAN AND MEAN OF GROUP B AND OF GROUP C ON MENTAL ALERTNESS, INITIATIVE, DEPENDABILITY, COOPERATIVENESS, AND JUDGMENT AS SHOWN BY B E C PERSONALITY RATING SCHEDULE IN SEPTEMBER

Group	Median					Mean				
	Mental Alertness	Initiative	Dependability	Cooperativeness	Judgment	Mental Alertness	Initiative	Dependability	Cooperativeness	Judgment
B	3.	2.50	3.	3.	2.50	2.80	2.62	3.11	3.07	2.69
C	3.	2.50	3.	2.75	2.75	2.75	2.55	3.08	2.95	2.72

³p. J. Rulon and others, "Instructions to Teachers," Personality Rating Schedule, Introduction.

As can be seen from the table there is some difference in the mean; however not over .12 in any trait, which appears in cooperativeness. In the median which is more reliable, the groups are matched in all traits except cooperativeness and judgment. Group B ranks .25 higher in cooperativeness, while group C ranks .25 higher in judgment.

It is evident from these tables that the groups were fairly well matched in I. Q., achievement, and personality traits in so far as could be ascertained by these tests.

The Buckingham-Stevenson Information-Problems Test, Form I was given in September, and Form II of the same test was given in January. The scores on this test with a difference in gain are shown in Tables 6A and 6B. Group B increased in achievement on Part I - Information, Table 6A, 72.2 per cent, which was determined by dividing the total gain by the total September score. The scores ranged from 7 to 35 on the September test and 25 to 49 on the January test. Group C increased in achievement 63.8 per cent, with a range from scores of 8 to 35 on the September test and 21 to 48 on the January test. The median score of both groups was 23 on the September test which was 5 below the median for a normal group on this test. The teacher attributes this to the fact that both groups had studied geography only one semester in the fifth grade. As the fifth grade geography treats of North America and South America, this gave little time for the study of the United

TABLE 6A

THE SCORE OF EACH PUPIL IN EACH SECTION IN SEPTEMBER
AND JANUARY AND THE GAIN WHEN TESTED BY BUCKING-
HAM-STEVENSON INFORMATION TESTS IN UNITED
STATES GEOGRAPHY, FORMS I AND II

Pupil No.	Section B			Section C			Difference in Gain	
	Sept. Score	Jan. Score	Gain	Sept. Score	Jan. Score	Gain	B	C
1	31	43	12	38	41	6	6	
2	32	45	13	33	48	15		2
3	27	45	18	24	40	16	2	
4	35	44	9	31	43	12		3
5	23	49	26	32	35	3	23	
6	25	45	20	30	45	15	5	
7	35	48	13	38	42	4	9	
8	25	40	15	26	44	18		3
9	34	44	10	30	44	14		4
10	20	41	21	21	37	16	5	
11	17	29	12	25	26	1	11	
12	16	40	24	27	40	13	11	
13	26	39	13	28	44	16		3
14	12	30	18	28	44	16	2	
15	18	40	22	28	37	9	13	
16	23	38	15	24	39	15	0	
17	16	35	19	29	42	13	6	
18	10	38	28	22	40	18	10	
19	7	33	26	23	39	16	10	
20	21	39	18	25	40	15	3	
21	31	45	14	20	34	14	0	
22	24	45	21	24	35	11	10	
23	20	36	16	16	42	26		10
24	22	39	17	22	39	17	0	
25	28	41	13	18	34	16		3
26	19	37	18	22	34	12	6	
27	10	33	23	13	32	19	4	
28	22	35	13	19	36	17		4
29	28	31	3	15	32	17		14
30	29	40	11	14	38	24		13
31	24	30	6	9	27	18		12
32	24	38	14	10	21	11	3	
33	11	40	29	8	29	21	8	
34	31	43	12	16	33	17		5

TABLE 6A--Continued

Pupil No.	Section B			Section C			Difference in Gain	
	Sept. Score	Jan. Score	Gain	Sept. Score	Jan. Score	Gain	B	C
34	31	43	12	16	33	17		5
35	25	28	3	23	37	14		11
36	17	42	25	12	32	20	5	
37	14	25	11	18	28	10	1	
Total	838	1433	601	838	1373	535	66	
Median	23	40	17	23	38	15	2	
Mean	22.49	38.73	16.24	22.65	37.11	14.46	1.78	
Range	7-35	25-49		8-35	21-48			
Percentage Gain			72.2%			63.8%		8.4%

States. On the January test the median score for group B was 40 and for group C, 38. Table 6A shows an increase of 8.4 per cent for group B over group C. It also shows an increase of 2 in the median score for group B over group C.

On Part II-Problems, Table 6B, group B increases in achievement 36.14 per cent, with a range from scores of 3 to 20 on the September test and 7 to 25 on the January test. Group C increases in achievement 36.25 per cent, with a

TABLE 6B

THE SCORE OF EACH PUPIL IN EACH SECTION IN SEPTEMBER AND
 JANUARY AND THE GAIN WHEN TESTED BY BUCKINGHAM-
 STEVENSON PROBLEMS TESTS IN UNITED STATES
 GEOGRAPHY, FORMS I AND II

Pupil No.	Section B			Section C			Difference in Gain	
	Sept. Score	Jan. Score	Gain	Sept. Score	Jan. Score	Gain	B	C
1	15	21	6	18	18	0	6	
2	16	19	3	19	24	5		2
3	18	21	3	15	21	6		3
4	17	23	6	16	21	5	1	
5	16	25	9	16	18	2	7	
6	19	21	2	12	20	8		6
7	20	25	5	17	19	2	3	
8	15	22	7	14	17	3	4	
9	14	18	4	14	19	5		1
10	13	19	6	11	21	10		4
11	11	11	0	13	20	7		7
12	9	21	12	9	21	12	0	
13	18	18	0	11	23	12		12
14	13	20	7	15	21	6	1	
15	13	14	1	18	18	0	1	
16	16	16	0	9	13	4		4
17	10	18	8	20	18	-2	10	
18	9	18	9	15	17	2	7	
19	8	12	4	11	18	7		3
20	16	17	1	16	17	1	0	0
21	20	24	4	17	17	0	4	
22	15	18	3	8	18	10		7
23	14	20	6	10	19	9		3
24	17	18	1	15	18	3		2
25	15	20	5	12	16	4	1	
26	14	14	0	15	15	0		
27	3	17	14	6	11	5	9	
28	8	15	7	15	20	5	2	
29	8	17	9	6	11	5	4	
30	16	16	0	6	15	9		9
31	14	16	2	14	14	0	2	
32	12	18	6	11	11	0	6	
33	11	11	0	10	10	6		6
34	8	18	10	7	10	3	7	
35	10	12	2	9	18	9		7

TABLE 6B--Continued

Pupil No.	Section B			Section C			Difference in Gain	
	Sept. Score	Jan. Score	Gain	Sept. Score	Jan. Score	Gain	B	C
36	10	23	13	6	15	9	4	
37	6	7	1	13	11	-2	3	
Total	487	663	176	469	639	170	6	
Median	14	18	4	13	18	5		1
Mean	13.16	17.92	4.76	12.68	17.27	4.59	.17	
Range	3-20	7-25		6-19	10-24			
Percentage Gain			36.14%			36.25%		.11%

range from scores of 6 to 19 on the September test and 10 to 24 on the January test. Table 6B shows an increase of .11 per cent for group C over group B in Problems. The median score for group B on the September test was 14 and on the January test, 18, while the median score for group C was 13 on the September test and 18 on the January test. This is a gain of 1 point for group C over group B in median score. However, there is a gain of .17 point for group B over group C in the mean score.

TABLE 7

THE SCORE OF EACH PUPIL IN EACH SECTION IN SEPTEMBER AND
JANUARY AND THE GAIN WHEN TESTED BY TEACHER'S
ACHIEVEMENT TESTS, FORMS I AND II

Pupil No.	Section B			Section C			Difference in Gain	
	Sept. Score	Jan. Score	Gain	Sept. Score	Jan. Score	Gain	B	C
1	32	42	10	37	44	7	3	
2	42	45	3	37	47	10		7
3	36	45	9	34	39	5	4	
4	38	45	7	38	46	8		1
5	35	44	9	35	37	2	7	
6	34	43	9	33	41	8	1	
7	40	48	8	38	42	4	4	
8	33	39	6	38	43	5	1	
9	30	38	8	37	47	10		2
10	29	43	14	27	38	11	3	
11	18	41	23	23	34	11	12	
12	33	37	4	30	37	7		3
13	33	37	4	30	45	15		11
14	23	33	10	29	42	13		3
15	28	37	9	29	33	4	5	
16	29	46	17	30	39	9	8	
17	25	40	15	28	32	4	11	
18	26	32	6	28	34	6	0	
19	23	30	7	28	37	9		2
20	36	39	3	30	36	6		3
21	34	46	12	29	35	6	6	
22	25	40	15	25	34	9	6	
23	29	41	12	37	41	4	8	
24	29	38	9	34	38	4	5	
25	26	33	7	26	36	10		3
26	21	39	18	28	28	0	18	
27	23	37	14	20	21	1	13	
28	25	35	10	32	39	7	3	
29	24	35	11	22	29	7	4	
30	29	32	3	29	34	5		2
31	27	33	6	26	38	12		6
32	28	36	8	18	25	7	1	
33	24	34	10	30	40	10	0	
34	31	43	12	25	35	10	2	
35	26	29	3	30	38	8		5

TABLE 7--Continued

Pupil No.	Section B			Section C			Difference in Gain	
	Sept. Score	Jan. Score	Gain	Sept. Score	Jan. Score	Gain	B	C
36	37	42	5	32	38	6		1
37	25	29	4	23	27	4	0	
Total	1086	1426	340	1105	1369	264	76	
Median	29	39	10	30	38	8	2	
Mean	29.35	38.54	9.19	29.87	37	7.13	2.06	
Range	21-42	29-48		18-38	21-47			
Percentage Gain			31.3%			23.9%	7.4%	

As the writer wished to make an additional check on the achievement of the two groups, she compiled an achievement test of her own after studying several sample achievement tests. Table 7 shows the results of this test. Form I of this test was given in September and Form II in January. Table 7 shows the scores on this test with the difference in gain. Group B increased in achievement 31.3 per cent with a range of scores from 21 to 42 on the September test and 29 to 48 on the January test. Group C increased in achievement 23.9

TABLE 2.

EXPERIMENT SHOWS READING GIVEN EACH SUBJECT BY EACH CHILD IN DIVISION B IN SEPTEMBER AND JANUARY

Subject No.	September								
	Arith.	Art	Eng.	Geog.	Hist.	Music	P. E.	Reading	Sp.
1	8	4	8	7	2	1	8	6	10
2	1	7	6	8	5	9	4	8	8
3	10	1	6	7	9	3	5	8	4
4	3	10	4	8	9	8	8	6	1
5	4	1	5	7	10	8	2	6	8
6	10	8	4	9	1	5	5	2	6
7	4	10	3	9	7	8	3	2	1
8	10	9	1	7	2	3	8	4	8
9	9	1	10	5	5	8	2	6	4
10	2	1	4	3	10	5	6	7	9
11	10	4	5	7	1	6	2	8	3
12	4	2	1	3	5	0	9	10	6
13	9	10	2	3	1	5	6	4	7
14	10	1	2	4	8	3	3	9	7
15	5	4	3	9	1	6	2	9	7
16	8	3	5	4	1	6	2	7	9
17	7	6	3	3	1	9	2	4	5
18	9	2	3	10	6	4	1	8	7
19	2	6	4	8	9	7	3	10	1
20	8	1	4	5	6	10	3	9	7
21	2	5	3	4	1	9	6	7	8
22	5	6	3	7	1	8	2	4	9
23	10	9	4	8	1	6	1	7	5
24	5	6	3	9	2	8	1	7	4
25	2	3	4	10	6	1	5	8	9
26	3	1	5	10	9	8	2	4	6
27	10	2	7	8	9	3	1	4	6
28	10	1	2	8	9	3	7	6	5
29	1	6	3	2	4	7	5	9	8
30	18	0	0	2	1	3	4	7	6
31	8	1	3	9	2	7	6	4	8
32	5	4	8	9	10	7	1	5	2
33	3	1	9	4	5	7	6	10	8
34	10	7	8	4	9	6	2	5	1
35	10	1	3	4	9	8	9	10	7
36	3	9	4	8	3	10	1	6	5
37	10	1	2	9	3	6	7	4	5

Total Rank Composite Rank

337	162	160	346	178	354	144	225	302
3	3	3	9	4	6	1	7	5

TABLE 8A--Continued

January										
Wr.	Arith.	Art	Eng.	Geog.	Hist.	Music	P. E.	Reading	Sp.	Wr.
9	1	8	2	7	6	5	10	3	4	9
10	3	4	6	7	2	1	5	8	10	9
8	8	9	1	4	10	6	3	2	5	7
7	3	7	9	4	8	6	2	5	1	10
9	1	3	9	8	7	4	5	2	6	10
7	10	8	3	7	1	5	4	2	6	9
8	2	10	4	9	5	8	7	3	1	6
6	6	8	5	3	1	7	9	4	2	10
7	9	1	10	5	8	3	2	4	6	7
10	4	8	9	2	10	1	5	3	7	6
9	9	2	7	10	5	3	6	8	1	4
7	4	8	1	5	6	9	10	3	2	7
8	1	9	2	3	5	10	7	6	4	8
6	9	2	1	6	7	3	4	10	5	8
10	2	7	5	8	5	6	1	9	4	10
10	9	4	6	10	2	3	1	7	5	8
10	4	6	2	9	1	5	8	3	7	10
5	8	6	3	10	7	2	1	9	5	4
5	2	5	4	9	10	6	3	5	1	6
2	5	2	6	7	3	10	1	4	8	9
10	5	1	4	6	2	8	3	7	9	10
10	6	5	2	7	1	8	3	7	4	10
5	5	10	4	8	3	9	1	6	2	7
10	7	3	8	10	6	4	1	9	2	8
7	2	3	4	8	5	1	9	7	6	10
7	2	9	3	8	10	7	1	6	4	5
5	2	1	5	4	7	3	10	6	8	9
4	10	4	7	6	5	3	8	1	2	9
10	9	7	1	3	10	8	2	6	4	9
5	1	10	4	8	2	7	6	5	3	9
10	7	9	3	8	6	5	4	1	2	10
6	3	8	4	5	10	9	6	1	1	7
2	4	2	9	5	10	6	1	2	8	3
9	6	10	7	5	9	4	2	8	3	1
3	9	8	10	3	7	5	2	4	1	6
7	3	10	7	2	5	9	1	6	4	8
8	10	3	1	4	3	2	1	3	3	4
271	191	220	176	138	210	201	155	191	154	275
10	5	9	4	1	8	7	3	6	2	10

TABLE 8B

INTEREST INDEX RATING GIVEN EACH SUBJECT BY EACH PUPIL
IN SECTION C IN SEPTEMBER AND JANUARY

Pupil No.	September								
	Arith.	Art	Eng.	Geog.	Hist.	Music	P. E.	Reading	Sp.
1	9	1	3	6	7	5	4	2	8
2	6	4	5	7	1	2	3	8	10
3	1	7	3	6	5	10	2	4	8
4	9	6	2	7	3	4	1	5	8
5	3	4	5	10	6	7	2	1	8
6	2	8	4	3	1	10	5	6	7
7	10	7	2	5	1	4	3	6	9
8	4	6	2	8	1	5	9	3	10
9	2	6	3	5	7	9	1	4	8
10	10	9	6	3	1	5	2	4	8
11	2	3	4	8	5	10	9	1	5
12	2	6	5	4	7	8	1	3	10
13	8	2	3	7	5	4	1	8	10
14	5	10	2	7	6	1	3	4	8
15	8	9	7	10	6	5	1	2	4
16	6	3	7	5	10	9	1	3	4
17	3	7	5	10	2	9	8	1	6
18	10	6	3	8	1	4	2	7	9
19	1	8	7	6	10	4	3	2	5
20	10	5	2	4	1	8	7	6	9
21	7	5	4	6	1	1	2	5	9
22	7	2	1	9	6	5	4	5	8
23	8	4	7	3	10	2	1	6	9
24	9	5	10	4	2	3	1	6	7
25	2	8	4	6	1	5	3	10	7
26	10	2	7	4	3	8	1	5	9
27	5	7	2	9	10	1	3	9	4
28	4	1	7	6	5	10	3	2	8
29	8	4	3	9	7	2	5	6	1
30	6	10	2	3	8	4	5	1	9
31	5	1	4	10	3	6	2	7	9
32	9	6	7	8	10	1	3	2	4
33	1	9	4	8	6	7	2	3	10
34	5	4	8	3	10	7	2	9	1
35	9	10	8	7	6	5	1	2	4
36	2	9	4	8	7	5	1	3	10
37	2	1	3	5	4	7	8	6	9
Total Rank	210	205	165	237	184	206	114	170	264
Com- posite Rank	7	5	2	8	4	6	1	3	9

TABLE 8B--Continued

January										
Wr.	Arith.	Art	Eng.	Geog.	Hist.	Music	P. E.	Reading	Sp.	Wr.
10	9	4	6	10	3	2	1	7	5	8
9	8	5	4	7	1	3	2	6	10	9
9	2	5	3	8	6	7	1	4	10	9
10	4	10	1	5	3	7	6	2	8	9
9	5	10	7	6	4	3	2	1	9	8
9	10	5	9	3	2	7	1	4	8	6
8	9	6	4	2	1	9	5	3	7	10
7	3	4	7	9	2	8	1	5	6	10
10	2	4	3	6	7	9	1	5	8	10
7	5	9	4	6	7	10	1	2	3	9
6	1	6	7	2	5	9	4	10	8	3
9	6	10	7	5	3	4	1	2	8	9
9	10	9	6	8	3	2	1	4	7	5
9	8	5	1	2	7	4	3	6	9	10
3	8	10	4	9	2	5	1	3	7	6
2	8	9	5	4	10	3	1	7	6	2
4	2	8	7	1	9	4	5	3	5	10
5	10	5	3	9	2	6	1	7	8	4
9	2	10	6	4	9	7	1	5	3	8
3	10	6	3	7	2	8	1	5	9	4
8	5	4	3	6	1	9	7	2	10	8
10	8	10	3	7	2	4	1	5	6	9
5	9	3	8	4	6	2	1	5	7	10
8	8	5	2	3	4	7	1	6	10	9
9	2	6	3	4	1	10	7	8	5	9
4	10	9	3	5	2	6	1	4	7	8
8	1	5	6	9	10	2	3	7	4	8
9	4	3	6	5	2	7	9	1	10	8
10	9	3	2	7	10	4	5	8	1	6
9	2	10	3	4	8	9	5	6	1	7
8	5	7	9	3	2	4	1	6	8	10
5	10	3	4	5	9	6	1	2	7	8
5	1	5	3	9	7	6	2	10	8	4
6	5	10	8	3	9	2	1	7	4	6
3	5	6	7	4	3	8	2	1	9	10
6	3	9	5	2	7	6	1	4	10	8
10	4	1	5	6	8	9	7	10	3	2
270	213	241	174	199	179	218	95	185	255	279
10	6	8	2	5	3	7	1	4	9	10

per cent with a range of scores from 18 to 28 on the first test and 21 to 47 on the second test. Table 7 shows a gain of 7.4 per cent for group B over group C. There is also a median gain of two points for the same group.

Because of the desire on the part of the teacher to know the attitude of the pupils toward the subjects taught in the elementary school, an interest index test was devised by which each child ranked the subjects in the order of his preference. The total and composite ranks are recorded in Tables 8A and 8B for both sections in September and January. The pupils ranked each subject with numbers from 1 to 10, giving the subject which they liked best number 1, the subject which they liked next best number 2, and so on, until the subject which they liked least was ranked number 10.

Table 8A shows that geography was ranked as number 9 by section B in September with only the subject of writing falling lower. However, by January there had been a considerable change which is shown by the rise of geography to rank number 1. The writer believes this change was due to the interest created in geography through the use of free materials. Table 8B shows that geography was ranked as number 8 by section C in September with spelling and writing falling lower. By January, geography had changed to rank 5. This change was also probably due to the many activities engaged in by this section in connection with the experiment.

TABLE 9

COMPOSITE INTEREST RATING GIVEN EACH SUBJECT BY EACH GROUP IN SEPTEMBER AND JANUARY

Subject	Section B		Section C	
	September Rank	January Rank	September Rank	January Rank
Arith.	8	5	7	6
Art	3	9	5	8
Eng.	2	4	2	2
Geog.	9	1	8	5
Hist.	4	8	4	3
Music	6	7	6	7
Ph. Ed.	1	3	1	1
Reading	7	6	3	4
Spelling	5	2	9	9
Writing	10	10	10	10

Table 9 shows a comparison of the composite rank given each subject by the pupils of both sections in September and January. From this table it is evident that more change in subject preference occurred in section B. As stated before, the greatest change in rank is in geography, which changed from rank 9 in September to rank 1 in January. The change in the rank of art from number 3 to 9 in section B and from 5 to 8 in section C is believed to be due to the fact that at that time both classes were being taught by substitute teachers. This table shows that writing in section B remained the same throughout the experiment, and that both writing and spelling remained the same in section C. In all other subjects there were minor changes.

TABLE 10A

AVERAGE RATING RECEIVED BY EACH PUPIL IN SECTION B
ON CERTAIN CHARACTERISTICS IN THE B E C
PERSONALITY RATING SCHEDULE IN
SEPTEMBER AND JANUARY

Pupil No.	September			
	Mental Alertness	Initia- tive	Dependa- bility	Coopera- tiveness
1	4.	3.75	4.	3.75
2	4.	4.	3.50	3.75
3	3.50	3.50	4.	4.
4	3.75	3.	3.75	4.
5	2.75	2.25	2.75	2.75
6	4.	3.75	4.50	4.50
7	4.25	3.75	4.25	4.50
8	2.75	3.25	2.50	2.25
9	2.	2.25	3.	3.
10	3.50	3.	3.75	3.50
11	3.50	3.50	3.50	3.50
12	2.25	2.75	3.	3.
13	2.50	2.50	2.50	2.75
14	2.	1.25	3.	2.50
15	3.50	3.50	4.	3.75
16	3.25	3.	3.	3.
17	3.75	3.25	4.25	4.
18	3.	2.50	3.25	3.50
19	2.50	2.25	3.	2.25
20	3.50	2.25	3.25	3.
21	3.75	3.50	4.25	3.75
22	4.25	4.	4.50	4.50
23	2.75	2.50	3.50	2.50
24	3.25	3.25	3.50	3.25
25	2.25	2.50	2.25	2.25
26	2.	1.50	2.25	2.75
27	1.75	2.25	1.50	2.
28	1.25	1.	2.	2.25
29	2.	1.50	3.	3.
30	1.50	1.75	1.50	2.
31	1.75	2.25	2.50	2.50
32	3.50	3.	3.75	3.50
33	1.25	1.75	2.	2.25
34	2.25-	2.	2.25	2.50
35	2.50	2.	3.25	2.50
36	1.25	1.25	1.25	1.75
37	2.	1.75	3.	3.
Total	103.50	97.	115.	113.50
Median	3.	2.50	3.	3.
Mean	2.80	2.62	3.11	3.07

TABLE 10A--Continued

Judg- ment	January				Judg- ment
	Mental Alertness	Initia- tive	Dependa- bility	Coopera- tiveness	
4.	4.25	4.50	4.50	4.50	4.50
3.50	3.75	3.50	3.50	3.75	3.50
4.	3.50	3.75	4.50	4.25	4.50
3.50	3.75	3.25	3.75	4.	3.75
2.50	2.75	2.50	3.75	2.75	2.50
4.25	4.25	4.25	4.75	4.50	4.25
4.	4.25	4.	4.50	4.	4.25
2.25	3.	3.50	3.50	2.50	2.25
2.50	2.50	2.50	3.	3.25	2.75
3.50	3.50	3.75	3.75	3.75	3.50
3.	3.50	3.75	3.75	3.75	3.50
2.	2.75	3.	3.25	3.25	2.25
2.50	2.50	3.	2.75	3.	2.50
2.25	2.50	1.50	3.	2.75	2.50
3.	3.50	3.50	4.25	4.	3.25
2.50	3.50	3.50	3.50	3.25	2.50
3.50	3.50	3.50	4.25	4.25	3.75
3.	3.	2.75	3.50	3.50	3.25
2.	2.75	2.50	3.50	2.50	2.
2.75	3.50	2.50	3.	3.25	3.
3.50	3.75	3.75	4.	4.	3.50
4.25	4.25	4.	4.50	4.75	4.25
2.50	3.	3.	3.50	2.75	2.75
3.25	3.75	3.75	3.75	3.75	3.25
2.25	2.50	2.75	2.50	2.50	2.50
2.	2.25	1.75	2.50	2.75	2.25
2.	2.	2.50	1.75	2.25	1.75
1.75	1.50	1.50	2.25	2.50	2.
1.75	2.25	2.25	2.75	3.25	2.25
1.50	1.50	1.75	1.50	2.	1.50
1.50	2.	2.50	2.50	2.75	1.
2.75	3.50	3.25	3.75	4.75	3.
1.75	1.50	2.	2.25	2.25	2.
2.	2.25	2.50	2.50	2.75	2.
2.	2.50	2.25	3.50	2.75	2.
2.	1.50	1.50	1.50	2.	2.
2.50	2.	2.	3.	3.	2.25
99.50	108.50	108.	122.25	120.50	104.50
2.50	3.	3.	3.50	3.25	2.50
2.69	2.93	2.92	3.30	3.26	2.82

TABLE 10B

AVERAGE RATING RECEIVED BY EACH PUPIL IN SECTION C
ON CERTAIN CHARACTERISTICS IN THE B & C
PERSONALITY RATING SCHEDULE IN
SEPTEMBER AND JANUARY

Pupil No.	September			
	Mental Alertness	Initia- tive	Dependa- bility	Coopera- tiveness
1	4.25	4.25	4.50	4.
2	4.25	3.50	4.25	4.
3	2.	2.25	2.50	2.50
4	3.75	3.25	3.75	3.50
5	3.	2.25	3.	3.
6	2.50	2.50	2.75	2.50
7	2.25	3.	2.75	2.50
8	3.75	2.75	3.25	3.25
9	3.25	3.	3.50	3.50
10	2.25	1.75	2.75	2.75
11	3.	2.50	3.	3.25
12	2.25	2.25	3.	2.75
13	3.	3.	3.25	3.25
14	2.50	2.25	4.	2.50
15	3.50	2.50	3.50	3.25
16	3.	2.50	3.25	3.
17	3.	2.25	3.50	3.25
18	3.25	3.	2.75	2.25
19	2.25	1.75	3.50	2.75
20	3.50	3.	3.50	2.75
21	3.	2.75	3.50	3.50
22	3.	3.	3.25	2.50
23	3.25	3.25	3.75	3.50
24	2.25	2.50	2.25	2.50
25	2.75	2.50	2.75	2.50
26	2.50	2.25	2.75	2.75
27	2.50	2.	3.	3.
28	2.25	2.25	2.25	2.75
29	2.	2.25	2.50	2.75
30	1.50	1.75	2.25	2.50
31	3.	2.50	3.25	3.50
32	2.	2.75	2.50	2.50
33	2.	1.75	1.75	2.50
34	2.50	2.25	3.	2.75
35	3.50	2.75	3.50	3.25
36	2.50	2.25	3.25	3.25
37	2.	2.	2.25	2.50
Total	102.	94.25	114.	109.
Median	3.	2.50	3.	2.75
Mean	2.75	2.55	3.08	2.95

TABLE 10B--Continued

Judg- ment	January				Judg- ment
	Mental Alertness	Initia- tive	Dependa- bility	Coopera- tiveness	
4.	4.25	4.25	4.50	4.50	4.25
4.	4.50	4.	4.50	4.25	4.25
2.75	2.	2.	2.25	2.	2.50
3.50	4.	3.50	4.	3.50	3.50
2.50	3.	2.	3.25	2.75	2.50
2.50	3.	2.75	3.	3.	3.
2.50	2.50	3.	3.	2.75	3.
3.25	3.75	3.	3.	3.	3.50
3.25	3.50	3.	3.50	3.75	3.25
2.25	2.	1.50	2.75	2.75	2.50
3.	3.25	2.50	3.	3.25	3.
2.75	2.50	2.25	3.25	3.	3.
3.25	3.50	3.25	3.50	3.50	3.50
2.	2.50	2.25	4.	2.75	2.25
2.75	2.50	2.75	3.25	3.50	3.
2.75	3.	2.75	3.	3.25	3.
3.	3.	2.50	2.75	3.	2.50
2.50	3.50	2.75	2.50	2.50	2.50
2.50	2.50	1.75	3.50	3.	3.
3.	3.50	3.	3.50	3.50	3.
3.	2.50	2.75	3.25	3.	3.
2.75	3.25	3.75	3.50	2.75	3.
2.75	3.25	3.	3.75	3.25	3.
2.	2.25	2.75	2.	2.	2.
2.25	2.75	2.	2.50	2.50	2.25
2.50	2.	2.25	2.50	2.50	2.
2.50	2.75	2.	3.	3.25	2.75
2.50	2.50	2.50	2.50	3.	2.50
2.	2.50	2.50	2.75	3.	2.
2.75	1.75	2.	2.50	2.75	3.
3.	3.	2.75	3.25	3.75	3.
2.25	2.50	2.75	3.	2.75	2.50
2.	2.50	2.	2.	2.50	2.25
2.75	2.75	2.50	3.25	2.75	3.
3.	3.75	3.	3.50	3.	3.
2.50	3.	2.50	3.25	3.25	3.75
2.	1.50	1.75	2.	2.	1.75
100.50	106.75	96.	114.50	110.50	104.75
2.75	2.75	2.75	3.	3.	3.
2.72	2.83	2.59	3.09	2.98	2.83

Tables 10A and 10B show the total scores with the median and mean for sections B and C in September and January on the B E C Personality Rating Schedule. Although this test provides for testing on eight major traits, only initiative, dependability, cooperativeness, judgment, and mental alertness, were checked, as the other three, courtesy, personal impression, and health, were not traits which would likely be affected by this experiment. As has been stated before, each pupil in both sections B and C was rated in September on the subscales, somewhere between 0 and 5, by each teacher who taught a subject for the pupils in those sections. Later, the rankings on the subscales were averaged and the ratings recorded on the summary scales which are represented by the traits listed in the tables. As this experiment ended in January, it was necessary to check each pupil again at that time. As it required several days to check each pupil on each trait in September, the writer feels that the ratings were probably too close together. This fact, no doubt, accounts for the lack of a great deal of improvement in either section; however, there still seems to be enough difference in improvement between the two sections to draw at least tentative conclusions. A disadvantage in having teachers check each pupil was the fact that some of the teachers had been in the school system several years and knew the pupils quite well, while one teacher was entirely new in the system.

TABLE 11

TOTAL SCORES IN JANUARY AND FEBRUARY, THE GAIN, AND PERCENTAGE GAIN ON EACH CHARACTERISTIC IN THE B E C PERSONALITY RATING SCHEDULE FOR SECTION B AND SECTION C

	Section B						Section C								
	Mental Alertness	Initiative	Dependability	Cooperativeness	Judgment	Mental Alertness	Initiative	Dependability	Cooperativeness	Judgment	Mental Alertness	Initiative	Dependability	Cooperativeness	Judgment
Jan.	108.50	108	122.25	120.50	104.50	106.75	96	114.50	110.50	104.50	104.50	96	114.50	110.50	104.50
Sept.	103.50	97	115.	113.50	99.50	102.	94.25	114.	109.	101.50	101.50	94.25	114.	109.	101.50
Gain	5.	11	7.25	7.	5.	4.75	1.75	.50	1.50	3.25	3.25	1.75	.50	1.50	3.25
Percentage Gain	4.8	11.3	6.3	6.2	5.	4.6	1.9	.44	1.4	3.	3.	1.9	.44	1.4	3.

Table 11 shows a comparison of the total scores in September and January for groups B and C with the gain and percentage gain in each characteristic checked on the B E C Personality Rating Schedule. The percentage gain, which was determined by dividing the total gain by the September score, was greater in section B in all traits than in section C; however, there was a greater gain in initiative, dependability, and cooperativeness than in mental alertness and judgment. The greatest gain, which appeared in initiative, was a 9.4 per cent gain for group B over group C. Whether the experiment in the use of the free materials had any influence in this gain, there is no definite way of determining.

Thus, with the I. Q. practically the same, there was an appreciable gain in achievement, interest, initiative, dependability, and cooperativeness for the pupils who used free materials over the pupils who used library supplements. However, the pupils who used library supplements made a minor gain of .11 per cent in problem solving over the pupils who used free materials.

CHAPTER V

SUMMARY AND CONCLUSION

This experiment in teaching was made to determine the value of free materials in geography classes as compared with ordinary library supplements. The experiment occupied a period of four months of the first semester of the 1941-42 school term. Section B used the textbook and free materials, while section C used the textbook and library supplements. The classes in each section met for five forty-minute periods each week and were taught by the same teacher. The textbook used and also the procedures in each class were as nearly the same as possible with the two types of materials in use.

For the purpose of testing the teaching with two types of materials, the Buckingham-Stevenson Information-Problems Test in Geography and the Teacher's Achievement Test in Geography were used. Within the limits of this problem, the comparisons made indicate, on the basis of these tests, a gain in achievement of 8.4 per cent for the free materials group over group C on the Buckingham-Stevenson Information Test and a similar gain in achievement of 7.4 per cent on the Teacher's Achievement Test. However, there was a minor

gain of .11 per cent on the Buckingham-Stevenson Problems Test for group C who used library supplements over group B who used free materials.

The Personality Rating Schedule shows the greatest gain in initiative for group B which was a 9.4 per cent gain over group C. There was also a gain of .2 per cent in mental alertness, 5.86 per cent in dependability, 4.8 per cent in cooperativeness, and 2 per cent in judgment for the free materials group.

The greatest gain shown in this experiment appears to be in the interest created in geography through the use of free materials and the activities in connection with it. In September geography was listed as number 9 on the Interest Index Test by group B, but in January it was listed as number 1. In group C the subject also changed from number 8 to 5 which was probably due to the activities engaged in for this experiment.

Interest alone would not be sufficient as a criteria for selection of subject matter because "a child can become interested in an almost unlimited range of subject-matter as long as it is within his experience, power, and needs."¹ Subject matter should be selected for the purpose of making desired changes. The procedures used in making changes

¹Lee and Lee, The Child and His Curriculum, p. 119.

should affect physical, mental, emotional, and social development. This development is made in relation to the child's power, ability, and interests.²

As intimated by Dr. John Dewey,³ and later summed up by Lee and Lee, "When pupils are doing things they are interested in, they are happier, learn more, and there is an enormous drop in the emphasis needed in discipline."⁴ Although interest and learning are not synonymous, they are similar. If interest is developed, there will be learning, and no important learning can take place without interest.

Materials of the free materials type often present the information in a manner which is not possible in a textbook or library book. As it is gathered from many sources, only that must be selected which will contribute effectively to the achievement of the objectives set up. This material should be preserved from year to year as a part of the permanent school collection.

The writer's conclusion is that free materials, if properly selected, organized, and classified, can contribute something of special interest when used along with library supplements and textbooks. As free materials and the various

²ibid.

³J. Dewey, Interest and Effort in Education, p. 35.

⁴Lee and Lee, op. cit., p. 115.

activities connected with their use evidently add a note of interest, why not select the best of each, recognize the child as a being who is active mentally, physically, and socially, and give him some experiences based upon real interest? "It is now time that curriculum-makers, whether using geography as a separate subject or as part of an integrated curriculum, should begin with consideration of children's interests, their previous experiences, and their ability to acquire new concepts."⁵

⁵G. Whipple, "Human Geography--From Slogan to Activity," Elementary School Journal, XLI (January, 1941), 346.

APPENDIX A

FREE MATERIALS COLLECTED AND USED BY GROUP B

Unit One--What We Have to Help Us Live
Well and Win Success

I. Our Large Share of the Good Things in the World

General Map of Sources of Farm Products, Ford Motor Co., Dearborn, Michigan.

Food Source Map of United States, Armour and Co., Chicago, Illinois.

Map of Gifts of Nature to America, Kellogg's, Battle Creek, Michigan.

Our United States, J. C. Penny Co., Inc., Lamesa, Texas (local store).

This Amazing America, map, Greyhound Lines, San Francisco, California.

United States, Official Map of United States and possessions, United States Department of Interior, Washington, D. C.

II. Climate a Factor in the Wealth of the United States

Cloud Forms

Explanation of the Weather Map

The Weather Bureau

Weather Forecasting

Weather Reporting and Forecasting, United States Department of Commerce, Weather Bureau, Washington, D. C.

III. How the Size of the United States Has Helped Its Progress

Map of the World, Hershey Chocolate Co., Hershey, Pa.

IV. A Variety of Land Forms

Physical-Political Map of United States, Coca-Cola Bottling Co., Lubbock, Texas.

Unit Two--Living and Working on American Farms

I. Our Leading Cereal Crops

Corn

Corn in Industry

Tapping the Treasure in Corn, Corn Industries Research Foundation, East 45th St., New York City, New York.

The Corn Belt in Industry, map, quiz, industries.

The Romance of Prairie Gold, Malcolm R. Rollins, Corn Products Sales Co., 17 Battery Place, New York City, New York.

Wheat

Adventures of a Kernel of Wheat, Hecker-Jones-Jewell Milling Co., 40 Corlears St., New York City, New York.

Analysis of Whole Wheat, large chart and map.

Supplementary Facts for Use with "Analysis of Whole Wheat," National Biscuit Co., Niagara Falls, New York.

A Kernel of Wheat, chart.

Teacher's Outline for a Unit of Work on Wheat and Flour, Wheat Flour Institute, 309 West Jackson Blvd., Chicago, Illinois.

Food Value in a Grain of Wheat, chart, Ralston Purina Co., St. Louis, Mo.

The Story of Bread, International Harvest Co., 180 N. Michigan Ave., Chicago, Ill.

Rice

Rice, Louisiana State Department of Agriculture and Immigration, Baton Rouge, Louisiana.

Samples of seed rice and milled rice, Rice Experiment Station, Crowley, La.

II. Vegetables and Fruits

Know Florida, Florida State Department of Agriculture,
Tallahassee, Florida.

Markets and Market Preferences for Idaho Potatoes, O. L.
Mims.

Potato Situation in Idaho, University of Idaho, Moscow,

Orange Juice in School Health Programs.

Sunkist Map of California and Teacher's Outline for Man,
California Fruit Growers Exchange, Sunkist Bldg.,
Los Angeles, Calif.

Skookum Apples, Skookum Apple Growers, Wenatchee, Wash-
ington.

III. The Growing of Sugar Cane and Sugar Beets

Cane Sugar

A Brief Discussion of the History of Sugar Cane, De-
partment of Agriculture and Immigration, Baton
Rouge, Louisiana.

Behind Your Sugar Bowl, California and Hawaiian Sugar
Refining Corp., Ltd., 215 Market St., San Fran-
cisco, Calif.

The Story of Sugar, Franklin Sugar Refining Co.,
Philadelphia, Pa.

The Story of Sugar, American Sugar Refining Co.,
120 Wall St., New York City, N. Y.

Sugar in the Making, Western Sugar Refinery, San
Francisco, Calif.

Beet Sugar

America's Own Sugar
Spreckles Sugar Co., 2 Pine St., San Francisco,
Calif.

A Story of Sugar

Plates on growing sugar beets

The Sugar Beet--A Unit of Work for Intermediate Grades.

The Silver Wedge, United States Beet Sugar Association,
Tower Bldg., Washington, D. C.

Sugar Beets in Michigan, Agriculture Experiment Station, Michigan State College, East Lansing, Michigan.

IV. Two Crops in Which the United States Leads the World

Cotton

A Brief Discussion of the History of Cotton, Its Culture, Breeding, Harvesting and Use.

Facts About Cotton, also cotton bur, cotton, and seed samples, Louisiana State Department of Agriculture and Immigration, Baton Rouge, La.

Cotton Seed and Its Products, Southwestern Cotton Oil Co., 210 Baronne St., New Orleans, La.

Round the World With Cotton, United States Department of Agriculture, Washington, D. C.

Tobacco

TobaccoLand, Liggett and Myers Tobacco Co., Durham, North Carolina.

Tobacco Substation at Windsor Report for 1940, Connecticut Agriculture Experiment Station, New Haven, Conn.

V. Stock Raising and Dairy Farming

Beef and Dairy Cattle

Cattle Production in the United States

Dairy and Poultry Products

Marketing of Dairy Products, Swift and Co., Chicago, Ill.

Feeding Beef Calves, Agricultural and Mechanical College of Texas, College Station, Texas.

Yearling Heifers and Steers for Beef Production, University of Missouri College of Agriculture, Agriculture Experiment Station, Columbia, Mo.

Sheep and Goats

A Brief History of the Origin of the Hampshire Down Sheep

Pictures of sheep, The American Hampshire Sheep Association, 72 Woodland Ave., Detroit, Michigan.

Sheep in South Dakota, South Dakota State College Extension Service Brookings, South Dakota.

Swine in the Corn Belt

Hog Production in the United States.

Hog Production and Pork Consumption in the United States, Swift and Co., Chicago, Ill.

Unit Three--Fishing in American Waters

I. Our Most Important Fisheries

Conservation Work of the Bureau of Fisheries.

Facts--the Key to Progress.

Our Aquatic Food Animals.

Report of the Acting Commissioner of Fisheries, 1940.

Some Unusual Markets for Fish and Shellfish.

Statistical Bulletin of Fisheries of the United States and Alaska, United States Department of the Interior, Fish and Wild Life Service, Washington, D. C.

Gloucester

The Cape Ann Trail, Chamber of Commerce, Gloucester, Mass.

Salmon

National Cannery Association, 1739 N. St. Northwest, Washington, D. C.

The Great North Atlantic Fishing Industry, The Federated Fishing Boats of New England and New York, Inc., Administration Bldg., Fish Pier, Boston, Mass.

The Fisheries, Gorton-Few Fisheries Co., Ltd., Gloucester, Mass.

The Silver Harvest of the Sea, National Cannery Assn., Northwest Branch, 826 Skinner Bldg., Seattle, Washington.

The Story of Salmon, American Can Co., 230 Park Ave., New York City, New York.

Unit Four--at Work in the Woods

I. Our Forest Resources

Community Forests.New Forest Frontiers.Our Forests.State Forests for Public Use.The Work of the United States Forest Service.

Posters:

How a Tree Grows.The Farm Woods a Savings Bank.Yours in Trust.

Maps:

Forest Regions of the United States.National Forests and National Parks, United States Department of Agriculture, Forest Service, Washington, D. C.A Forest Policy of North Carolina.Conservation of Our Natural Resources.The Forest Situation in North Carolina, The North Carolina Department of Conservation and Development, Raleigh, North Carolina.

II. By-products of Our Forests

History and Description of Paper Making, Zollerback Paper Co., 300 E. 12th St., Los Angeles, Calif.How "Eagle A" Papers are Made, chart, American Writing Paper Corporation, Holyoke, Mass.

Unit Five--at Work in Mine and Quarry

I. Minerals Useful in Industry and Art

Iron, the Master Metal

Dollars Behind Steel.

Half a Million Men.

Steel Facts, monthly bulletin.

The Picture Story of Steel.

Maps:

Deposits of Iron Ore and Coal.

Finished Steel Capacity of the United States,
American Iron and Steel Institute, 350 Fifth
Ave., New York City, New York.

"Mining Iron Ore in the World's Greatest District,"
Making Steel and Wire, American Steel and Wire
Co., 2364 S. Ashland Ave., Chicago, Ill.

Copper

The Romance of Copper and Its Alloys, Copper and Brass
Research Association, 420 Lexington Ave., New
York City, New York.

II. Other Useful Metals

Lead

The Story of Lead, National Lead Co., 722 Chestnut St.,
St. Louis, Mo.

Tin

The Story of the Tin Can, National Cannery Association,
1739 H. St., Northwest, Washington, D. C.

Zinc

Facts About Zinc.

The Zinc Industry, American Zinc Institute, Inc.,
603 E. 42nd St., New York, New York.

Zinc in the World of Things, New Jersey Zinc Co.,
160 Front St., New York City, New York.

Silver

Report on Foreign Silver Purchases by United States
Government, Chamber of Commerce of State of New
York, 65 Liberal St., New York City, New York.

Aluminum

A Short Story of Aluminum.

Sample of Bauxite, alumina, and bar of aluminum, Aluminum Goods Mfg. Co., Manitowoc, Wisconsin.

Aluminum Its Story.

Aluminum Alloys in the Railroad Industry, Aluminum Co. of America, 501 Gulf Bldg., Pittsburgh, Pa.

III. Concrete and Stone

A Practical Course in Concrete.

Concrete Improvements Around the Home.

Making Quality Concrete, Portland Cement Association, 33 W. Grand Ave., Chicago, Ill.

Granite

Rock of Ages, Rock of Ages Corp., Barre, Vermont.

The Story of Barre Granite Memorials, The Barre Granite Assn. Inc., Barre, Vermont.

Marble

The Story of Georgia Marble, Georgia Marble Co., Tate, Georgia.

Unit Six--Sources of Power

I. The Greatest Source of Power--Deposits and Uses of Coal

Coal Products Chart, Allied Chemical and Dye Corp., 61 Broadway, New York City, New York.

Coal Tar Genealogical Tree.

Products Derived From Coal, chart, The Barrett Co., 40 Rector St., New York.

Narrative Material for Teaching "The Story of Anthracite".

The Wonders of Anthracite, Anthracite Industries, Inc., Chrysler Bldg., New York City, New York.

The Coal Bin of America, Chesapeake and Ohio Lines, 2420 Terminal Tower, Cleveland, Ohio.

The Story of Blue Coal, The Delaware, Lackawanna and Western Coal Co., 120 Broadway, New York City, New York.

II. Petroleum and Natural Gas as a Source of Power

Exhibit of various products of crude petroleum.

The Sinclair Dinosaurs Book, Sinclair Refining Co., 630 Fifth Ave., New York City, New York.

How Pennsylvania Motor Oil is Made, The Pennsylvania Grade Crude Oil Association, Oil City, Pa.

Petroleum Drilling and Production, chart and maps.

Petroleum Transportation, Storage, and Marketing, charts, reading, and map.

Petroleum Products, chart, list of products, and map, American Petroleum Institute, 50 W. 50th St., New York City, New York.

III. Water as a Source of Power

Niagara Falls, Passenger Traffic Department, New York Central System, New York City, New York.

Unit Seven--at Work in Mill and Factory

I. The United States as a Manufacturing Country

Materials on climate, power, and raw materials previously listed.

II. Making Iron and Steel

A Visit to Armco, American Rolling Mill Co., Middletown, Ohio.

Allegheny Metal.

Stainless Steels and Elementary Discussion, Allegheny Ludlum Steel Corp., Pittsburgh, Pa.

Making Steel and Wire, American Steel and Wire Co., 2364 S. Ashland Ave., Chicago, Ill.

The Manufacture of Iron and Steel, American Institute of Steel Construction, Inc., 101 Park Ave., New York City, New York.

III. Iron and Steel Products

Automobiles

From Iron Ore to the Finished Automobile, chart.

Metallurgy and Wheels, General Motors Corp., 3044
W. Grand Blvd., Detroit, Mich.

Machinery for Factory and Farm

Big News in Farm Power.

Harvest Savings.

From a Bar of Raw Steel, J. I. Case Co., 700 State
St., Racine, Wisconsin.

McCormick Works--World's Largest Farm Machine Factory,
International Harvester Co., 180 N. Michigan Ave.,
Chicago, Ill.

IV. The Manufacture of Food Products

Grinding Grain

From Wheat to Flour--A Trip Through one of the Plants
of General Mills, Ind.

Process in Flour Milling, chart.

Romance of Bread, General Mills, Inc., 400 S. 4th St.,
Minneapolis, Minn.

Flour

Blackboard Lessons on Food, Wheat Flour Institute,
309 W. Jackson Blvd., Chicago, Ill.

The Story of Flour, Pillsbury Flour Mills Co., Minne-
apolis, Minn.

Meat Packing

Cattle, Lamb, and Hog By-Products.

Geography of Meat Production and Consumption.

Meat Packing Industry of America.

Story of Meat, Swift and Co., Chicago, Ill.

Armour's Star Beef Chart.

By-Products of Meat Packing.

The Meat You Buy, Armour and Co., Public Relations Department, Chicago, Illinois.

V. The Manufacture of Textiles and Clothing

Cotton Manufacturing

Cotton, the Commodity of a Thousand Uses, The Warren Featherbone Co., Three Oaks, Michigan.

Story of Cotton Thread, American Thread Co., 260 Broadway, New York City, New York.

Woolen Manufacturing

Botany Call O' the Clans.

Botany Fabrics Primer.

Facts on Wool; raw, scoured, roving, and yarn, Botany Worsted Mills, 1450 Broadway, New York, New York.

Chase Velmo Mohair Velvets--How They are Woven.

Sample of mohair.

On the Spob, L. C. Chase and Co., 295 5th Ave., New York City, New York.

From the Sheep to the Needle, Fleisher Yarns, Inc., 32-36 Mercer St., New York City, New York.

Silk Manufacturing

The Romantic Story of Silk, Belding-Hemingway-Corticelli Co., 119 W. 40th St., New York City, New York.

The Romantic Story of Silk, Silk Thread Industry, 119 W. 40th St., New York City, New York.

Rayon Manufacturing

Five New Educational Aids from Du Pont to Help You Teach Rayon Today, E. I. Du Pont De Nemours and Co., Empire State Building, New York City, New York.

Sample "Spun-lo Rayon" and fabrics.

Uniformity Rides the Reels, Industrial Rayon Corp., 500 Fifth Ave., New York City, New York.

What is Rayon? American Viscose Corp., 350 Fifth Ave., Empire State Bldg., New York City, New York.

VI. The Making of Leather and Leather Goods

Leather Manufacturing

The Story of Leather, The Ohio Leather Co., Girard, Ohio.

Leather and Its Importance to Mankind, American Leather Products, 100 Gold St., New York City, New York.

Leather for the Layman, Buxton Inc., Springfield, Mass.

Unit Eight--Trade and Transportation

I. The Domestic Commerce of the United States

Materials previously listed on climate, land surface, natural resources, and industry may be reviewed to show why we have trade between the states.

II. Rivers and Lakes as Highways of Commerce

Use maps listed in Unit I.

III. The Importance of Land and Air Transportation in Domestic Commerce

Highways

Highway Map of United States, Conoco Travel Bureau, Denver, Colorado.

Railroads

A Study of Railway Transportation.

Teacher's Manual-Vol. I.

Stories Behind the Pictures, Association of American Railroads, Transportation Bldg., Washington, D. C.

100 Years of Progress in Modern Railroading.

Map of the Pennsylvania Railroad System and Its Connections, Pennsylvania Railroad, Broad Street Station, Philadelphia, Pa.

The Railroad, Santa Fe System Lines, Chicago, Ill.

Airways

A Gay Geography of the Main Line Airway.

Suggested Teaching Uses of United Air Lines Gay Ge-
ography.

Mainliner Vacations. United Air Lines, 5936 So.
Cicero Ave., Chicago, Illinois.

IV. The United States and World Trade

Commerce and Economic Resources of Our Outlying Terri-
ories and Possessions.

Our World Trade in 1939.

Our World Trade in 1940.

Graphs

Our Chief Exports in 1940.

Our Chief Imports in 1940.

Our Chief Markets and Supplies in 1940.

United States Foreign Trade in 1940 by Continents
in Millions of Dollars, map, Foreign Commerce
Department, Chamber of Commerce of the United
States, Washington, D. C.

Some of Our Chief Imports

Coffee

Coffee Blossoms, Reid, Murdoch and Co., Chicago,
Illinois.

Coffee--How It's Grown and How to Make it,
Hill Bros. Coffee, Inc., 2 Harrison St.,
San Francisco, California.

The Land of Coffee, American Can Co., Home Eco-
nomics Dept., 230 Park Ave., New York
City, New York.

Rubber

A Wonder Book of Rubber, B. F. Goodrich Co.,
Akron, Ohio.

How Firestone Tires are Made.

Rubber Exhibit

Story of Rubber.

The Romance and Drama of the Rubber Industry,
Harry S. Firestone, Jr., Firestone Tire and
Rubber Co., Akron, Ohio.

Sugar

Materials listed under the Growing of Sugar Cane
and Sugar Beets.

Cocoa

Chocolate and Cocoa, chart and map.

Exhibit of Products.

The Story of Chocolate and Cocoa, Hershey Choco-
late Corp., Hershey, Pa.

APPENDIX B

LIBRARY SUPPLEMENTS USED IN SECTION C

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Fort Worth Star-Telegram, Star Telegram Office, Fort Worth, Texas.

Life, Time Inc., Chicago, Ill.

National Geographic, National Geographic Society, Washington, D. C.

National Geographic Society Bulletin, National Geographic Society, Washington, D. C.

News Week, Weekly Publications Inc., New York City, New York.

Reader's Digest, The Reader's Digest Association, Inc., New York City, New York.

Young America, Eton Publishing Corp., New York City, New York.

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- McConnell, W. R., The United States in the Modern World, New York, Rand McNally and Co., 1934.
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