

AN ABSTRACT OF THE THESIS OF

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Title: THE READABILITY OF SELECTED FOURTH, FIFTH AND SIXTH GRADE SOCIAL
STUDIES TEXTBOOKS AS DETERMINED BY THE FRY READABILITY GRAPH
AND GROUP INFORMAL READING INVENTORIES

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Purpose of the Study

The purpose of this study was to determine the readability of three series of selected fourth, fifth and sixth grade social studies textbooks, a total of nine textbooks. Two measurements were utilized: a readability formula (Fry Readability Graph; Knapp, 1971), and group informal reading inventories.

The Fry Graph was applied to ten randomly selected 100-word passages in each text; proper nouns were included in the computations. The group informal reading inventories were constructed from the same textbooks on passages not previously taught. The tests were administered in May to 1467 students in 70 randomly selected classrooms.

Procedures

Both descriptive and inferential statistics were used to analyze the data. Readability levels derived by the application of the Fry Graph

were reported for each text, as was the range of readability within each text and the deviation of each sample from the overall readability of the textbook.

The test scores from the group informal reading inventories were first reported in terms of the per cent of subjects scoring at the independent level (90, 95, 100 per cent), the instructional level (65, 70, 75, 80, 85 per cent) and the frustration level (60 per cent or lower) for the sample. Mean test scores were also computed for the sample, the urban and rural subsets, for each grade level, and for each publisher.

To determine if there were significant differences among the subsets, the following null hypotheses were formulated:

- H₁ There are no significant differences in the mean scores of the urban and rural subjects.
- H₂ There are no significant differences in the mean scores of the subjects in grades four, five and six.
- H₃ There are no significant differences among the mean scores of the subjects tested on the D. C. Heath, the Silver Burdett or the Benefic Press social studies series.

The differences among groups were statistically analyzed at the .05 and .01 levels of significance by the pooled variance t-test or by the analysis of variance. When the analysis of variance resulted in a significant F value, the multiple range test was applied to determine the exact location of the mean difference.

Findings of the Study

Fry Readability Graph

1. Two textbooks, the fourth grade textbooks published by

D. C. Heath and by Silver Burdett, had readability levels in agreement with the publishers' designated grade level. The remaining seven textbooks had readability levels one to four years above the designated grade level.

2. The average range of readability within the textbooks was 6.2 years with little evidence of a gradation from less difficult to more difficult reading material.
3. When the three series were ranked according to their relative difficulty on the basis of the Fry readability levels, it was determined that:
 - a. The D. C. Heath series is the least difficult.
 - b. The Silver Burdett series occupies an intermediate position.
 - c. The Benefic Press series is the most difficult.

Group Informal Reading Inventories

1. For the total sample 9.41 per cent of the subjects scored at the independent level, 32.04 per cent scored at the instructional level, and 58.55 per cent scored at the frustration level. The mean test score was 54.82 per cent.
2. The mean score (56.64 per cent) of the urban subjects was significantly higher (.01 level) than the mean score (52.35 per cent) of the rural subjects with a t value of 3.30. H_1 was rejected.
3. The mean score for grade four was 50.35 per cent; for grade five, 53.96 per cent; and for grade six, 58.09 per cent. The analysis of variance resulted in a significant (.01 level) F value of 11.25. H_2 was rejected.

4. The mean scores by publisher were: D. C. Heath, 55.88 per cent; Silver Burdett, 55.77 per cent; and Benefic Press, 50.38 per cent. The analysis of variance resulted in a significant (.01 level) F value of 5.47. The multiple range test showed significant differences between the Benefic Press and D. C. Heath series (.01 level) and between the Benefic Press and Silver Burdett series (.01 level). There were no significant differences between the D. C. Heath and Silver Burdett series. H_3 was rejected.

Implications

1. The findings of this study did not differ in any substantial way from the results reported by earlier investigators. Further studies of the readability of social studies textbooks similar in content to the three series analyzed in this investigation is not warranted.
2. Additional research is needed to determine if systematic instruction resembling the procedures prescribed for a well-developed basal reading lesson will significantly affect the ability of students to comprehend social studies textbooks.

Recommendations

1. Current knowledge regarding the nature of concept development should be a major consideration for curriculum decisions in the social studies. Piaget's findings regarding the cognitive functioning of elementary school students provide insight regarding the capabilities of this age group.

2. Instructional alternatives that diminish heavy reliance on the textbook should be afforded a fair trial in the classroom, e.g., simulation and gaming (Guetzkow, 1962; Inbar, 1972), process analog (Fielder, 1967; Joyce, 1972), role playing (Shaftel, 1967), problem solving (Fenton, 1967; Shaftel, 1967), inquiry approaches (Suchman, 1964; Clements, Fielder, Tabachnick, 1966), and inductive development of concepts and generalizations (Taba, 1966; Fenton, 1966; Hanna, 1965).
3. A publicly financed agency staffed by expert analysts and equipped with the necessary resources should be established to provide analysis services to publishers and to determine the difficulty level of all instructional materials as they appear on the market (Bormuth, 1971).
4. Pilot editions of all new textbooks should be field tested with a cross section of students using procedures similar to those utilized by the publishers of standardized tests.
5. When classroom teachers make reading assignments in social studies textbooks, they should faithfully adhere to the same procedures that are prescribed for a well-developed basal reading lesson.

The Readability of Selected Fourth, Fifth and Sixth
Grade Social Studies Textbooks as Determined
by the Fry Readability Graph and Group
Informal Reading Inventories

by

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THE READABILITY OF SELECTED FOURTH, FIFTH AND SIXTH
GRADE SOCIAL STUDIES TEXTBOOKS AS DETERMINED
BY THE FRY READABILITY GRAPH AND GROUP
INFORMAL READING INVENTORIES

I. INTRODUCTION

Statement of the Problem

The launching of the first earth satellites, Sputniks I and II, by the Soviet Union in 1957 had an immediate and profound impact on the science and mathematics curriculums in the American public schools. It is a matter of speculation why any one of a number of equally traumatic societal events has not produced a similar infusion of energy, talent, and money into the social studies curriculum.

Writing in 1957, the year of the Sputniks, Ralph C. Preston made the following assessment of our inefficacy as individuals and as a society:

The evidence is overwhelming that the fundamental problems of our citizens, both as individuals and as a society, lie chiefly in the realm of social engineering. In so far [sic] as we have failed as a nation, it has been in the political, social, and economic realms. (Preston, 1957, p. 1)

Our failures as a nation inevitably come to rest on the doorstep of public education. Among others, Helen Huus (1967) observed that elementary school students regard the social studies with apathy and indifference. She identified three causes of student apathy toward social studies: the pupils' own skills, the materials available, and the teacher's enthusiasm and know-how.

Thus, this investigation was designed to focus on the readability of social studies textbooks by considering two of the identified

causes of student indifference: first, the pupils' skills, specifically, a sampling of their reading comprehension skills in selected state adopted social studies textbooks; and, secondly, the readability of selected state adopted social studies textbooks.

Purpose of the Study

The purpose of this study was to investigate the readability of selected state adopted social studies textbooks used the most prevalently in randomly selected fourth, fifth, and sixth grade classrooms of Linn and Benton Counties, Oregon. Two measurements were utilized: (1) a readability formula: the Fry Readability Graph; and (2) group informal reading inventories constructed from the unread passages of three series of state adopted social studies textbooks.

Hypotheses

The test scores from the group informal reading inventories were analyzed to determine if there were significant differences in the mean scores of the subsets of the total sample using the null hypothesis.

H₁ There are no significant differences in the mean scores of the urban and rural students.

H₂ There are no significant differences in the mean scores of the students in grades four, five, and six.

H₃ There are no significant differences in the mean scores of the urban and rural students in grades four, five, and six.

H₄ There are no significant differences in the mean scores of the urban and rural students in grade four.

- H₅ There are no significant differences in the mean scores of the urban and rural students in grade five.
- H₆ There are no significant differences in the mean scores of the urban and rural students in grade six.
- H₇ There are no significant differences among the mean scores of the students tested on the D. C. Heath, the Silver Burdett, or the Benefic Press social studies series.
- H₈ For grade four there are no significant differences in the mean scores of the urban and rural students who were tested on the D. C. Heath, the Silver Burdett, or the Benefic Press textbooks.
- H₉ For grade five there are no significant differences in the mean scores of the urban and rural students who were tested on the D. C. Heath, the Silver Burdett, or the Benefic Press textbook.
- H₁₀ For grade six there are no significant differences in the mean scores of the urban and rural students who were tested on the D. C. Heath, the Silver Burdett, or the Benefic Press textbooks.

Testing Instruments

Two measurements were utilized to assess readability: (1) a readability formula: the Fry Readability Graph; and (2) group informal reading inventories constructed from the unread passages of three series of state adopted social studies textbooks.

The use of group informal reading inventories in the research design for this investigation served two functions. First, the informal tests represented an attempt to ameliorate a significant limitation of readability formulas, their failure to take into consideration the student. Secondly, the group informal reading

inventories provided current data on the ability of intermediate grade students to comprehend social studies textbooks.

There were two reasons for including readability calculations in this research design. First, regardless of their limitations, readability formulas do provide a more objective method of assessing readability than does teacher judgment. Prior to the inception of readability formulas, subjective judgment was the only method of appraising the readability of textbooks. "Authors made estimates, librarians made estimates, teachers made estimates, and readers made estimates. And, of course, all were different" (Hunnicuttt and Iverson, 1958, p. 176). Smith and Dechant (1961) reported that studies have shown that teachers and others closely concerned with children's reading have not been too successful in making subjective judgments of the difficulty level of books.

Secondly, readability formulas are often the only practical method for assessing the readability of textbooks, particularly when a number of textbooks must be appraised. The construction of informal tests and the involvement of children can be an unwieldy undertaking and may require more time than is available for the assessment of readability.

Limitations of the Study

1. The number of textbooks analyzed was limited to three series of fourth, fifth, and sixth grade state adopted social studies textbooks, three at each grade level, a total of nine textbooks.
2. The study was further limited to those fourth, fifth, and sixth grade public school classrooms in Linn and Benton Counties,

Oregon in which the three state adopted social studies textbook series were being utilized in the instructional program.

3. There are inherent limitations in the use of readability formulas in determining the difficulty level of textbooks; these limitations are discussed on pages 6 and 7.
4. The Fry Readability Graph is based on two factors only: average sentence length per one hundred word sampling and average number of syllables per one hundred word sampling.
5. Readability estimates based on sentence length and number of syllables are not sensitive to variations in meanings that may be associated with either words or larger thought units, such as clauses, phrases, or sentences.
6. The validity of the group informal inventory as a procedure to assess student ability to comprehend textbook content is limited in the following respects:
 - a) The investigator's ability to develop sound fact, vocabulary and inference questions.
 - b) The classroom teachers' commitment to administering the group informal reading inventory according to the prescribed instructions.
 - c) The investigator's ability to develop objective criteria for scoring the group informal reading inventories.

Significance of the Study

The fundamental rationale for this investigation, as well as the two measurements utilized, is the continuing dilemma teachers face in their attempts to provide the right book for the right child at the

right time. In a 1972 monograph entitled Readability, John Gilliland described the situation thusly:

On the one hand there is a collection of individuals with given interests and reading skills. On the other hand, there is a range of books and other reading materials, differing widely in content, style and complexity. The extent to which the books can be read with profit will be determined largely by the way in which the two sides are matched. (Gilliland, 1972, p. 12)

There are limitations to readability formulas, limitations the authors of the formulas are the first to acknowledge. Gilliland (1972) along with Dale and Chall (1948), Smith and Dechant (1961), Charlene Smith (1963), Anderson (1965), Walker (1966), and Rankin (1970) have criticized readability studies that have confined their investigations to the assessment of textbooks by the application of readability formulas. The principal objection to investigations of this type is, in Rankin's (1970) words, the fact that formulas cannot measure the reading difficulty of a message relative to a particular group of readers with particular backgrounds of experience or interests.

The writers named above have advocated an expanded interpretation of readability. Gilliland cited the definition of readability proposed by Dale and Chall in 1948 as an example of a comprehensive definition that embodies all the essential elements of readability. Dale and Chall defined readability broadly as the sum total (including interactions) of all those elements within a given piece of printed material that affects the success which a group of readers have with it. The success is the extent to which they understand it, read it at optimum speed, and find it interesting.

In a critical discussion of readability, Smith and Dechant (1961) fully endorsed Dale and Chall's interpretation of readability. However,

they qualified the interpretation stating that what is readable depends not so much on the material to be read as on the background, abilities, and interests of the person doing the reading. Gilliland (1972) proposed that text and student be assessed separately as well as in combination.

To meet the criteria for an expanded interpretation of readability, two measurements were utilized in this investigation. A readability formula was applied to the social studies textbooks under consideration, and group informal reading inventories were administered to fourth, fifth, and sixth grade students in the sample population.

The second rationale for this investigation is the prominent position that the textbook occupies in the classroom, a condition that has drawn critical commentary from Rudman (1958), Walter Hill (1967), and Jarolimek (1971). Acknowledging that the introduction of new instructional procedures and media has reduced the reading requirements for some pupils, Jarolimek stated that the textbook continues to be the most prevalent instructional tool. Writing in 1967, Hill inferred that there is justification for the charge that the American schools are "reading" schools.

Fielder contended that middle and upper-grade children spend at least three fourths of their time during the social studies period reading. He continued thusly:

Social studies instruction turns out to be laying your eyes on a not too interesting book, certainly a patronizing and evasive one, and doing your best to read and remember for thirty minutes or longer. It is time we went on to other forms of instruction. (Fielder, 1967, p. 217)

Rudman (1958) and Hill (1967) proposed that convenience has been the contributing factor for the dominant role ascribed to the content textbook. The textbook, according to Hill (1967), has been used to simplify decisions on matters of budget, curricula, course objectives, course content, methods of instruction, and student evaluation.

Summarizing the observations of earlier writers, Kennedy stated, "The reality of school learning today, then, is such that the pupil's success is equated to his mastery of the course of study--the textbook" (Kennedy, 1971, p. 274). Moreover, Heilman (1967) stated that we often find that reading is relatively ineffective when judged by what students retain.

When the textbook occupies a central role in the social studies curriculum, it is obvious that learning will be contingent on the ability of the students to comprehend the material contained therein. Thus, the third rationale for this investigation is based on the difficulties inherent in the content of social studies textbooks.

Bond and Wagner (1966), Bond and Tinker (1967), and Karlin (1971) have described the sharp contrast between the type of imaginative or narrative materials typically found in basal readers with the factual materials in content textbooks written for the same grade level. These writers have agreed that reading in a basal reader is an easier task for children than reading in the content fields.

Michaels (1965), Bond and Wagner (1966), Hill (1967), Heilman (1967), Huus (1969), Karlin (1971), and Jarolimek (1971) have described the accommodations students, even students with some mastery of reading and study procedures, must make to cope with the formidable reading-learning task presented by the tightly packed content textbook. The

reader must adjust to a style of writing that follows a "no-nonsense" approach in which description and elaboration are reduced to a minimum. Content textbooks are impersonal, terse, lengthy, encyclopedic, and fact jammed. They are heavily loaded with unfamiliar and difficult concepts with rarely more than meager explanations, and they contain too many generalizations without supporting data. Under such circumstances, warned Huus (1969), reading becomes more of a memory contest than an acquisition of concepts to further the socialization of the student.

Heilman touched on the significance of this investigation with the following observation:

Since all reading skills are developmental, the real issue may well be the difficulty level of the material in subject-area textbooks. (Heilman, 1967, p. 327)

A similar speculation was made as early as 1926 by Adelaide Ayer as the result of her investigation into the difficulty of history textbooks. She, like Heilman, proposed that the curriculum itself may be at fault in that much of the reading material is, in fact, abstract.

Need for the Study

Substantiation for this study emanates from three sources: (1) evidence of improvement in the reading ability of elementary school students; (2) evidence of significant improvements in the more recently published social studies textbooks; and (3) the paucity of recent research pertaining to the readability of social studies textbooks based on the students' ability to comprehend the content of these textbooks as opposed to readability determined by the application of a formula.

Arthur I. Gates (1961) presented objective evidence that children are now better readers than they were in 1930 or the decades prior to 1930. He compared and analyzed the reading test scores obtained from approximately 107,000 children in 1937 to the reading test scores of 31,000 children in 1957. The original purpose of the testing was to develop norms for the four batteries of the Gates Reading Tests.

He reported that when children in the range from grades 4 to 6.5 are compared, the 1957 children reached a particular level of reading ability, on the average, about 5.3 months earlier than did the 1937 pupils.

Gates also cited an investigation by D. A. Worcester and Anne Kline of the reading achievement of pupils in the Lincoln, Nebraska schools from 1921 to 1947. The results of their study, according to Gates, strongly suggested that reading abilities of comparable pupils increased even more markedly between 1921 and 1947 (Gates, 1962).

Social studies textbooks also have changed substantially in the 50-year period covered by the review of literature for this investigation. Bond and Tinker (1967), DeBoer and Dallmann (1970), and Kennedy (1971) agreed that there are many excellent social studies textbooks on the market today and that these newer textbooks are an improvement over their earlier counterparts. Bond and Tinker (1967) stated that in some recently published texts there has been distinct progress toward overcoming many of the shortcomings and criticisms that were directed toward older editions of social studies textbooks.

Miriam Dusenbery analyzed selected features of social studies textbooks published in the late 1940's or early 1950's with corresponding revisions or subsequent textbooks published by the same companies in the late 1950's or 1960's. In addition to her evidence of improved readability cited in Chapter II, she reported the following changes in social studies textbooks:

1. Several trends seem evident in the area of illustrations: (1) more color is being used; (2) more illustrations are being used; and (3) photographs are in greater number than drawings.

3. Publishers are increasing the number of maps, the use of color on maps, and the representation of physical features on their maps. Some special purpose areas are still neglected.
4. Publishers are attempting to effect changes called for in the areas of illustrations, readability and maps.
5. Publishers are embodying changes current literature attributes to them. (Dusenbery, 1964, p. 933)

Finally, there is a paucity of current research pertaining to the readability of social studies textbooks when Dale and Chall's (1948) expanded definition of readability is applied. Thirteen of the twenty-seven studies reviewed in the next chapter assessed readability exclusively by the application of a formula to the content. Eight of the reported studies investigated students' ability to comprehend selected elements in social studies content. Only six investigations in the review of literature assessed readability on the basis of the

selected elements in social studies content. Only six investigations in the review of literature assessed readability on the basis of the students' ability to comprehend the content, and of those six only one study occurred within the past ten years.

Definition of Terms

Readability: In the broadest sense, readability is the sum total (including interactions) of all those elements within a given piece of printed material that affects the success which a group of readers have with it. The success is the extent to which they understand it, read it at optimum speed, and find it interesting (Dale and Chall, 1948).

Readability formula: As defined by Fry (1968), a readability formula is a method of assessing the relative difficulty of reading material by randomly selecting three or more 100-word passages, determining the average number of sentences per 100 words and the average number of syllables per 100 words, and plotting the two averages on a graph to obtain the appropriate grade level.

Readability index: A composite score designed to indicate the level of difficulty, usually measured in terms of grade placement, of a piece of reading matter (Good, 1973).

Content reading: Reading of books that contain needed information, such as textbooks or reference books on geography, history, or science; to be contrasted with the reading of books for recreation or fun only (Good, 1973).

Basal reading: Reading aimed at the systematic development of reading ability by means of a series of books or other materials

especially suitable for each successive stage of reading development (Good, 1973).

Intermediate grades: For the purposes of this investigation, the intermediate grades include grades four, five, and six.

Group informal reading inventory: An informal group screening test designed to determine which students can or cannot read the assigned material. The test is usually developed by the classroom teacher or, in this case, the investigator from the reading materials used for instructional purposes. A representative passage is selected from the regularly assigned textbook, and ten questions are prepared. About one-third of the questions are based on vocabulary, one-third test knowledge of facts, and one-third are based on inferences (Marksheffel, 1966).

Summary

The primary premise for this study is the unremitting struggle to provide a good match between print and child. The inception of readability formulas in the 1920's with their objective methods of measurement offered the promise of resolving this problem, and a proliferation of readability investigations subsequently appeared in the professional literature. Disappointingly the problem of securing readable textbooks continued, and following World War II a number of reading educators proposed that any valid assessment of readability would have to consider the student, his background, abilities, and interests as well as the printed material. Consequently, this study was undertaken to provide more relevant information regarding the readability of social studies textbooks with a significant focus on readability in terms of

the students' ability to comprehend the content of social studies textbooks written for students in the intermediate grades.

II. REVIEW OF LITERATURE

The studies included in this review have been grouped into three categories. Appearing first are the investigations that confined the assessment of readability exclusively to the application of one or more readability formulas to the social studies textbooks under consideration.

The second group of investigations reviewed are those which included in their research designs an assessment of readability based on the ability of students to comprehend the content of their social studies textbooks. The third and last section reviews those studies that investigated the ability of pupils to understand selected elements frequently encountered in elementary school social studies textbooks.

Investigations of Readability Utilizing Readability Formulas

Long frustrated by their failure to accurately predict the reading difficulty of printed material, interested professionals capitalized on the publication of Thorndike's The Teacher's Word Book in 1921 to develop a method for expressing reading difficulty in quantitative terms. According to Klare (1963), at least 31 methods of measuring readability have appeared since that time. These developments provided the impetus for numerous investigations of readability including the application of one or more readability formulas to social studies textbooks.

Keboch (1927) conducted one of the earliest investigations of the readability of social studies textbooks by checking the vocabulary

of five seventh grade history books against the Thorndike list of the most common English words. He reported that the coefficients of dispersion in all the texts were about the same, indicating a remarkable uniformity in the word difficulty in all of them.

An unpublished study of the readability of ten intermediate grade history textbooks conducted by Zacur was summarized by Yoakam. The average grade placement for all ten textbooks was 6.5 according to the Yoakam grade scale, whereas the publisher's placements for the same books averaged 5.1 (Yoakam, 1945).

Using the 1948 revision of the Flesch formula, Faison (1951) rated a total of 38 textbooks from five different curriculum areas for grades five, six, seven, and eight. Ranked in order of difficulty (reading ease score), he obtained the following results: mathematics (most difficult), history, science, English, and literature (easiest). Faison categorized geography textbooks with the science group in his investigation.

Three formulas, the Dale Chall, the Lorge, and the Yoakam, were utilized by Ruth I. Smith to determine the readability of the "universe" of social studies materials published for the fourth grade between the years 1945 to 1950. In her conclusions Smith stated,

Even though it is the general opinion of educators that social studies books and materials are more readable than they were 10 years ago, this study has revealed that books and materials published for the fourth grade have a readability average of 4.95, or almost fifth grade level. (Smith, 1951, p. 526-527)

Wood (1954) applied two readability formulas, the Yoakam and the Dale Chall, to 12 intermediate grade textbooks of which 6 were social studies textbooks. Additionally, he asked 32 teachers who were using

these same textbooks for their evaluation of the readability of the texts. Formula ratings expressed approval for only two of the six social studies textbooks; the remaining four textbooks were classified above grade level by one or both formulas. Teachers approved of three of the six textbooks. Since disagreement did occur, Wood recommended that both formulas and teacher judgment be used in selecting textbooks.

The readability of 42 fifth and sixth grade social studies, history, and geography textbooks was researched by Haffner (1959). Using the Yoakam formula, his study revealed that 60 per cent of the textbooks had a grade level placement higher than the publishers' assigned grade level; 18 per cent had a grade level in agreement with the publisher indicated grade placement; and 22 per cent had a lower grade placement than the grade level assigned by the publisher. Haffner reported that the average readability of the fifth grade social studies, history, and geography textbooks was 6.6, and the average for the sixth grade texts was 6.9. He concluded that the fifth grade social studies textbooks were, in terms of readability level, better suited for sixth grade use.

Through the application of the Dale Chall formula, Sloan (1959) calculated the readability level of seven series of social studies textbooks, a total of 21 textbooks, written for use in grades four, five, and six. He found that 11 of the 21 social studies textbooks analyzed had general grade placements coinciding with the grades to which they were assigned by the publishers. Sloan also reported that in most of the textbooks the majority of the readability scores were not concentrated at the grade level to which the book was assigned by the publisher, the scores being distributed over a wide range of grade levels.

The more relevant investigations begin with Arnsdorf's 1963 investigation of four social studies series, 25 textbooks, written for both the primary and intermediate grades. Two formulas, the Spache readability formula and the Dale Chall formula, were applied. He concluded that the readability level of these social studies series generally progressed according to the publishers' recommended sequences; however, this general progression was marked by irregularities both within and between the texts. Arnsdorf recommended that additional attention be given to the degree of continuity between and within the levels of social studies materials (Arnsdorf, 1963).

Mingle (1964) selected competent third grade teachers to serve as a jury to appraise the difficulty level of those reading materials directly related to understanding the local community, the social studies area of emphasis for third grade. Using a rating sheet, the teachers evaluated 84 books, determining that only one third of the 84 were appropriate for third graders in their level of difficulty.

Contrasting older and newer editions of certain revisions of fourth, fifth, and sixth grade social studies textbooks, Dusenberry (1964) applied the Dale Chall formula to determine the readability level of six series of textbooks, a total of 36 textbooks. Each of the six series consisted of a late 1940 or early 1950 edition of a fourth, fifth, and sixth grade textbook and the corresponding revised or subsequent textbook published in the late 1950's or 1960's by the same company. She submitted the following conclusions:

1. Sentence length had been reduced in the revised editions published in the late 1950's or 1960's.

2. More of the revised textbooks with later publication dates fell within the grade placement assigned by the publisher.
3. The range within textbooks was still wide enough to give the average or below average reader some possible difficulty.

The inception of programmed textbooks in the late 1950's and early 1960's provided the impetus for Walker's (1966) investigation of the readability of 39 programmed textbooks for grades four, five, and six. All known commercially-produced programmed textbooks designed for use in the intermediate grades, published prior to 1965, and currently on the market, except those that prevent a readability analysis by their makeup, were analyzed. Seven of the thirty-nine textbooks were programmed social studies textbooks. Applying the Dale Chall formula, Walker reported the following:

1. There was a progressive increase by grade level of uncommon words.
2. Science textbooks had the highest sentence length at 13 words and social studies the second highest with an average sentence length of 12 words.
3. Science and social studies texts had the largest proportion of uncommon words, i.e., words outside the Dale List of 3000 Familiar Words, at 12 per cent.
4. Five of the seven social studies textbooks had a higher final grade placement than that assigned by the publisher with an average range of 5.5 reading levels.

Margaret Louise Janz (1970) compared the readability levels of English, social studies, and science textbooks with the reading

achievement levels of 590 eighth, ninth, and tenth grade students. The Flesch readability formula was applied to 40 assigned English, social studies, and science textbooks, and the reading levels of the students were obtained from their reading test scores. She concluded that the majority of the textbooks used in English, social studies, and science were too difficult for the students to whom they were assigned, and the range in the reading levels of the textbooks analyzed was not in accord with the range in reading abilities of the students in the sample population. Janz found that the range of reading levels within most classrooms was at least five grade levels. She recommended that the instructional materials selected should also cover the range of reading levels within which all students could learn without undue stress.

Johnson (1970) was the senior investigator for the two most recent investigations of the readability of social studies textbooks. In 1970 he calculated the readability of 41 Florida state-adopted social studies textbooks for grades one through six. Four different readability scales were applied to intermediate grade textbooks: the Dale Chall, the Direct Grade Equivalent Table for the Dale Chall, the Flesch, and the Fry Readability Graph. His analysis revealed the following information:

1. Only one measurement of one textbook of the 23 intermediate grade textbooks had a readability rating below the teaching level suggested by the publisher.
2. Fifty five of the 92 readability levels (more than half) obtained by all four formulas were at least one grade level above the publisher's suggested grade level.

3. The readability levels within a single text ranged from one to five years.

Johnson along with Eileen Vardian replicated his study in 1973 (excluding the Direct Grade Equivalent Table for the Dale Chall) with more recently published social studies textbooks including 31 titles for grades four, five, and six. Among their reported findings were the following:

1. Seventy two of the 93 obtained readability levels were above the publishers' designated grade level.
2. Only one readability level was below the intended grade level.
3. There was no intermediate grade text where all three readability levels were below the publisher designated grade level, but there were 12 texts where all three readability levels were at least one year above grade level.
4. The reading levels of the intermediate books for the samples within a text ranged from as few as two years to more than 12 years.

Johnson and Vardian submitted the same conclusions for both the 1970 and the 1973 investigations. It is their contention that if the readability levels were accurate only some of the textbooks used in the state were appropriate for students with average reading ability, most textbooks required above average reading ability, and none of the texts were suitable for the slow or low-achieving child (Johnson and Vardian, 1973).

Investigations of Readability
Based on Students' Comprehension of the Textbook

Relatively few investigators have attempted to determine the readability of social studies textbooks on the basis of the students' ability to comprehend the content of these textbooks. One of the older investigations addressing this question was undertaken by Franzen and Knight in 1922. This research team investigated the ability of students in grades four and six to read selections taken from five textbooks in beginning geography. They found that about five-sixths of the material was too hard for the average child in grade four to understand, and average sixth grade pupils were not able to understand more than one half of the subject matter presented in the various textbooks (Franzen and Knight, 1922).

A 1926 study by Adelaide Ayer serves as the criterion study for this investigation. Ayer constructed free response-type questions on original paragraphs and simplified paragraphs from representative and widely used fifth and seventh grade history textbooks. The tests were administered to 141 fifth and seventh grade pupils in four school systems. She reported that in the fifth grade only 12 per cent of the questions based on original paragraphs were answered correctly by pupils of normal fifth grade reading ability. When the original paragraphs were simplified, 26 per cent of the questions were answered correctly. In the seventh grade, the percentages for original and simplified paragraphs were respectively 31 and 44. The results of this study indicated, according to Ayer, that the content of much of the widely used fifth grade histories is sufficiently difficult for high school use. Moreover, even if the subject matter of such

paragraphs is simplified, normal seventh grade reading ability is required in order to understand it.

Analyzing the difficulties as a whole, Ayer found that comprehension is blocked to a great extent by difficulties nonessential history, especially figurative language and abstract words. She continued stating, "Technical language, literary embellishments, involved sentences, abstract thoughts and terms are also examples of elements that tend to block comprehension. . ." (Ayer, 1926, p. 598). She concluded that difficulties in elementary school history seem to fall into two classes: (1) those of the curriculum and (2) those of language.

Although 47 years elapsed between Ayer's investigation and the most recent investigation cited in this review, Johnson and Vardian (1973), all three researchers expressed considerable concern for the student habits and attitudes that may be generated toward social studies content when that content is too difficult. Ayer described the student annoyance resulting from difficult subject matter, whereas Johnson and Vardian cited six separate investigations all substantiating students' disaffection with social studies.

The results of a 1931 dissertation by Joseph Dewey revealed that eighth grade pupils were very deficient in their ability to understand typical selections from history textbooks commonly used in that grade. The paragraphs that he tested varied in difficulty from a simple treatment of lighting in pioneer times to a rather condensed statement of the weaknesses of the Articles of Confederation. The students were given an opportunity to show their understanding both on written tests and in thirty-minute personal interviews (Dewey, 1935).

Springman (1941) reported the results of a study designed to determine the amount of understanding that 50 sixth graders acquired from statements in their social studies textbooks. He found that only about half of the children fully comprehended the statements. Moreover, out of a total of 594 responses, 52.18 per cent showed either partially correct or vague meanings. Springman did demonstrate that the concept load in the social studies textbooks was much too heavy for the children tested.

The readability of nine fifth grade social studies textbooks was researched by Wyatt and Ridgway (1958) using both a readability formula and an assessment of the students' ability to comprehend the textbooks. Although the readability formula rated only one of the textbooks above the grade level for which it was intended, the range of difficulty within the texts averaged 4.33 years. In their investigation of the students' ability to comprehend social studies textbooks, they reported that 14 per cent of a group of fifth grade pupils could not effectively read any part of their social studies textbooks; and 85 per cent of the fifth grade children could be expected to have some difficulty.

Lidberg investigated reading comprehension difficulties in three series of fourth, fifth, and sixth grade social studies textbooks. He analyzed student responses to multiple choice comprehension tests, cloze tests, and personal interviews constructed on 18 randomly selected reading passages in the nine textbooks. Among his conclusions were the following:

1. The vocabulary load within the texts was generally heavy, and this seemed to be because of the number of difficult words rather than because of the special terms involved in the content.
2. Words having more than one meaning had fewer correct interpretations when a less frequently encountered meaning was used.
3. Children tended to use their limited personal experience in developing concepts and inferences about social studies material.
4. Time and space relationships were not well developed or understood by elementary youngsters, and more comparisons, examples, illustrations, and associations would be needed to better convey such concepts. (Lidberg, 1966, p. 5893)

Investigations of Readability
Based on Students' Comprehension of Selected Elements

Several investigators have focused on the ability of children to comprehend selected elements commonly found in social studies textbooks. At least six separate studies have been devoted to measuring the ability of students to understand definite and indefinite quantitative concepts. Jarolimek and Foster (1959) defined a quantitative concept as any reference or term that designates or implies an increase or a decrease in amount--any phrase, term, or word concerned with measuring, estimating, or enumerating.

Investigating third graders' comprehension of concepts of quantity, Margaret Bedwell (1932) found that both definite and indefinite terms were of differing degrees of difficulty. Her subjects demonstrated that it was possible to have a factual knowledge of a term without having a functional concept of the same term. She concluded that definite and indefinite quantitative concepts were misinterpreted because children lacked concepts based on experience.

Limiting his investigation to the meanings associated with 20 terms indicating differing degrees of frequency (oftenness), Simpson (1944) reported extreme variability in meaning. Certain terms such as "frequently" and "rather often" have, according to Simpson, very inexact meanings, while such terms as "always," "never," "almost never," and "about as often as not" are rather precise in meaning.

Fifth graders' understanding of concepts relating to definite and indefinite references to time, definite and indefinite references to space, and definite and indefinite references to quantities of objects was investigated by Jarolimek and Foster (1959). Considering the results for those children having a reading grade placement score of 5.0 or above and an intelligence quotient of 90 or higher, they reported that the students, as a group, understood only about half the number of concepts, 24.6 out of a total of 48, encountered in their social studies textbook. Children reading below grade level or those who were below average in intellectual capacity understood less than one third of the concepts.

Gill (1962) also investigated children's comprehension of indefinite expressions of time and concluded that these were loosely interpreted at all grade levels, and some terms had no precise meaning for many students. According to Gill, students in the higher grade levels demonstrated a superior grasp of the meaning of indefinite expressions of time confirming the conclusions of other investigators that a sense of time and maturity are closely related.

Writing in 1963, Charlene Smith reported that children were confused by the indefinite expressions they met, such as "a long time

ago," "many bushels," and "several acres," as well as by the particular terminology of the content, such as "A.D.," "B.C.," "decade," "40 gallons," "98 per cent of the population," and "average rainfall" (Charlene Smith, 1963).

Jensen (1970) investigated pupils' understanding of quantitative concepts appearing in selected social studies textbooks. He administered an investigator constructed 56 item test of quantitative concept understanding to 201 fourth grade children and 216 sixth graders. He reported that fourth grade children had serious difficulty understanding quantitative concepts. Their mean performance was 17.42 with a standard deviation of 6.42. Sixth grade children functioned much better on the test, having a mean performance of 25.88 with a standard deviation of 9.41. Correlation coefficients by grade level were computed to analyze relationships between pupils' understanding of quantitative concepts and measures of reading and arithmetic achievement. An unexpected finding resulted from this analysis. The highest relationship at the fourth grade level was between quantitative concept understanding and word meaning. At the sixth grade level, however, the highest relationship occurred between quantitative concept understanding and arithmetic application. Jensen suggested that these results may indicate that the nature of the problem of quantitative understanding changes with increments in grade level.

Children's understanding of general social studies terms was researched as early as 1938 by Annie Yarrington. Seegers (1939) summarized the results of Miss Yarrington's unpublished master's thesis. Carefully designed written tests were supplemented with

personal interviews with the children. She discovered that many terms which children are thought to understand are understood either insufficiently or not at all. Miss Yarrington also demonstrated definitely the effectiveness of specific teaching directed toward difficult concepts (Seegers, 1939).

Millis reported the extent of fifth graders' understanding of social studies terms in a 1959 dissertation. Sixty-five fifth grade students were asked to express orally their understanding of 20 social studies terms that had been randomly selected from 61 concepts emphasized in the basic textbook the pupils had read during the first three months of the school year. Responses were judged as correct, partially correct or vague, incorrect, or no answer given. Slightly more than one third, 38.7 per cent, of the student responses corresponded to or were superior to the understanding of the term intended by the author of the text. One third of the student responses were classified as partially correct or vague and indefinite. The remaining 27.6 per cent of the responses were incorrect or "I don't know" responses. Millis found that the misconceptions that children held increased as the intelligence level decreased, and the percentage of "don't know" responses also increased as the intelligence level decreases (Millis, 1959).

Summarizing the various studies exploring children's understandings of concepts found in reading materials of a factual nature, Charlene Smith made the following statement:

These studies indicated that elementary school children showed various degrees of understanding and misunderstanding of historical and geographical terms, time and sequence terms, and arithmetical and statistical expressions. (Charlene Smith, 1963, p. 443)

Miss Smith noted that although refinement of conceptual understanding develops with educational age, there is evidence that there are wide ranges of understanding among the individuals at each grade level.

Summary

Considering that the studies reviewed in this chapter span nearly half a century and that an array of procedures were utilized for data collection, there is remarkable uniformity in the reported findings.

Of the approximately 30 studies reviewed, only six of the investigations occurred within this decade and, hence, would have assessed commercially available social studies textbooks. Four of these six contemporary investigations (Walker, 1966; Janz, 1970; Johnson, 1970; and Johnson and Vardian, 1973) assessed readability exclusively by the application of one or more readability formulas to the textbook.

Of the two remaining relevant studies, Jensen (1970) confined his investigation to children's understanding of quantitative concepts. The Lidberg (1966) study was the only recent investigation that considered the ability of intermediate grade students to comprehend the content of social studies textbooks. Lidberg's study was not, in actuality, an assessment of readability but an inquiry into the nature of comprehension difficulties in social studies.

III. RESEARCH DESIGN

This chapter is organized as follows:

1. The Fry Readability Graph,
2. The group informal reading inventory,
3. Selection of social studies textbooks for the investigation,
4. Sampling procedures for the application of the Fry Readability Graph,
5. The student population,
6. Sampling procedures for the selection of classrooms to be tested, and
7. Data analysis.

The Fry Readability Graph

Four criteria entered into the selection of a readability formula: (1) the validity of the formula had been established; (2) the formula included proper nouns in the calculations; (3) the formula was appropriate for the three grade levels of textbooks under consideration; and (4) the formula was relatively easy to apply and calculate.

The Fry Graph met the above stated criteria. However, two of the criteria, the inclusion of proper nouns in readability calculations and the validity of any readability formula, continue to be a source of discussion among researchers.

The validity of all readability formulas is questionable because, according to Fry, the concept of grade level won't stand still. His position is elaborated in the following statement:

First of all, there are no rigorous standards of just what is 4th grade difficulty as opposed to 5th grade difficulty. There seems to be some loose sort of agreement between publishers and educators which is based on experience and perhaps a little on test data as to what grade level designations mean. However, even standardized test data are not exact. Anyone who has used an old reading test, say the 1957 California Reading Test on his class, then used the 1965 Stanford Reading Test on exactly the same class at nearly the same time, can tell you that the class mean reading score expressed in grade level is quite different. (Fry, 1968, p. 515)

The 1971 directions (Knapp) for the Fry Readability Graph stated that all proper nouns should be counted. This was a reversal of the procedures appearing in the original publication of the Fry Readability Graph in 1968. A personal communication with Dr. Fry confirmed this change of procedure. He advised, however, that the question of proper nouns was a source of concern, and that he and Dr. Jeanne Chall were involved in a continuing dialogue regarding the inclusion or exclusion of proper nouns in readability calculations.

With time, place, and person the elements that make social occurrences significant, the publishers of social studies textbooks may argue that the inclusion of proper nouns in the readability calculations of these textbooks constitutes an unjust indictment of the difficulty of the content. However, Bond and Wagner (1966), Bond and Tinker (1967), and Helen Huus (1969) have stated that proper nouns are a significant part of the vocabulary burden of social studies textbooks, and they invariably present reading problems to the child. Huus observed that many proper nouns are unidentified, and the prevalence of foreign place names presents additional difficulties.

The Fry Readability Graph covers 13 grade levels, grades one through college, whereas the Spache formula cannot rank books above 4.0 grade level, and the Flesch and Dale Chall formulas cannot rank

books below 4.0 grade level. The selection of the Fry Readability Graph eliminated the problem of articulation from one formula to another.

Finally, of the approximately three score readability formulas presently in existence, the Fry Readability Graph is one of the easiest and fastest to use. The single rationale for its development was Edward Fry's disenchantment with the cumbersome formulas in existence. The publication of the Fry Graph in the April, 1970 edition of Grade Teacher was prefaced with the following statement:

Anyone--teacher or librarian--who has ever tried to run a book through one of the better known readability formulas knows what a mind-boggler the whole business can be. At best, the formulas are tedious; at worst, impractical. (Grade Teacher, April, 1970, p. 14)

Pauk (1969) reported that an entire calculation takes about 10 minutes when using McLaughlin's formula, about 15 minutes using Fry's formula, and 40 minutes using the Dale Chall formula.

Specific directions for calculating the Fry Readability Graph appear in Appendix A.

Informal Reading Inventory

The purpose of the informal reading inventory is, according to Marjorie Seddon Johnson (1970), to find out if the material would be suitable for teaching. The basic question to be answered for each pupil is this: "Can he profit from instruction in this material?"

Differentiating between standardized tests and informal inventories, M. S. Johnson (1970) stated that standardized tests rate an individual's performance as compared to the performance of others. The informal inventory appraises the individual's level of competence on a particular job without reference to what others do.

The widespread use of informal reading inventories appears to stem, in part, from certain inadequacies of standardized tests of reading achievement. Sochor (1958), Witty (1962), Marksheffel (1966), Bond and Tinker (1967), Paulsen (1968), Bracken (1968), and DeBoer and Dallmann (1970) are among those writers who have described the inability of standardized reading tests to provide information about the student's ability to read content area material. Sochor explained thusly:

A reading test appraising "general" reading ability does not identify all reading needs. By definition, it is "survey" in nature and lacking in specificity. Frequently it is limited to a low level type of interpretation. Furthermore, the usual reading test is composed primarily of materials from the field of literature.

.....

In the second place, the reading skills and abilities necessary to adequate interpretation vary considerably within and between the various subject matter fields. Accordingly, specific needs in reading comprehension, particularly in critical reading comprehension, should be identified by means of informally constructed tests and daily appraisal during teaching sessions. (Sochor, 1958, p. 54)

Endorsing the use of informal reading inventories, Paulsen (1968) stated that informal tests are the most direct assessment of reading needs in content area material. Bond and Tinker (1967) recommended the use of informal reading tests employing those passages that children are expected to read day by day. Bracken (1968) stated that free response items will show better than any other testing device how the student organizes ideas he reads and whether he can grasp the author's pattern of thought. Other advocates for the use of informal reading inventories for appraising students' reading abilities in content areas include Sochor (1958), Witty (1962), Arnsdorf (1963),

Marksheffel (1966), Strang, McCullough, and Traxler (1967), and M. S. Johnson (1970).

The use of the informal reading inventory to assess readability has been proposed by Arnsdorf (1963), Fry (1968), Kender (1970), and M. S. Johnson (1970). In Fry's words, ". . . we must continually keep in mind that the real basis for readability is whether a child can read the material" (Fry, 1969, p. 537).

Selection of Social Studies Textbooks

Listings of the fourth, fifth, and sixth grade state adopted social studies textbooks were compiled and included in questionnaires mailed to all of the fourth, fifth, and sixth grade classroom teachers in the public schools of Linn and Benton Counties, Oregon. Special classrooms for exceptional children, mentally retarded or behavior intervention were excluded. Each classroom teacher was asked to indicate the social studies textbook(s) presently being used for instructional purposes in his/her classroom. Copies of the questionnaires for each of the three grade levels appear in Appendix B.

A social studies textbook inventory for the intermediate classrooms in Linn and Benton Counties was compiled from the information obtained from the returned questionnaires. The textbook inventory revealed that all of the 40 titles appearing on the state adopted list as well as two pilot social studies programs were being used in the two-county area. Nine titles, three series, were used in sufficient numbers to serve as a basis of inquiry for an investigation of this nature. A bibliography of those nine titles appears in Appendix C.

Permission to conduct the investigation was secured from two of the three publishing houses, the third failing to respond to a registered letter.

Sampling Procedures for the Fry Readability Graph

The 1971 (Knapp) directions for the Fry Readability Graph stated that three 100-word samples be selected at random from the beginning, middle, and end of each textbook. In a personal communication, Dr. Fry (1972) recommended increasing the number of samples for each textbook from three to ten.

H. Lynn Scheurman, Department of Statistics, Oregon State University, proposed the following procedures to insure random selection of the ten 100-word samples to be analyzed in each textbook:

1. The total number of pages in the textbook was divided by ten, the number of 100-word samples to be analyzed; the textbook was then divided into ten sections of equal size accordingly.
2. Beginning at a randomly selected point in a table of randomly assorted digits (Snedecor and Cochran, 1967), digits that were equal to or less than the number of pages in each one-tenth section of the textbook were drawn until the required ten digits were obtained. These digits determined the ten pages in the text from which the 100-word samples would be drawn.

The Population

The school census figures listed in Appendix D indicate that approximately 60 per cent of the children attend urban schools and 40 per cent attend rural schools. The children enrolled in urban schools reside in or near four principal communities. Many of the rural schools are not a part of consolidated districts and, hence, differ from the urban schools in several respects.¹ First, total building enrollments are low causing an increase in the number of combination grade classrooms in which one teacher is responsible for two or more grade levels. Second, pupil support services and consultant services are provided to the rural schools; however, the greater distances between schools causes such services to be less accessible or frequent than is the case in the urban school districts.

The test data from the informal reading inventories were analyzed separately according to rural or urban designation as well as compositely.

Sampling Procedures for the Informal Reading Inventories

Those classrooms using the textbooks under investigation were listed by publisher, grade level, and rural or urban designation. Stratified random sampling was the method employed to select the number of classrooms from each category that would be administered the informal

¹Many of the classroom teachers in the rural schools located near the eastern and western boundaries of the two-county area are of the opinion that the combined effects of generally poor economic conditions and isolation have an influence on the educational development of their pupils.

reading inventories. Of the 280 fourth, fifth, and sixth-grade classrooms using the three series of textbooks, a total of 70 classrooms, 25 per cent, constituted the sample population. A school official in each of the four larger school districts and the Linn-Benton Intermediate Education District judged the sample to be adequately representative of the population.

The chief school officer in each of the school districts with sample classrooms was contacted to obtain permission to administer the informal reading inventories. Permission was granted in all cases except one rural school district and one elementary school in a second rural school district. Additional classrooms were randomly selected to replace those for which permission had been denied.

After approval had been secured, a double post card was mailed to each classroom teacher notifying him/her of the selection. The return section of the post card requested the teacher to indicate those pages of the textbook that would not be taught by use of the textbook or any other media as of May 1.

Three criteria governed the selection of the textbook passages from which the informal reading inventories were constructed: First, the passage had not been taught by use of the textbook or any other media; second, comprehension of the passage was not dependent on the interpretation of maps or other graphic material; third, passages pertaining to the northwestern sector of the United States were eliminated.

The informal reading inventories were field tested in classrooms that were not a part of either the original or sample populations. After the necessary modifications in the informal tests had been made,

they were mailed or delivered in person to the classroom teachers along with detailed directions for administration. Because of the number of combination classrooms in the sample, the investigator administered the informal reading inventories in many of those classrooms as well as any others requesting it. The cover letter and directions for administering the informal reading inventories appear in Appendix E. Copies of the informal reading inventories are included in Appendix F.

Statistical Treatment

The following procedures were established for analyzing the data yielded by the Fry Readability Graph and the scores from the group informal reading inventories.

The Fry Readability Graph yields a grade level designation of plus or minus one year. Those textbooks designated by the publisher as fourth grade level textbooks were ranked in order of difficulty as determined by the Fry Readability Graph as were the publisher-designated fifth grade textbooks and the publisher-designated sixth grade textbooks. Rank order correlations were computed among the grade levels derived by the Fry Readability Graph and the grade levels designated by the publisher. The internal variation of the readability of the ten samples within each textbook was plotted on graphs, and the range of readability levels within the textbooks was determined.

The group informal reading inventories were hand scored by the investigator on a straight percentage basis. A classification system for judging the students' responses was adapted from a similar study conducted by Millis (1959) as follows:

Full Credit (10 points). In the judgment of the investigator, the response of the student corresponded to (or was superior to) the information provided in the textbook.

Half Credit (5 points). In the judgment of the investigator, the response of the student indicated that the student's understanding of the content was vague or partially correct.

No Credit. The student did not respond; answered, "I don't know;" or provided a response that was incorrect.

The following criteria as established by Marksheffel (1972) were used for interpreting the test data:

Independent Reading Level . . . . .	.90, 95, 100 per cent
Instructional Reading Level . . . . .	.65, 70, 75, 80, 85 per cent
Frustration Level . . . . .	.60 per cent or lower

The test scores from the group informal reading inventories were analyzed in terms of the per cent of students at each of the three grade levels who read at the independent level, the instructional level, or the frustration level for each of the three series of textbooks. The students' scores were further analyzed by locale, i.e., rural or urban. A schematic model for the analysis of the test data appears in Table I.

Table 1. Analysis procedures for the group informal reading inventories.

Grade Level	Textbook	Classroom Location						All Classrooms		
		Urban Classrooms			Rural Classrooms					
		Ind.	Inst.	Frus.	Ind.	Inst.	Frus.	Ind.	Inst.	Frus.
4	Benefic Press									
4	Silver Burdett									
4	D.C. Heath									
	Total Grade 4									
5	Benefic Press									
5	Silver Burdett									
5	D.C. Heath									
	Total Grade 5									
6	Benefic Press									
6	Silver Burdett									
6	D.C. Heath									
	Total Grade 6									
Total--All Grades-- All Three Textbook Series										

The per cent of students in each grade scoring at the independent reading level, the instructional reading level, and the frustration level.

Table 1 shows how the test scores were summarized. The percentage of students scoring at the three reading levels, independent, instructional, and frustration, were reported for each publisher at each of the three grade levels for the urban sample, the rural sample, and the composite sample. The percentage of students scoring at the three reading levels were also compiled for each of the three grade levels according to urban or rural designation and for the composite sample. Finally, the scores for the total sample were compiled and the percentage of students at each of the three reading levels were reported by locale and for the total sample.

The test scores from the group informal reading inventories were further analyzed to determine if there were significant differences in the mean scores of the subsets of the total sample using the null hypotheses. Mr. Harvey Lipman, Department of Statistics, Oregon State University, served as consultant in selecting the statistical tests and the appropriate computer program.

The t-test was applied to test significance when the comparison was limited to two groups, and the analysis of variance was used when the comparison involved more than two groups. When the analysis of variance resulted in a significant F value, the multiple range test was applied to determine the exact location of the mean difference.

IV. PRESENTATION AND INTERPRETATION OF DATA

Two methods were utilized to determine the readability of three series of selected state adopted social studies textbooks for grades four, five, and six: a readability formula and group informal reading inventories.

Fry Readability Data

Comparison of Readability Data by Publisher and Grade Level

The Fry Readability Graph was applied to ten randomly selected passages in each of the nine textbooks analyzed in this investigation. The results of the readability calculations are reported by grade level and by publisher in Table 2. The numerals recorded under the column labeled Readability Level are the readability levels as determined by the Fry Readability Graph. The numerals reported in the Discrepancy column are the difference between the computed readability level and the publisher's designated grade level. The readability calculations including the number of syllables and the number of sentences in each of the ten 100-word samples in each textbook are provided in Appendix G.

Table 2. Readability levels derived from the Fry Readability Graph.

Publisher Designated Grade Level	Computed Readability Levels					
	D. C. Heath*		Silver Burdett*		Benefic Press*	
	Readability Level	Discrepancy	Readability Level	Discrepancy	Readability Level	Discrepancy
4	5	+1	5	+1	6	+2
5	7	+2	8	+3	8	+3
6	8	+2	9	+3	11	+5

*Complete bibliographical data for each textbook appears in Appendix C.

Mr. David Niess, Systems Analyst, Computer Center, Oregon State University, computed rank order correlations between the publishers' designated grade levels and the readability levels derived by the Fry Readability Graph. The resulting coefficients are reported in Table 3.

Table 3. Relationship between the publishers' designated grade levels and the readability levels derived by the Fry Readability Graph.

Method	Coefficient
Spearman's Rho	$r_s = .68$
Kendall's Tau	$\tau = .47$

Spearman's Rho yielded a positive correlation of .68, and Kendall's Tau resulted in a positive correlation of .47 between the two variables: the publishers' designated grade levels and the readability levels derived by application of the Fry Readability Graph.

Fry (1968) stated that when data are derived from sampled passages the results will be within one year of the true reading level. All nine readability levels reported in Table 2 exceed the publishers' designated grade level by one to five years. Assuming the readability levels are within one year of the true reading level, then only two textbooks, the fourth grade Heath and Silver Burdett textbooks, are suitable for the grade level in which they are designed to be used.

Fry (1968) also wrote that the Readability Graph functions to rank materials according to their relative difficulty. The readability data reported in Table 2 indicates that, of the three series of textbooks analyzed, the D. C. Heath series is the least difficult, the Benefic Press series is the most difficult, and the Silver Burdett series occupies an intermediate position between the other two series.

The computed readability levels did show increasing difficulty consistent with advancing grade level for all three textbook series. This increase, however, was uneven. The expected one year increase between adjacent grade levels occurred only in two cases: between the fifth and sixth grade textbooks published by D. C. Heath and by Silver Burdett. Three year increases in readability between adjacent grade levels occurred twice: between Silver Burdett's fourth and fifth grade texts, and between Benefic's fifth and sixth grade textbooks. Two year increases in readability between adjacent grade levels occurred in the remaining two cases.

Comparison of Readability Levels Within the Textbooks

Although the textbooks did progress in difficulty according to the publishers' recommended sequence, there were internal variations in difficulty within all of the textbooks. Readability levels were derived for each of the ten samples within each text. The range of readability levels within the textbooks is presented in Table 4.

Table 4. Range of readability levels within the nine social studies textbooks.

Publisher Designated Grade Level	Publisher	Readability Levels Expressed in Grade Level Equivalentents														Range	
		1	2	3	4	5	6	7	8	9	10	11	12	C*			
4	Heath		|||||														6 years
4	Silver Burdett			|||||													6 years
4	Benefic				|||||												5 years
5	Heath					|||||											5 years
5	Silver Burdett						|||||										8 years
5	Benefic							|||||									5 years
6	Heath								|||||								8 years
6	Silver Burdett									|||||							7 years
6	Benefic										|||||						6 years

* College

Average Range 6.2 years

Table 4 shows that the readability levels within the textbooks ranged from a five-year span of difficulty in three of the textbooks, Benefic Press's fourth and fifth grade textbooks and D. C. Heath's fifth grade text, to a high of eight years in two textbooks, the fifth grade Silver Burdett text and the sixth grade D. C. Heath textbook. The average range of readability within the nine textbooks was 6.2 years.

Although Table 4 provided evidence of a considerable range of readability levels within the textbooks, it is also essential to examine the gradation of difficulty in the nine textbooks. The three graphs in the following table provide this information. Graph A represents the publishers' designated fourth grade textbooks, Graph B the designated fifth grade texts, and Graph C the sixth grade textbooks. The base line dividing the graphs in half horizontally represents the overall computed readability level of the textbooks. The other three lines in each graph represent the deviations of the readability levels of the ten sample passages around the overall readability of the textbooks for each of the three textbooks at each grade level.

TABLE 5. DEVIATIONS OF THE READABILITY LEVELS OF THE TEN SAMPLE PASSAGES WITHIN EACH TEXT FROM THE OVERALL READABILITY OF THE TEXTBOOKS.

A. FOURTH GRADE TEXTBOOKS.

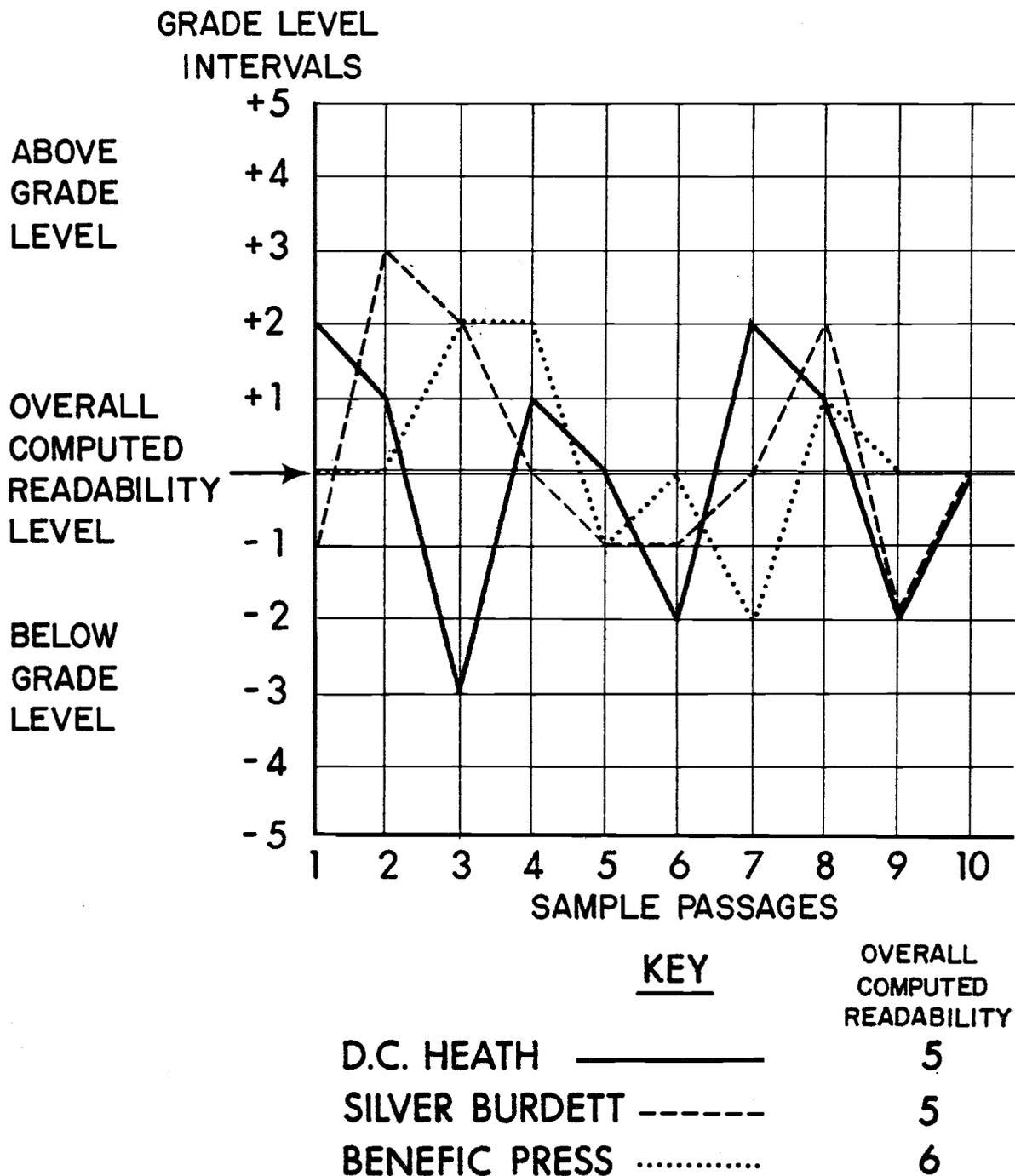
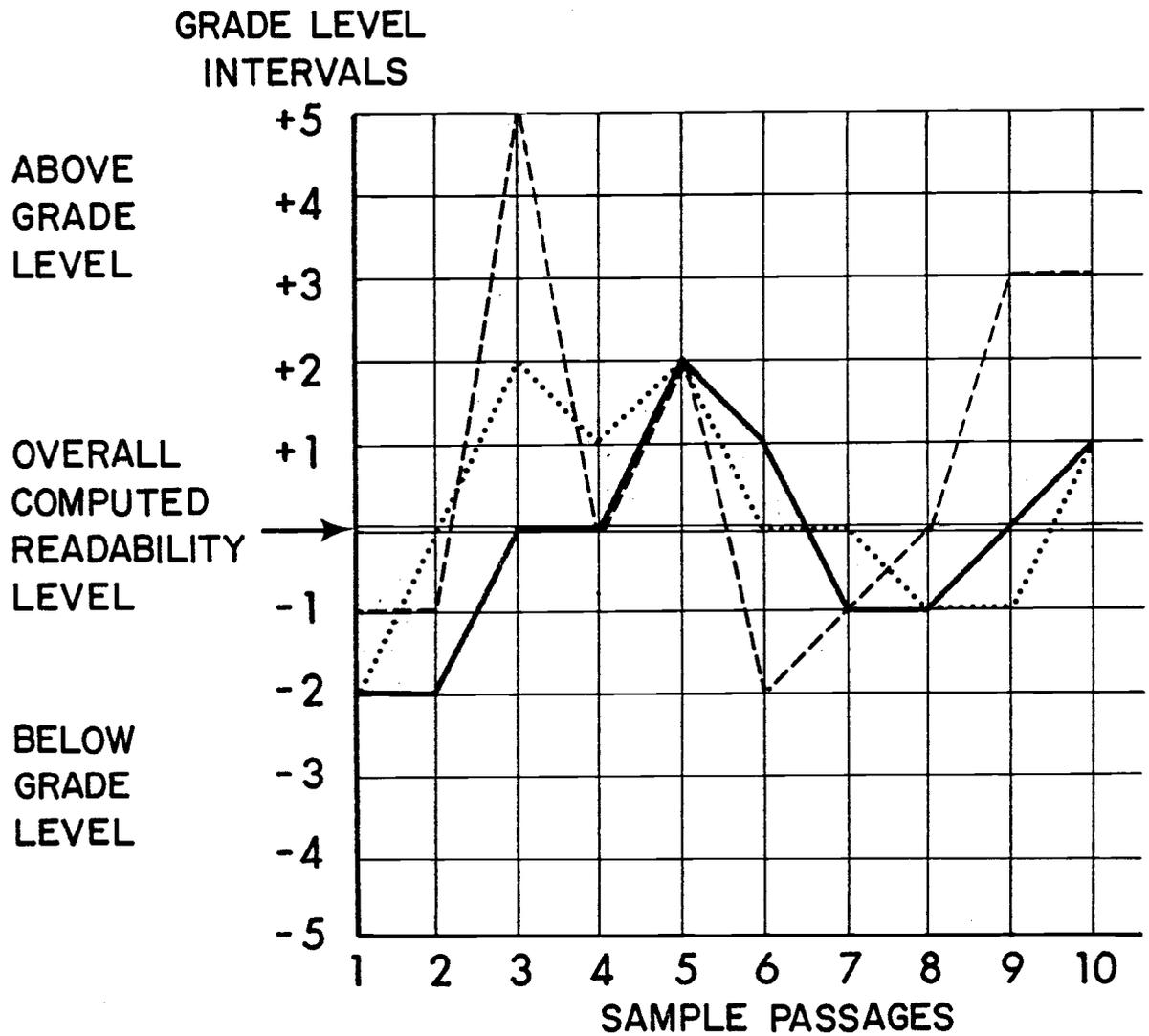


TABLE 5. (CONTINUED)

DEVIATION OF THE READABILITY OF THE
SAMPLE PASSAGES

B. FIFTH GRADE TEXTBOOKS.



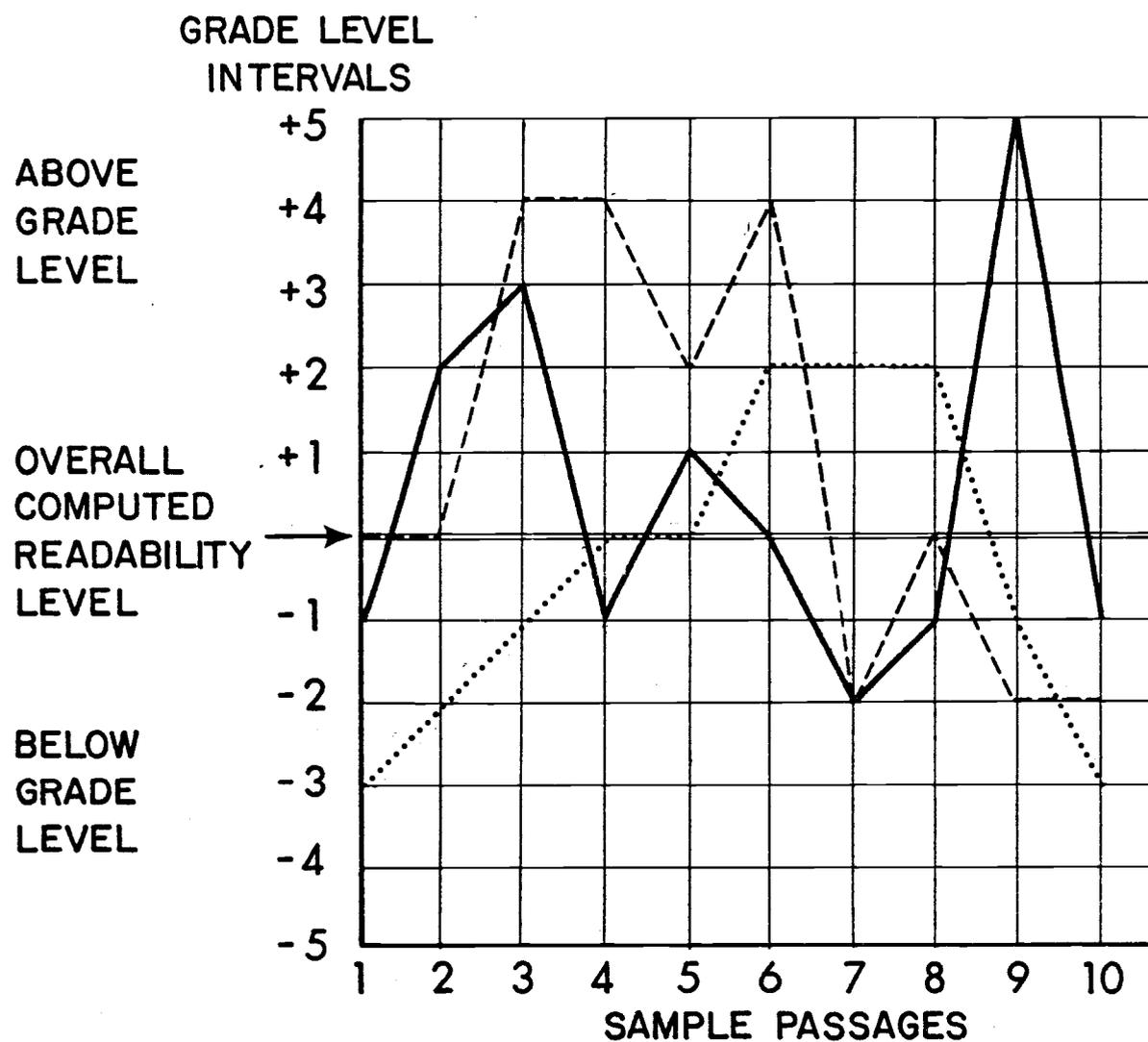
KEY

		OVERALL COMPUTED READABILITY
D.C. HEATH	—————	7
SILVER BURDETT	-----	8
BENEFIC PRESS	.....	8

TABLE 5. (CONTINUED)

DEVIATION OF THE READABILITY OF THE
SAMPLE PASSAGES

C. SIXTH GRADE TEXTBOOKS.

KEY

D.C. HEATH —————

SILVER BURDETT - - - - -

BENEFIC PRESS ······

OVERALL
COMPUTED
READABILITY

8

9

11

The graphs in Table 5 provide little evidence of a gradation from easy to more difficult reading material. All of the textbooks except the fourth grade Heath text did have introductory passages below or at the overall computed readability level. There were, however, no other indications of a gradation from less difficult to more difficult reading material.

Although the readability computations reported in Table 2 indicated that the fourth grade Heath and Silver Burdett textbooks were appropriate for the grade level for which they were intended, the internal variation in both texts as reported in Table 5 is considerable. Each of these textbooks has a range of six years in readability. Half of the sample passages in the D. C. Heath text have readability levels above the acceptable level for students reading at the fourth grade level, and three of the sample passages in Silver Burdett's text exceed the acceptable level. Thus, even though the fourth grade Heath and Silver Burdett texts might be judged appropriate on the basis of their overall readability levels, sections of both textbooks would actually be too difficult for students whose optimum reading level was fourth grade.

Data From the Group Informal Reading Inventories

Group informal reading inventories were constructed from those passages of the nine textbooks in the investigation that had not been taught by use of the textbook or any other media. The informal inventories were administered during the month of May in 70 fourth, fifth, and sixth grade classrooms to a total of 1467 children.

The tests were hand scored by the investigator on a percentage basis, and the following criteria were used for interpreting the test scores as established by Marksheffel (1972):

Independent Reading Level 90, 95, 100 per cent

Instructional Reading Level ... 65, 70, 75, 80, 85 per cent

Frustration Level 60 per cent or lower

The independent reading level, according to Marksheffel (1966), is the level at which the student reads with almost complete freedom from mechanical or word difficulties; he/she can comprehend the material without instructional assistance from the teacher.

The instructional level is that level of reading material a student can comprehend when systematic instructional assistance and guidance are provided by the teacher.

The frustration level is the level at which the student understands less than 60 per cent of the material. It is almost impossible for students to learn when their assigned reading is at this level (Marksheffel, 1966).

The directions for administering the group informal reading inventories appear in Appendix E. The subjects were not provided with prereading instruction in the form of introduction of new vocabulary; nor were they provided any background information or prereading questions. No assistance was given by the teacher or investigator while the subjects were reading the passage or answering the questions.

The data from the informal reading inventories which follows begins with the composite percentage of subjects reading at the independent level, the instructional level and the frustration level for the total

sample and progresses to the percentages for the urban and rural samples, the percentages for each grade level, the percentages for each grade level in the urban and rural samples, the percentages for the three series of social studies textbooks, and the percentages for each textbook at each grade level.

Test Performance of Students in the Total Sample

Table 6 shows the percentage of subjects in the total sample reading at the independent reading level, the instructional reading level, and the frustration level. The informal inventories were administered during the month of May. Hence, the scores can be considered end-of-the year test data, and it can be assumed that the subjects had attained their optimum reading ability for the school year.

Table 6. Number and per cent of subjects in the total sample scoring at the independent level, the instructional level, and the frustration level.

Reading Level	Number of Subjects	Per cent of Subjects
Independent	138	9.41
Instructional	470	32.04
Frustration	859	58.55
Total	1467	. .

Slightly less than 10 per cent of the subjects could comprehend the reading material in the three series of textbooks at the independent level; one third (32.04%) of the subjects scored at the instructional level; and over half (58.55%) of the subjects scored at the frustration level.

The mean test score for the group informal reading inventories administered to the sample population was 54.82 per cent.

A Comparison of the Test Performance of the Urban and Rural Subjects

The test data for the urban and rural samples are contrasted in Table 7.

Table 7. Number and per cent of subjects in the urban and rural schools scoring at the independent, the instructional, and the frustration levels.

Reading Level	Urban		Rural	
	Number	Per cent	Number	Per cent
Independent	91	10.81	47	7.52
Instructional	298	35.39	172	27.52
Frustration	453	53.80	406	64.96
Total	842	. .	625	. .

The data indicate that subjects attending urban schools are somewhat more successful than their rural counterparts comprehending social studies textbooks. About 11 per cent of the urban subjects could read the texts independently, contrasted to 7.5 per cent of the rural students. Nearly 54 per cent of the urban subjects find the material frustrating as do 65 per cent of the rural subjects.

The administration of the group informal reading inventories resulted in a mean test score of 56.64 per cent for the urban subjects and 52.35 per cent for the rural subjects. The pooled variance t-test was applied to test the following hypothesis:

H_1 There are no significant differences in the mean scores of the urban and rural subjects.

Sample sizes, mean scores, and the resulting t value are reported in Table 8.

Table 8. A comparison of the mean scores from the informal reading inventories for the urban and rural subjects.

Group	Number	Mean	t
Urban	842	56.64	3.30*
Rural	<u>625</u>	<u>52.35</u>	
Total	1467	• •	• •

* $p < .01$

The null hypothesis was rejected as the urban and rural mean scores differed significantly at the .01 level.

The rejection of this hypothesis was anticipated. The combined effects of geography, economic factors and population distribution in the two-county area from which the sample was drawn provided reason to believe that the urban subjects might score higher than their rural counterparts on the informal reading inventories.

A Comparison of Test Performance by Grade Level

A comparison of the subjects' performance for grade levels four, five, and six is provided in the following table:

Table 9. Number and per cent of fourth, fifth, and sixth grade subjects in the total sample scoring at the independent level, the instructional level, and the frustration level.

	Fourth Grade		Fifth Grade		Sixth Grade	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Independent	19	5.71	38	7.05	81	13.61
Instructional	101	30.33	167	30.98	202	33.95
Frustration	213	63.96	334	61.97	312	52.44
Total	333	. .	539	. .	595	. .

The data in Table 9 indicate that the subjects did become more proficient reading social studies textbooks as they progressed through the intermediate grades. There was an increase in the percentage of subjects reading at the independent and instructional levels and a corresponding decrease in the percentage of subjects at the frustration level at subsequently higher grade levels.

Although the performance of the subjects improved with advancing grade level, the computed readability levels as reported in Table 2

indicated that the textbooks became substantially more difficult at subsequently higher grade levels. The modest gains in student test performance from grades four through six should be interpreted in light of the fact that the fifth and sixth grade textbooks have formula derived readability levels from one to four years above the level of acceptance.

The mean test scores from the group informal reading inventories for each of the three grade levels are reported below.

Table 10. Table of means for the group informal reading inventories for grades four, five, and six.

Grade	Number	Mean
Four	333	50.35
Five	539	53.96
Six	<u>595</u>	<u>58.09</u>
Total	1467	. .

The mean scores were subjected to a one-way analysis of variance, and the F test was applied to test the following hypothesis:

H_2 There are no significant differences in the mean scores of the subjects in grades four, five, and six.

Table 11 shows the analysis of variance for the three grade levels.

Table 11. Analysis of variance of the mean scores for grades, four, five, and six.

Source of Variation	d.f.	Sum of Squares	Mean Square	F
Grade Level	2	13436.92	6718.46	
Error	1464	874212.96	597.14	11.25*
Total	1466	887649.88		

* $p < .01$

The null hypothesis was rejected and one can conclude from the data shown in Table 11 that the mean scores of the subjects in grades four, five, and six are significantly different at the .01 level.

A Comparison of the Test Performance of the Urban and Rural Subjects by Grade Level

The test performance of the subjects in the urban and rural samples for grades four, five, and six is contrasted in Table 12.

Table 12. Number and per cent of fourth, fifth, and sixth grade subjects in the urban and rural samples scoring at the independent, instructional, and frustration levels.

Reading Levels	Urban		Rural	
	Number	Per cent	Number	Per cent
Fourth Grade				
Independent	12	5.15	7	7
Instructional	71	30.47	30	30
Frustration	<u>150</u>	64.38	<u>63</u>	63
Total - Number	233		100	
Fifth Grade				
Independent	26	10.24	12	4.21
Instructional	88	34.64	79	27.72
Frustration	<u>140</u>	55.12	<u>194</u>	68.07
Total - Number	254		285	
Sixth Grade				
Independent	53	14.93	28	11.67
Instructional	139	39.15	63	26.25
Frustration	<u>163</u>	45.92	<u>149</u>	62.08
Total - Number	355		240	

The urban subjects showed a fairly consistent pattern of improvement in their ability to comprehend social studies textbooks as they progressed through the intermediate grades. The number of urban subjects reading at the independent and instructional levels increased five and four per cent, respectively, at advancing grade levels. There was a corresponding decrease of nine per cent in the number of urban subjects reading at the frustration level at subsequent grade levels.

The data for the rural subjects did not show the same consistency with advancing grade level, nor was the data congruent with the composite percentages for the urban and rural samples as reported in Table 7. Fourth grade subjects in the rural schools not only performed better than fourth grade urban subjects, but they also had higher scores than the fifth grade rural subjects. There are several possible explanations for this lack of agreement. First, there were substantially fewer subjects (100) in the fourth grade rural sample; the number of subjects in the other five samples ranged from 233 to 355. Secondly, the classification of schools by locale, urban or rural, was not accurately descriptive in all cases. Two of the urban school districts have rural elementary schools within their district boundaries. Likewise, several of the elementary schools that are designated as rural schools are actually located in suburban neighborhoods adjacent to urban areas.

The rural subjects did make the expected improvement between grades five and six, but they did not perform as well as their urban counterparts at these two grade levels.

The mean scores for the urban and rural subjects in grades four, five, and six are reported in Table 13.

Table 13. Table of means for the group informal reading inventories for the urban and rural subjects in grades four, five, and six.

Grade	Urban		Rural	
	Number	Mean	Number	Mean
Four	233	49.76	100	51.70
Five	254	57.05	285	51.21
Six	355	60.87	240	53.98
Total	842	56.64	625	52.35

The mean scores were subjected to a two-way analysis of variance and the F test was applied to test the following null hypothesis:

H_3 There are no significant differences in the mean scores of the urban and rural subjects in grade four, grade five, and grade six.

Table 14 shows the analysis of variance for the urban and rural subjects in grades four, five, and six.

Table 14. Analysis of variance of the mean scores for grade level and urban-rural designation.

Source of Variation	d.f.	Sum of Squares	Mean Square	F
Urban-Rural	1	6611	6611	11.21*
Grade Level	2	13436	6718	11.39*
Interaction	2	5032	2516	4.26*
Error	1461	861990	590	
Total	1466	887069	. .	. .

* $p < .01$

* $p < .01$

* $p < .05$

The F value for the urban and rural subjects was significant at the .01 level as was the F value for the subjects in grades four, five, and six indicating rejection of the null hypothesis.

To determine if the differences in the mean scores of the urban and rural subjects were significant at each of the three grade levels, the following null hypotheses were formulated:

H_4 There are no significant differences in the mean scores of the urban and rural subjects in grade four.

H_5 There are no significant differences in the mean scores of the urban and rural subjects in grade five.

H_6 There are no significant differences in the mean scores of the urban and rural subjects in grade six.

Individual t tests were made; the t values are reported in Table 15.

Table 15. A comparison of the mean scores of the urban and rural subjects in grades four, five, and six.

Group	Number	Mean	t
Grade Four			
Urban	233	49.76	0.67
Rural	100	51.70	
Grade Five			
Urban	254	57.05	2.79*
Rural	285	51.21	
Grade Six			
Urban	355	60.87	3.39*
Rural	240	53.98	
Total	1467	. .	. .

* p < .01

* p < .01

The t value for the comparison of the mean scores of the fourth grade urban and rural subjects was not significant, and the null hypothesis for the fourth grade sample was accepted. The t values for both the fifth and sixth grade urban and rural subjects were significant at the .01 level; therefore, the null hypotheses for the fifth and sixth grade subjects are rejected.

Possible reasons for the inconsistent findings across the three grade levels are as follows:

1. The relatively smaller fourth grade rural sample (100 subjects) may have caused this subset to be more vulnerable to the wide range of readability within the textbooks as reported in Table 4.
2. The classification of schools by urban-rural designation was not clearly descriptive of some of the elementary schools in the two-county area.

A Comparison of the Subjects' Test Performance by Publisher

The primary function of this investigation was to determine the readability of the nine social studies textbooks by the application of a readability formula and by an assessment of the subjects' ability to comprehend selected passages in the nine textbooks.

The number and per cent of subjects reading at the independent, the instructional, and the frustration levels for the three series of social studies textbooks is reported in Table 16.

Table 16. Number and per cent of subjects scoring at the independent, the instructional, and the frustration levels for each of three publishers.

Publisher	Number	Per cent
D. C. Heath		
Independent	67	10.77
Instructional	210	33.76
Frustration	345	55.47
Total	622	
Silver Burdett		
Independent	55	9.62
Instructional	188	32.87
Frustration	329	57.52
Total	572	
Benefic Press		
Independent	16	5.86
Instructional	72	26.37
Frustration	185	67.77
Total	273	
Total	1467	

There were only minimal differences between the D. C. Heath and Silver Burdett series in terms of the per cent of fourth, fifth, and sixth grade subjects scoring at the three reading levels. The fourth, fifth, and sixth grade subjects who were administered informal reading inventories on the Benefic Press social studies series did not perform as well. Sixty-seven per cent of the subjects tested on the Benefic Press series scored at the frustration level as compared to 55 and 57 per cent, respectively, at the frustration level for the D. C. Heath and Silver Burdett social studies series.

To determine if there were significant differences in the mean test scores of the subjects tested on the three series of textbooks, the following null hypothesis was formulated:

H_7 There are no significant differences among the mean scores of the subjects tested on the D. C. Heath, the Silver Burdett, or the Benefic Press social studies series.

The mean scores were submitted to a one-way analysis of variance and the F test was applied. Table 17 shows the analysis of variance for the three publishers.

Table 17. Analysis of variance of the mean scores of the subjects tested on the D. C. Heath, the Silver Burdett, and the Benefic Press social studies series.

Source of Variation	d.f.	Sum of Squares	Mean Square	F
Publisher	2	6590	3295	5.47*
Error	1464	881060	602	
Total	1466	887650	. .	. .

* $p < .01$

The F value of 5.47 is significant at the .01 level. The multiple range test was applied to determine the exact location of the mean differences. The mean test scores for each of the three publishers and the resulting t values are reported in Table 18.

Table 18. A comparison of the mean scores for each of three publishers.

Publisher	Number	Mean	t	Tabular Value p = .05
Benefic Press	273	50.38	2.99*	1.96
Silver Burdett	572	55.77		
Silver Burdett	572	55.77	0.08	1.96
D. C. Heath	622	55.88		
Benefic Press	273	50.38	3.09*	2.77 = ($\sqrt{2}$) (1.96)
D. C. Heath	622	55.88		

* p < .01

* p < .01

The t values for two of the comparisons were significant at the .01 level. There were significant differences in the mean scores when the subjects tested on the Benefic Press and Silver Burdett social studies series were compared. There were also significant differences in the mean scores when the subjects tested on the Benefic Press and D. C. series were compared. The comparison of the mean scores of the subjects tested on the D. C. Heath and Silver Burdett series was not significant.

On the basis of these findings it can be concluded that the Silver Burdett and D. C. Heath social studies textbooks are comparable in terms of the subjects' ability to comprehend selected passages within these two series of textbooks.

A Comparison of the Subjects' Test Performance by Grade Level
and Urban Rural Designation For Each of Three Publishers

To determine if the findings reported above for the total sample remained consistent at each of the three grade levels, the test data were further analyzed by grade level for each of the three publishers. The table which follows shows the per cent of subjects scoring at the independent, the instructional, and the frustration levels for each publisher for grades four, five, and six.

Table 19. Number and per cent of subjects scoring at the independent, instructional, and frustration levels for each of three series of social studies textbooks for grades four, five, and six.

Reading Levels	D. C. Heath		Silver Burdett		Benefic Press	
	Number	Per cent	Number	Per cent	Number	Per cent
Grade Four						
Independent	3	4.84	9	12.50	7	3.52
Instructional	15	24.20	30	41.67	56	28.14
Frustration	<u>44</u>	<u>70.96</u>	<u>33</u>	<u>45.83</u>	<u>136</u>	<u>68.34</u>
Total	62	. .	72	. .	199	. .
Grade Five						
Independent	31	10.33	5	2.54	2	4.76
Instructional	104	34.67	53	26.90	10	23.81
Frustration	<u>165</u>	<u>55.00</u>	<u>139</u>	<u>70.56</u>	<u>30</u>	<u>71.43</u>
Total	300	. .	197	. .	42	. .
Grade Six						
Independent	33	12.69	41	13.53	7	21.88
Instructional	91	35.00	105	34.65	6	18.75
Frustration	<u>136</u>	<u>52.31</u>	<u>157</u>	<u>51.82</u>	<u>19</u>	<u>59.37</u>
Total	260	. .	303	. .	32	. .

The sample sizes reported in Table 19 range from a low of 32 to a high of 303, and, thus, drawing conclusions on these test data would be a spurious procedure. The data reported above does reveal some findings that are inconsistent with the prevailing pattern of test results reported thus far. At the fourth grade level the subjects tested on the Silver Burdett textbook not only made substantially higher scores than did the subjects reading the other two fourth grade textbooks, but they also had higher test scores than all of the subjects in the three fifth grade samples.

The compilation of test data has shown a consistent trend in which the smallest percentage of subjects read at the independent level, a somewhat larger percentage read at the instructional level and the greatest percentage read at the frustration level. The small sample size for the sixth grade Benefic Press sample probably accounts for test results which are inconsistent with this pattern.

There is some agreement between the subjects' test performance as reported in Table 19 and the formula derived readability levels as reported in Table 2. The Fry formula rated both the Silver Burdett and D. C. Heath fourth grade textbooks within the level of acceptance, and the fourth grade subjects tested on the Silver Burdett textbook scored higher than did the subjects tested on the other two textbooks. At the fifth grade level the formula ranked the D. C. Heath textbook as the least difficult of the three textbooks, and the fifth grade subjects reading the D. C. Heath textbook had test scores substantially higher than the subjects reading the other two textbooks.

The differences among the test scores of the subjects reading the three sixth grade textbooks are not as pronounced when the percentage

of subjects scoring at the independent and instructional levels for each of the three textbooks are combined as follows:

D. C. Heath	47.69 per cent
Silver Burdett	48.18 per cent
Benefic Press	40.63 per cent

These data indicate that the sixth grade D. C. Heath and Silver Burdett textbooks are of comparable difficulty with both textbooks being slightly easier to read than the sixth grade Benefic Press textbook.

The formula derived readability levels as reported in Table 2 rated the sixth grade D. C. Heath textbook as the least difficult at the eighth grade level of difficulty. The sixth grade Silver Burdett textbook had a ninth grade readability level, and the sixth grade Benefic Press textbook had a formula derived readability at the eleventh grade level.

The mean scores for the urban, rural, and the combined samples for each grade level and for each publisher are reported in Table 20.

Table 20. Table of means for the urban, rural, and composite samples for each of the three publishers for grades four, five, and six.

Group	Urban		Rural		Composite Sample	
	Number	Mean	Number	Mean	Number	Mean
Grade 4						
Silver Burdett	40	55.875	32	56.56	72	56.18
Benefic Press	171	49.82	28	49.64	199	49.79
D. C. Heath	<u>22</u>	<u>38.18</u>	<u>40</u>	<u>49.25</u>	<u>62</u>	<u>45.32</u>
Total-Grade 4	233	49.76	100	51.70	333	50.35
Grade 5						
Silver Burdett	66	49.77	131	50.76	197	50.43
Benefic Press	11	60.00	31	44.19	42	48.33
D. C. Heath	<u>177</u>	<u>59.58</u>	<u>123</u>	<u>53.46</u>	<u>300</u>	<u>57.07</u>
Total-Grade 5	254	57.05	285	51.21	539	53.96
Grade 6						
Silver Burdett	162	62.13	141	55.71	303	59.14
Benefic Press	27	57.41	5	53.00	32	56.72
D. C. Heath	<u>166</u>	<u>60.21</u>	<u>94</u>	<u>51.44</u>	<u>260</u>	<u>57.04</u>
Total-Grade 6	355	60.87	240	53.98	595	58.09
Grand Total	. .	. .	. .	. .	1467	
					Grand Mean	54.82

The following null hypotheses were established to compare the test results of the students by publisher and urban and rural designation for each of the three grade levels.

H_8 For grade four there are no significant differences in the mean scores of the urban and rural subjects who were tested on the D. C. Heath, the Silver Burdett or the Benefic Press textbooks.

H_9 For grade five there are no significant differences in the mean scores of the urban and rural subjects who were tested on the D. C. Heath, the Silver Burdett or the Benefic Press textbooks.

H_{10} For grade six there are no significant differences in the mean scores of the urban and rural subjects who were tested on the D. C. Heath, the Silver Burdett or the Benefic Press textbooks.

The mean scores were submitted to a two-way analysis of variance and the F test was applied to determine significance. The analysis of variance table for grade four appears below followed by the analysis of variance tables for grades five and six.

Table 21. Analysis of variance of the mean scores for the urban vs. rural subjects and for the three publishers for grade four.

Source of Variation	d.f.	Sum of Squares	Mean Square	F	Tabular Value p = .05
Urban - Rural	1	262.27	262.27	0.42	3.88
Publisher	2	4075.12	2037.56	3.23*	3.03
Interaction	2	1485.71	742.86	1.18	3.03
Error	327	206062.19	630.16		
Total	332	211885.29	. .	. .

* p < .01

The comparison of the mean scores of the fourth grade urban and rural subjects yielded a nonsignificant F value. The comparison of the mean scores of the subjects tested on the three publishers' textbooks was significant at the .05 level. The multiple range test was applied to determine if there were significant differences between the mean scores of any two publishers at the fourth grade level.

The mean scores for each of the fourth grade textbooks and the resulting t values are reported in Table 22.

Table 22. A comparison of the mean scores for each of three publishers for grade four.

Publisher	Number	Mean	t		Tabular Value p = 1.96
D. C. Heath	62	45.32	1.22	N.S.	1.96
Benefic Press	199	49.79			
Benefic Press	199	49.79	1.85	N.S.	1.96
Silver Burdett	72	56.18			
D. C. Heath	62	45.32	2.50	N.S.	2.77 = ($\sqrt{2}$)(1.96)
Silver Burdett	72	56.18			

The multiple range test for the three fourth grade publishers did not result in significant t values, whereas the preceding analysis of variance did yield a significant F value for the comparison of the mean scores of the three publishers. The analysis of variance is a general comparison, and it should be noted that the F value of 3.23 reported in Table 21 slightly exceeded the tabular value needed for rejection at the .05 level. Moreover, two of the t values reported in Table 22 approached significance.

The null hypothesis for the fourth grade sample was accepted.

The analysis of variance table for the fifth grade sample appears in Table 23.

Table 23. Analysis of variance of the mean scores for the urban vs. rural subjects and for the three publishers for grade five.

Source of Variation	d.f.	Sum of Squares	Mean Square	F	Tabular Value p = .05
Urban - Rural	1	4575.38	4575.38	8.91*	3.86
Publisher	2	6677.86	3338.93	6.50*	3.01
Interaction	2	215.12	107.85	.21	3.01
Error	533	273649.82	513.41		
Total	538	285118.18	. .	. .	. .

* p < .01

* p < .01

The F values for both fifth grade comparisons, by urban-rural designation and for the three publishers, were significant at the .01 level. Thus, the mean scores of the fifth grade urban and rural subjects differed significantly as did the mean scores of the subjects tested on the three fifth grade social studies textbooks. The multiple range test was applied to determine if there were significant differences between the mean scores of any two publishers at the fifth grade level. The mean scores and resulting t values are reported in Table 24.

Table 24. A comparison of the mean scores for each of three publishers for grade five.

Publisher	Number	Mean	t		Tabular Value p = .05
Benefic Press	42	48.33	.55	N.S.	1.96
Silver Burdett	197	50.43			
Silver Burdett	197	50.43	3.20*		1.96
D. C. Heath	300	57.07			
Benefic Press	42	48.33	2.34	N.S.	2.77 = ($\sqrt{2}$)(1.96)
D. C. Heath	300	57.07			

* p < .01

The multiple range test showed significant differences in the mean scores of the subjects tested on the fifth grade Silver Burdett and D. C. Heath textbooks but nonsignificant differences for the other two comparisons.

The null hypothesis for the fifth grade sample is rejected.

The analysis of variance table for the sixth grade sample appears below.

Table 25. Analysis of variance of the mean scores for the urban vs. rural subjects and for the three publishers for grade six.

Source of Variation	d.f.	Sum of Squares	Mean Square	F	Tabular Value p = .05
Urban - Rural	1	6805.72	6805.72	10.87*	3.86
Publisher	2	682.93	341.47	0.55	N.S. 3.01
Interaction	2	1004.66	502.33	0.80	N.S. 3.01
Error	589	368716.61	626.00		
Total	594	377209.92			

* p < .01

With an F value of 10.87, the differences in the mean scores of the urban and rural subjects was highly significant. The F value for the mean scores of the subjects tested on the three sixth grade social studies textbooks was not significant.

The null hypothesis for the sixth grade sample is rejected on the basis of the highly significant differences in the mean test scores of the urban and rural subjects; however, the differences in the mean scores of the students tested on the three sixth grade textbooks were nonsignificant.

The null hypotheses for the three grade levels were rejected for the fifth and sixth grade samples but accepted for the fourth grade sample. The findings for the urban and rural subjects were not consistent across the three grade levels. At the fifth and sixth grade levels the differences in the mean scores of the urban and rural subjects were significant, whereas there were no significant differences in the mean scores of the fourth grade urban and rural subjects. When the subjects' test scores were compared by publisher the analysis found no significant differences in the mean scores for the fourth and sixth grade samples, but did find significant differences in the mean scores for the fifth grade sample. The multiple range test located significant mean differences between the fifth grade D. C. Heath and Silver Burdett textbooks but nonsignificant differences for the remaining comparisons.

V. SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Summary and Conclusions

The purpose of this study was to investigate the readability of all three series of state adopted social studies textbooks written for grades four, five, and six, a total of nine textbooks.

Two measurements were utilized: a readability formula, the Fry Readability Graph (Knapp, 1971); and group informal reading inventories.

The Fry Readability Graph was applied to 10 randomly selected 100 word samples in each of the 9 textbooks. The group informal reading inventories were constructed from passages in the textbooks that had not previously been taught by use of the textbook or any other media. Stratified random sampling was the method used to select the 70 classrooms in which the informal tests were administered during the month of May.

Readability as determined by the application of a readability formula, the Fry Readability Graph, indicated that two of the nine social studies textbooks analyzed had readability levels in agreement with the publishers' assigned grade level, the fourth grade textbooks published by D. C. Heath and by Silver Burdett. The remaining seven texts had readability levels one to four years above the publishers' designated grade level.

Rank order correlations of $+0.68$ (Spearman's Rho) and $+0.47$ (Kendall's Tau) were found to exist between the publishers' designated grade levels and the computed readability levels.

The formula derived readability levels did progress according to the publishers' recommended sequence; however, this progression was marked by irregularities both within and between textbooks. The expected one-year increase between textbooks designated for use in adjacent grade levels only occurred in two cases. Moreover, the average range of readability for the individual samples within the textbooks was 6.2 years. All of the textbooks except the fourth grade D. C. Heath textbook had introductory passages at or below their overall computed readability levels. However, there were no other indications of a gradation from less difficult to more difficult reading material within any of the textbooks. Thus, even though two textbooks had overall readability levels in agreement with the publishers' assigned grade level, both textbooks contained passages above the level of acceptance.

Adhering to Fry's (1968) recommendation that his formula be used to rank materials according to their relative difficulty, the following conclusions could be made on the basis of the formula derived readability levels: the D. C. Heath series is the least difficult of the three series and the Benefic Press series is the most difficult, with the Silver Burdett series occupying an intermediate position between the other two series.

Summary of the Test Data From the Informal Reading Inventories

The second measurement of readability utilized in this investigation tested the students' ability to comprehend selected passages in the same social studies textbooks that were analyzed by the Fry

Readability formula. A total of 1467 subjects in grades four, five and six were administered group informal reading inventories on selected passages of three series of social studies textbooks. The mean test score for the sample population was 54.82 per cent.

Using the criteria established by Marksheffel (1972) for interpreting the test scores, it was found that 9.41 per cent of the subjects in grades four, five and six scored at the independent level; one-third (32.04 per cent) of the subjects scored at the instructional level, and 58.55 per cent of the subjects scored at the frustration level.

The subjects' test scores on the informal reading inventories were analyzed by locale, i.e., urban or rural, by grade level, by grade level and locale, by publisher, by publisher and grade level, and by publisher, grade level and locale.

The following hypotheses were tested:

H₁ There are no significant differences in the mean scores of the urban and rural subjects.

H₂ There are no significant differences in the mean scores of the subjects in grade four, grade five and grade six.

H₃ There are no significant differences in the mean scores of the urban and rural subjects in grade four, grade five and grade six.

H₄ There are no significant differences in the mean scores of the urban and rural subjects in grade four.

H₅ There are no significant differences in the mean scores of the urban and rural subjects in grade five.

H₆ There are no significant differences in the mean scores of the urban and rural subjects in grade six.

H₇ There are no significant differences among the mean scores of the subjects tested on the D. C. Heath, the Silver Burdett or the Benefic Press social studies series.

H₈ For grade four there are no significant differences in the mean scores of the urban and rural subjects who were tested on the D. C. Heath, the Silver Burdett or the Benefic Press textbooks.

H₉ For grade five there are no significant differences in the mean scores of the urban and rural subjects who were tested on the D. C. Heath, the Silver Burdett or the Benefic Press textbooks.

H₁₀ For grade six there are no significant differences in the mean scores of the urban and rural subjects who were tested on the D. C. Heath, the Silver Burdett or the Benefic Press textbooks.

The t-test was applied to test significance when the comparison was limited to two groups, and the analysis of variance was used when the comparison involved more than two groups. When the analysis of variance resulted in a significant F value, the multiple range test was applied to determine the exact location of the mean difference.

The mean test scores for the urban and rural subjects were 56.64 and 52.35 per cent, respectively. The t-test resulted in a t value of 3.30 that was significant at the .01 level, and H₁ was rejected. Many of the rural schools are located in relatively remote areas

characterized by generally poor economic conditions and these results were anticipated.

When the test scores of the students in grades four, five and six were compared, it was found that students did become more proficient reading social studies textbooks as they progressed through the intermediate grades. The mean scores for the three grade levels were as follows:

Grade Four	50.35 per cent
Grade Five	53.96 per cent
Grade Six	58.09 per cent

The analysis of variance of these means yielded an F value of 11.25 which was significant at the .01 level, and H_2 was rejected. These findings indicate that the students did become more proficient readers with advancing grade level despite the fact that the formula derived readability levels showed that the textbooks were substantially more difficult at subsequently higher grade levels.

The test scores were further analyzed by grade level and rural-urban designation using a two-way analysis of variance. The resulting F values, 11.21 for the urban-rural comparison and 11.39 for the grade level comparison, were significant at the .01 level, and thus H_3 was rejected.

Individual t-tests were made to determine if the significant differences in the mean scores of the urban and rural students held across all three grade levels. The comparison of the urban and rural students in grade four resulted in a t value of 0.67 that was nonsignificant, and H_4 was accepted. These results were inconsistent with the findings reported for the urban and rural comparison across all three grade levels.

This lack of agreement is probably the result of irregular sample size. There were only 100 subjects in the fourth grade rural sample, whereas the other five samples ranged from 233 to 355 subjects. Secondly, the classification of schools by locale, urban or rural, was not accurately descriptive in all cases.

The t-tests for the fifth and sixth grade urban and rural subjects yielded t values of 2.79 and 3.39, respectively. Both were significant at the .01 level, and H_5 and H_6 were rejected.

To determine which of the three series of textbooks was the most readable on the basis of the students' test performance on the informal reading inventories, the test scores were compared by publisher. The mean scores for each of the three series were as follows:

D. C. Heath	55.88 per cent
Silver Burdett	55.77 per cent
Benefic Press	50.38 per cent

The analysis of variance resulted in an F value of 5.47 that was significant at the .01 level. The seventh hypothesis was rejected, and it can be assumed that there were significant differences in the mean scores of the subjects tested on the three series of textbooks.

By applying the multiple range test, significant differences in the mean scores were found to exist between the Benefic Press and

Silver Burdett series and between the Benefic Press and D. C. Heath series. The comparison of the mean scores of the Silver Burdett and D. C. Heath series were not significant. From these results, it can be concluded that the Silver Burdett and D. C. Heath series are comparable in terms of the students' ability to comprehend selected passages in these two series of social studies textbooks.

The test data was further analyzed by grade level for each of the three publishers. By combining the per cent of students reading at the independent and instructional levels, it was found that the fourth grade students tested on the Silver Burdett textbook had substantially higher test scores than the fourth grade students tested on the other two series; fifth grade students tested on the D. C. Heath textbook performed better than the students in the other two fifth grade samples; and at the sixth grade level the test scores of the students reading the D. C. Heath and Silver Burdett textbooks were comparable with the test scores for both texts being higher than the test performance of the students reading the sixth grade Benefic Press textbook.

This type of data analysis does not take into account sample size. The subsets ranged from a low of 32 to a high of 303, and, thus, drawing conclusions on this data would be a spurious procedure.

To test the null hypotheses that there are no significant differences in the mean scores of the urban and rural students who were tested on the three series of social studies textbooks, the mean scores for each grade level were subjected to a two-way analysis of variance.

At the fourth grade level the resulting F value of 0.42 showed no significant differences in the mean scores of the urban and rural

students, but an F value of 3.23 did show significant differences in the mean scores of the three publishers at the .05 level. The multiple range test, however, did not result in significant differences between the mean scores of any two publishers at the fourth grade level. The disagreement between the two tests of significance results from the fact that the analysis of variance is a more general comparison than the multiple range test. Moreover, the F value of 3.23 for the comparison of the three publishers slightly exceeded the tabular value needed for rejection at the .05 level. Conversely, two of the comparisons between publishers resulted in t values closely approaching significance at the .05 level when the multiple range test was applied. The null hypothesis (H_8) for the comparison of the fourth grade urban and rural students tested on the three publishers' textbooks was accepted.

At the fifth grade level, the analysis showed highly significant differences in the mean scores for both comparisons. The comparison of the urban and rural students resulted in an F value of 8.91 and the comparison by publisher yielded a 6.50 F value, both being significant at the .01 level. The multiple range test resulted in a t value of 3.20 for the comparison of the Silver Burdett and D. C. Heath textbooks which was significant at the .01 level. There were no significant differences between the other two comparisons of publishers. Hypothesis nine was rejected.

The analysis of variance for the sixth grade sample resulted in an F value of 10.87 for the urban and rural comparison which was highly significant at the .01 level. The F value for comparison by publisher was nonsignificant. Hypothesis ten was rejected.

On the basis of these findings, the following conclusions were made:

1. Readability as determined by the application of a formula indicated that two of the nine textbooks were in agreement with the publishers' designated grade level, the remaining seven having readability levels above the designated level.
2. The range of readability within the textbooks was 6.2 years with little evidence of a gradation from less difficult to more difficult reading material.
3. Readability as determined by the subjects' performance on group informal reading inventories indicated that approximately ten per cent of the subjects scored at the independent level, one-third of the subjects scored at the instructional level, and over half of the subjects scored at the frustration level.
4. The urban subjects in the sample had significantly higher test scores than the rural subjects.
5. The subjects did have significantly higher test scores at advancing grade levels.
6. For the total sample there were significant differences in the test scores when compared by publisher.

Implications

1. While the findings of Gates (1961; 1962) provided evidence that children are now better readers and the conclusions of Dusenbery (1964), Bond and Tinker (1967), De Boer and Dallman (1970), and Kennedy (1971) that there have been distinct improvements in social studies textbooks, the results of this investigation did not differ significantly

from the results reported by earlier investigations of the readability of social studies textbooks. Further research into the readability of social studies textbooks that are similar in design and content to three series analyzed in this investigation is not warranted.

2. By definition the instructional level is that level of reading material a student can comprehend when systematic instruction is provided by the teacher. Further research is needed to determine if such instruction will significantly affect the ability of students to comprehend social studies textbooks.

3. Peterson (1954), Fay (1954), Hill (1967), Huus (1967), Herman (1969), Marksheffel (1969), Bormuth (1971), Roger Johnson (1970), and Lunstrum (1976) are among those authors who have expressed concern about the relationship between difficult reading material in the social studies and negative student attitudes.

With the social studies encompassing such significant areas of human knowledge as education in values, political behavior, economic decision making, intergroup relations, and world cultures, the ultimate effects of student failure and alienation on a society dependent on an informed and involved electorate warrant speculation.

A primary goal of the social studies is the acquisition of concepts to further the socialization of the student. If the content in which these concepts are presented is, in fact, too difficult for substantial numbers of students, might it be plausible that the actual outcome for many youngsters is not socialization but antisocial behavior?

Recommendations

1. A Critical Evaluation of the Social Studies Curriculum for the Elementary School

Ayer (1926) and Heilman (1967) are among those researchers who have suggested that the social studies curriculum may be inappropriate for elementary school children. Reading is a developmental task and inquiries into the nature of reading problems in the social studies have uniformly cited the heavy burden of difficult concepts as a major obstacle. Unlike science wherein many of the concepts can be apprehended by the senses, the concepts in social studies are less tangible.

Piaget's theories of cognitive development (Ambrom, 1975) support these contentions and provide an explanation for the difficulties elementary school students encounter with conventional social studies textbooks. He found that students in the age range of seven to eleven years (concrete-operational period) should not be expected to reason well about what they have read unless it relates rather closely to direct experience.

Hence, it is recommended that the designers of curriculum for the social studies direct their attention to the several disciplines that are engaged in a continual inquiry into the nature of concept development; that this knowledge serve as a basis for a critical evaluation of the existing social studies curriculum in the elementary school; and that current and subsequent knowledge regarding the nature of concept acquisition serve as a major rationale for the development of new curriculums for the social studies in the elementary school.

2. Instructional Alternatives Which Minimize Reading Assignments

Several authorities (Rudman, 1958; Walter Hill, 1967; Fielder,

1967; Jarolimek, 1971; and Kennedy, 1971) have described the prominent position the textbook occupies in the social studies curriculum.

The results of this investigation as well as those cited in the review of literature provide cause to challenge the utility of the textbook as an instructional tool. Several instructional alternatives that diminish heavy reliance on the textbook have been proposed in recent years. Among those instructional strategies that have been cited in the literature as promising alternatives are the following: simulation and gaming (Guetzkow, 1962; Inbar, 1972), process analog (Fielder, 1967; Joyce, 1972), role playing (Shaftel, 1967), problem solving (Frenton, 1967; Shaftel, 1967), inquiry approaches (Suchman, 1964; Clements, Fielder, Tabachnick, 1966), and inductive development of concepts and generalizations (Taba, 1966; Fenton, 1966; Hanna, 1965).

Each of these approaches provides for the active involvement of children in the learning process, a procedure strongly supported by those theories of learning addressing the nature of concept development. Because of the abstract properties of many concepts in the social studies, the relationship between direct experience and concept development is crucial.

Additionally, the use of non-print media especially audio visual aids is a well-established method for providing children with vicarious learning experiences and, as such, can also be considered viable alternatives to reading in the social studies.

Thus, it is recommended that the alternatives to reading described above be selectively utilized; first, to minimize reading assignments in the social studies; and, second, to provide children with the background of vivid concrete experiences necessary to secure meaning from subsequent reading assignments.

3. Centralized Agency for Readability Analysis

Readability investigations are expensive and time consuming, particularly when the analysis incorporates the salient features described in Chapter I including Gilliland's (1972) proposal that the text and student be analyzed separately as well as in combination. Thus, a recommendation that was initially proposed by Bormuth (1971) is appropriate.

It is recommended that a publicly financed agency staffed by expert analysts and equipped with the necessary resources be established. Such an agency would provide analysis services to publishers and determine the difficulty levels of all instructional materials as they appear on the market. The analysis would draw on the many advances of modern readability research and utilize the increasingly sophisticated methods of linguistic analysis. Bormuth (1971) predicted that the formulas of the future will include a complex array of variables requiring considerable knowledge of linguistics and considerable expense to apply them. Moreover, the expanded interpretation of readability described in Chapter I requires that a proper assessment of readability must include a measure of the students' success with the materials, and that success, according to Dale and Chall (1948), is the extent to which they understand it, read it at optimum speed, and find it interesting.

4. Application of Readability Research in the Preparation of New Instructional Materials

Although the findings of both this and prior investigations substantiate the recommendation for minimizing reading assignments in the

social studies, reading will continue to play a role in this content area although hopefully a less prominent role than is presently the case. Lunstrum described the unique significance of reading to certain aspects of social studies content as follows: ". . . this field with its conceptual and issue-oriented structure (encompassing much content that is controversial) is particularly dependent on the medium of print and the process of reading (Lunstrum, p. 10-11, 1975)."

Thus, it is necessary to restate a recommendation that has been made by previous investigators of the readability of social studies textbooks. It is recommended that publishers become apprised of all developments in the research of readability and that their authors draw on this knowledge as they prepare new materials. Moreover, pilot editions of all new textbooks should be field tested with a cross section of students using procedures similar to those utilized by the publishers of standardized tests. Ultimately, social studies textbooks should more closely approximate the reading ability of the students for whom they are intended.

5. Instructional Requirements for Reading Assignments in the Social Studies

The last recommendation has been submitted by nearly every researcher involved in readability investigations. It is recommended that when classroom teachers make reading assignments in social studies textbooks that they faithfully adhere to the same procedures that are prescribed for a well-developed basal reading lesson. Each of the following is essential:

The objectives of the reading assignment must be clearly defined for the students.

The appropriate meaning and pronunciation of all unknown concepts must be fully developed prior to reading. The alternatives to reading listed on page 87 encompass a wide variety of procedures for developing concepts in meaningful settings.

Assistance in interpreting any graphic material associated with the reading assignment needs to be provided prior to reading.

The students need to be aware that the teacher welcomes their inquiries regarding any troublesome terminology, ideas, or directives they may encounter while reading.

Follow-up activities directly related to the objectives of the reading assignment must occur immediately after the reading, and these activities must include an opportunity for the students to demonstrate their understanding of the new concepts presented in the textbook.

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APPENDICES

APPENDIX A

Directions for Using the Fry Readability Graph

APPENDIX A

DIRECTIONS FOR USING THE FRY READABILITY GRAPH

1971

Margaret Knapp, editor

STEP ONE - COUNT 100 WORDS

1. Select page at random.

(For longer articles or books, select three pages at random: from the beginning, the middle, and the end of the material.)
2. Start with the first word of the first whole sentence on the page.
3. Omit the following kinds of materials:

headings
poetry
graphs
tables
lists
4. Count proper names as words (John).
5. Count abbreviations as one word and as one syllable (Mr.).
6. Count written numbers, such as twenty-five, as words. If numbers are printed with numerals (25), omit them. Do not include them at all.
7. Count hyphenated words such as multiple-choice as one word.
8. Count contractions as one word (Fry, 1972).
9. Count initials as one syllable words.
10. Put a vertical line in front of the first word you count. Put another vertical line in back of the 100th word that you count.

STEP TWO - COUNT SYLLABLES IN 100 WORD SAMPLE

1. Words have a syllable for each vowel sound in them.

(win dow, hy phen, po li o)

2. Vowel digraphs and diphthongs make one vowel sound.

(through, boil, re ceipt, stay)

3. An e at the end of a word is frequently silent and therefore does not make a separate syllable.

(make, some, like)

4. Endings such as -y, -ed, -el, or -le are counted as a separate syllable.

(rea dy, stop ped, bot tle)

Note: Conditions vary on when the ed ending is a separate syllable in pronunciation. For example, the word started has two syllables, but the ed ending sometimes just appears to merge with the syllable before it in words such as harmed or ripped. However, for purposes of readability, harmed is a more difficult word than harm and, thus, is counted as having two syllables.

5. Count every syllable over one in each word and then add 100 to the total. A convenient method is to put a slash mark over the additional syllables.

(sol[/] think probl[/]em barn[/]acle[/] centr[/]alize home runn[/]ing)

6. Count abbreviations and initials as one syllable words.

(Mr., Co., Ave., Lb. W.)

STEP THREE - COUNT SENTENCES IN A 100 WORD SAMPLE

1. Sentences always begin with a capital letter and end with a period, question mark, or exclamation point.
2. Phrases identifying the speaker of a sentence are often part of the entire sentence with a quote. For example, the following line is a complete sentence, "I think it is going to rain today," said Jim.
3. To compute the last sentence, count the number of words in it that are part of the 100 word sample and then divide it by the total number of words in the sentence.

100th word
(The cat ran / after the dog.)

Words that are part of sample = 3

Total number of words in sentence = 6

3 divided by 6 = .5

Compute parts of sentences to the nearest tenth.

STEP FOUR - AVERAGING THREE 100 WORD SAMPLES

	syllables	sentences
1st hundred words	130	6.2
2nd hundred words	136	6.0
3rd hundred words	124	6.8
Total	390	19.0
Average	130	6.3

(Totals divided by 3, the number of samples)

1. Add the samples.
2. Divide the totals by the number of samples.

STEP FIVE - PLOTTING THE READABILITY ON THE GRAPH

A graph is a diagram which symbolizes the inter-relations between two variables. In the case of the Fry Readability Graph, these variables are the average number of syllables in 100 word selections and the average length of the sentences in the same 100 word selections.

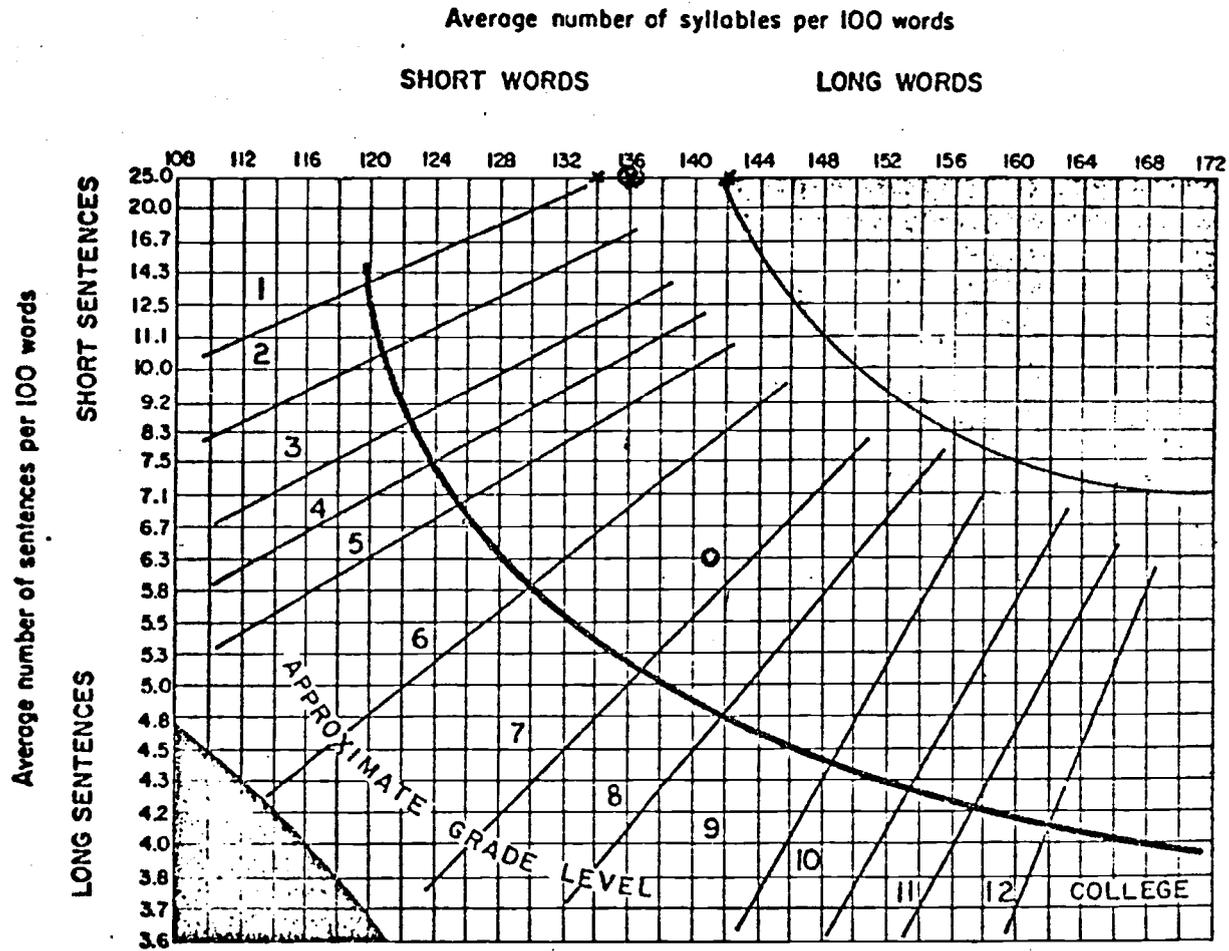
Look at the headings across the top of the graph. You will notice that they stand for the average number of syllables per 100 words. Selections with fewer syllables will be plotted on the vertical lines on the left hand side; selections with more syllables will be plotted on the vertical lines on the right hand side.

Now look at the headings on the side of the graph. They stand for the average number of sentences per 100 words. Selections with short sentences will be plotted along the horizontal lines at the top of the page. Selections with long sentences will be plotted along the horizontal lines at the bottom of the page.

In order to plot the readability on the graph, you take the figure for the average number of syllables and find the corresponding vertical line on the graph. The headings at the top of the graph will help you. After you have found the vertical line for the average number of syllables, you take the figure for the average number of sentences and find the corresponding horizontal line on the graph. The headings at the left hand side of the graph will help you. Mark with a dot the point at which these two lines meet. It will fall between diagonal lines which indicate the grade level. For example, suppose we had a book with an average number of syllables of 141 and an average number of sentences of 6.3. These figures, 141 syllables and 6.3 sentences, are plotted on the graph and fall between diagonal lines which indicate approximate seventh grade readability level (Knapp, 1971).

GRAPH FOR ESTIMATING READABILITY

by Edward Fry, Rutgers University Reading Center, New Jersey



APPENDIX B

Questionnaires Sent to All Fourth, Fifth, and Sixth Grade
Classroom Teachers in the Public Schools of
Linn and Benton Counties, Oregon

Dear Fourth Grade Teachers,

I am preparing to conduct an investigation which will involve comparing the reading ability of fourth grade students with the readability levels of the fourth grade social studies textbooks being used in the Linn and Benton County Schools. I will need your help in identifying the social studies textbooks you are using in your classroom. My investigation will be confined to those textbooks listed in the State Adopted Textbooks For Oregon Schools, 1967-73. Thus, it will not be necessary for you to list any additional reference materials or older editions of textbooks from previous adoptions that you may have available.

Listed on the attached page are the current state adopted social studies books. Some teachers are using a single textbook as a basal series, others are using several different textbooks but rely on one series more than the others, and some classrooms are supplied with several sets of textbooks with no specific preference for one series. Would you please use the following code to identify the textbook series that you are using. Please enter the appropriate code letter in the blank before the texts you are using.

B for basal if you are using one set of social studies textbooks.

P for preferred if you have available several sets of textbooks, but are using one set more prevalently than the others.

S for supplementary textbooks you are using in addition to a preferred or basal set of texts.

MA for multiple adoption if you are making use of several sets of textbooks more or less equally. Please indicate each set of textbooks used in your classroom with an MA.

Thank you for your cooperation. Will you please return the attached questionnaire in the enclosed envelope at your earliest convenience.

Sincerely,

Jan Pruitt

FOURTH GRADE STATE ADOPTED SOCIAL STUDIES TEXTBOOKS

Name _____ School _____ District _____

_____ You and Regions Near and Far by Samford, et al., Benefic Press, 1964._____ People and Resources of the Earth by Hagaman, et al., Harper Row, 1964._____ Four Lands, Four Peoples by Preston, D. C. Heath, 1966._____ Knowing Our Neighbors Around the Earth by Carls, et al., Holt, 1966._____ Living in Our Country and Other Lands by Cutright, et al., MacMillan, 1966._____ Learning to Look at Our World by Cooper, et al., Silver Burdett, 1964._____ Learning to Look at Our World by Cooper, et al., Silver Burdett, 1967._____ Exploring the Northwest by Junnell, et al., Follett, 1966._____ Stories of Oregon by Anderson, et al., University Publishing, 1967._____ Our Great Northwest by Foster, et al., Harr Wagner, 1954.

Thank you for your assistance.

Jan Pruitt
1740 Arthur Circle
Corvallis, Oregon 97330

Dear Fifth Grade Teachers,

I am preparing to conduct an investigation which will involve comparing the reading ability of fifth grade students with the readability levels of the fifth grade social studies textbooks being used in the Linn and Benton County Schools. I will need your help in identifying the social studies textbooks you are using in your classroom. My investigation will be confined to those textbooks listed in the State Adopted Textbooks For Oregon Schools, 1967-73. Thus, it will not be necessary for you to list any additional reference materials or older editions of textbooks from previous adoptions that you may have available.

Listed on the attached page are the current state adopted social studies books. Some teachers are using a single set of textbooks, others are using several texts but rely on one textbook more than the others, and some teachers are supplied with several sets of textbooks and have no specific preference for one series. Would you please use the following code to identify the textbook series that you are using. Please enter the appropriate code letter in the blank before the titles you are using.

- B for basal if you are using one set of social studies textbooks.
- P for preferred if you have available several sets of textbooks but are using one set more prevalently than the others.
- S for supplementary textbooks that you are using in addition to a preferred or basal set of textbooks.
- MA for multiple adoption if you are making use of several sets of textbooks more or less equally. Please indicate each set of texts used in your classroom with an MA.

Thank you for your cooperation. Will you please return the attached questionnaire in the enclosed envelope at your earliest convenience.

Sincerely,

Jan Pruitt

FIFTH GRADE STATE ADOPTED SOCIAL STUDIES TEXTBOOKS

Name _____ School _____ District _____

_____ You and the United States by Samford, et al., Benefic Press 1964. (The Teacher's Edition probably has a 1965 copyright date.)

_____ In These United States and Canada by Preston and Tottle, D. C. Heath, 1965.

_____ Knowing Our Neighbors in the United States and Canada by Carls, Holt, 1966.

_____ Living in the Americas by Cutright, et al., Macmillan Company, 1966.

_____ The Changing New World: United States and Canada by Cooper, Silver Burdett, 1964.

_____ The Changing New World: United States and Canada by Cooper, et al., Silver Burdett, 1967.

Depth-Study Texts, The Fideler Company

_____ The Northeast by Jennings, 1967.

_____ The South by Jennings and Smith, 1965.

_____ Midwest and Great Plains by Havighurst, 1967

_____ The Midwest by Havighurst, 1965.

_____ Great Plains States by Havighurst, 1964.

_____ The West by Reith, 1967.

_____ Alaska by Tompkins, 1966.

_____ Hawaii by Fergusson, 1966.

_____ Canada by Hills, 1967.

Thank you for your assistance.

Jan Pruitt
1740 Arthur Circle
Corvallis, Oregon 97330

Dear Sixth Grade Teachers,

I am preparing to conduct an investigation which will involve comparing the reading ability of sixth grade students with the readability levels of the sixth grade social studies textbooks used in the Linn and Benton County Schools. I will need your help to identify the social studies textbooks you are using in your sixth grade classroom. My investigation will be confined to those textbooks listed in the State Adopted Textbooks For Oregon Schools, 1967-73. Thus, it will not be necessary for you to list any additional reference materials or older editions of textbooks from previous adoptions that you may have available.

Listed on the attached page are the current state adopted social studies textbooks. Some teachers are using a single textbook as a basal series, others are using several different textbooks but rely on one series more than the others, and some teachers are supplied with several sets of textbooks and have no specific preference for one series. Would you please use the following code to identify the textbook series that you are using. Please enter the appropriate code letter in the blank before the titles you are using.

B for basal if you are using one set of social studies textbooks.

P for preferred if you have available several sets of textbooks but are using one set more prevalently than the others.

S for supplementary textbooks that you are using in addition to a preferred or basal set of textbooks.

MA for multiple adoption if you are making use of several sets of textbooks more or less equally. Please indicate each set of texts used in your classroom with an MA.

Thank you for your cooperation. Will you please return the attached questionnaire in the enclosed envelope at your earliest convenience.

Sincerely,

Jan Pruitt

SIXTH GRADE STATE ADOPTED SOCIAL STUDIES TEXTBOOKS

Name _____ School _____ District _____

- _____ You and the Americas by Samford, et al., Benefic Press, 1965.
- _____ Understanding Latin America by Tiegs and Adams, Ginn, 1966.
- _____ Understanding Latin America by Tiegs and Adams, Ginn, 1960.
- _____ In Latin America Lands by Preston, et al., D. C. Heath, 1966.
- _____ Knowing Our Neighbors in Latin America by Carls and Sorenson; Holt, Rinehart, and Winston, 1964.
- _____ Knowing Our Neighbors in Latin America by Carls and Sorenson; Holt, Rinehart, and Winston, 1967.
- _____ Living As American Neighbors by Cutright, et al., Macmillan, 1966.
- _____ Learning About Latin America by Harper, et al., Silver Burdett, 1964.
- _____ Learning About Latin America by Harper, et al., Silver Burdett, 1967.

Depth-Study Texts, The Fideler Company

- _____ South America by Fideler, 1965.
- _____ Caribbean Lands by Augelli, 1966.
- _____ Mexico by Ross, 1965.

The Understanding Your World Series by Gartler, et al.,
Laidlaw

- _____ Understanding Argentina, 1964.
- _____ Understanding Brazil, 1964.
- _____ Understanding Mexico, 1964.
- _____ Man: A Course of Study
- _____ Minnesota Social Studies

Please list and code any additional textbooks not cited above.

Jan Pruitt
1740 Arthur Circle
Corvallis, Oregon 97330

APPENDIX C

Bibliography of
State Adopted Social Studies Textbooks
Selected for a Readability Analysis

FOURTH GRADE TEXTBOOKS

Samford, Clarence, Edith McCall, and Floyd Cunningham. 1967. You and regions near and far. Chicago, Benefic Press. 289 p.

Cooper, Kenneth S., Clarence W. Sorensen, and Lewis Paul Todd. 1967. Learning to look at our world. Morristown, New Jersey, Silver Burdett. 326 p.

Preston, Ralph C., Caroline Emerson, Penn Elizabeth, and Arthur F. Schrader. 1966. Four lands, four peoples. Boston, D. C. Heath and Company. 375 p.

FIFTH GRADE TEXTBOOKS

Samford, Clarence, Edith McCall, and Floyd Cunningham. 1964. You and the United States. Chicago, Benefic Press. 385 p.

Cooper, Kenneth S., Clarence W. Sorensen, and Lewis Paul Todd. 1967. The changing new world, United States and Canada. Morristown, New Jersey, Silver Burdett. 422 p.

Preston, Ralph C. and John Tottle. 1965. In these United States and Canada. Boston, D. C. Heath and Company. 562 p.

SIXTH GRADE TEXTBOOKS

Samford, Clarence, Edith McCall, and Floyd Cunningham. 1965. You and the Americas. Chicago, Benefic Press. 288 p.

Harper, Robert A., Raymond E. Crist, and Clarence W. Sorensen. 1967. Learning about Latin America. Morristown, New Jersey, Silver Burdett. 326 p.

Preston, Ralph C. and John Tottle. 1967. In Latin American lands. Boston, D. C. Heath and Company. 480 p.

APPENDIX D

THE POPULATION

SCHOOL CENSUS FIGURES FOR LINN AND BENTON
COUNTIES, OREGON

Ages 4 through 18

BENTON COUNTY CENSUS	13,736
LINN COUNTY CENSUS	22,731
	<hr/>
Total	36,467

SCHOOL CENSUS FIGURES BY LOCALE

Locale	School Population	Percent of Total Population
Corvallis	10,021	27 1/2%
Albany	5,646	15 1/4%
Sweet Home	3,662	10 %
Lebanon	2,909	8 %
Rural Schools	14,229	39 %
<hr/> Total School Population 36,467		99 3/4%

Urban - 60%

Rural - 40%

APPENDIX E

Directions for Administering the Group
Informal Reading Inventory

1740 Arthur Circle
Corvallis, Oregon 97330

Dear _____,

Your classroom is one of 70 fourth, fifth, and sixth grade classrooms in Linn and Benton Counties that has been randomly selected to take part in an investigation of the readability of selected state adopted social studies textbooks. There are two types of measurements in the investigation:

1. Readability as determined by a readability formula (Fry).
2. Readability as determined by the actual performance of students on a reading comprehension test based on a selection from the social studies textbook in use in the classroom being tested.

The second measure should be the more valid one and yield more realistic results. To achieve this objective I have constructed and field tested a group informal reading test from a section of the social studies textbook that has not yet been read by your students. Directions for administering the group informal reading test are enclosed. It is vital that the test be administered under the standardized conditions described in the directions. Any teacher assistance with word recognition, word meaning, or comprehension will invalidate the test. You will also have to explain to the students that you cannot help them with spelling when they are writing their answers. If they are uncertain about the spelling of a word, advise them to spell the word the way it sounds. This may seem like an unnecessary restriction, however if a child asks how to spell a word he may be simultaneously giving answer clues to neighboring children.

Administer the test at your convenience on a day when most of your students are present anytime between now and the end of the school year. The students should probably use a pencil to write their answers so they can make erasures if necessary. Although the test is not timed there will probably be a few youngsters for whom it is too difficult, and you will ultimately have to call for the remaining papers to be turned in.

Hopefully, the data yielded by this investigation will be helpful in the adoption of social studies textbooks during the coming school year. The results of this investigation will be filed with the designated individuals in the four larger districts and with the Linn-Benton IED for the rural school districts.

Please do not hesitate to call me collect, 752-6523, if you have any questions.

Sincerely,

Jan Pruitt

DIRECTIONS FOR ADMINISTERING THE GROUP INFORMAL READING INVENTORY

Adapted from Marksheffel, 1966

The group informal reading inventory is a screening procedure to determine which students can or cannot read the assigned materials, in this case, the social studies textbook.

A reading selection from the social studies textbook used in your classroom has been selected, and a copy of that passage has been duplicated for each student. The following criteria were established for the selection of the reading passage:

1. A representative passage was selected; it is neither the easiest nor the most difficult.
2. The reading selection has not previously been taught by use of the textbook or any other media.
3. The reading selection has been duplicated to eliminate the possible contaminating effects of picture clues, maps, or graphic presentations. Conversely, it was necessary to choose a reading passage that did not require the interpretation of maps or graphic aids for reading comprehension.

Ten questions have been prepared pertaining to the content of the passage. One third of the questions are fact questions, one third of the questions are vocabulary, and one third, inference. The test was field tested in other classrooms to determine its appropriateness.

The results of the group informal reading inventory are the most significant aspect of this investigation to determine the suitability of selected state adopted social studies textbooks currently in use in the intermediate grades in Oregon classrooms. Hence, it is extremely important that the test be administered under identical circumstances in each classroom. The customary procedures for administering a standardized test must be used: quiet room, eliminate intrusions, the children cannot talk to each other, and the teacher cannot give any assistance whatsoever when the students are reading the passage or when they are answering the questions. Since the primary purpose of the group informal inventory is to determine the percentage of students who can or cannot read the passage with understanding, any teacher assistance with word recognition, word meaning, or comprehension will invalidate the test.

TESTING PROCEDURE

1. Prepare the children by explaining the purpose of the test, i.e., it is an exercise to determine how much they can learn from reading this particular passage without any help from the teacher. The passage has been selected from their social studies books. In another year it will be necessary for schools to purchase new social studies textbooks, and we need to know if this particular book is a suitable textbook for students. It is important that they do their best work, however, the results of the test will have no bearing on their grades in this class. The completed tests will be returned to the individual who constructed the test for scoring. Please advise the students to write as legibly as possible inasmuch as the individual correcting the tests will not be able to ask them about their answers. If their manuscript printing is more legible than their cursive writing, advise them to print, or vice versa. If they are uncertain about the correct spelling of a word, tell them to spell the word the way it sounds.
2. After the children have been prepared for the test and appropriate testing conditions have been established, explain the testing procedure as follows:
 - a. You will distribute a copy of the reading passage face down to each youngster.
 - b. When all the copies have been distributed, you will give them the signal to begin reading. The test is not timed so they need not worry about reading fast. Advise them to read as they normally do.
 - c. When they have finished reading the passage, they should raise a hand. At this signal, you will pick up the reading passage and give them a pace containing ten questions to be answered.
 - d. They are to answer the questions first, and then fill out the pupil data at the bottom of the question sheet.*
 - f. When they have finished answering the questions they should raise a hand, and you will collect their answer sheets.

The entire testing procedure should not take more than 45 minutes.

Before the reading passages and the answer sheets are packaged and returned, would you please check to see that each child has filled out the pupil data at the bottom of the answer sheet. Secondly, for those particular youngsters whose penmanship or spelling is illegible, would you spot check their papers and immediately above their answers write in what you are reasonably certain the child intended to communicate.

If you have any additional questions, please feel free to call me collect, 752-6523, during the evening hours.

Jan Pruitt
1740 Arthur Circle
Corvallis, Oregon 97330

- * The pupil data will ask for the name of the classroom teacher. This is the only way the investigator can determine one classroom section from another in school buildings where there are several sections of the same grade level. There will be no comparisons made between classroom sections. The only comparisons being made will be comparisons of the textbooks.

APPENDIX F

Group Informal Reading Inventory

GROUP INFORMAL READING INVENTORY

Grade 4

Samford, Clarence, Edith McCall, and Floyd Cunningham. 1967. You and regions near and far. Chicago, Benefic Press. Pages 269 and 272.

What is the United Nations?

The United Nations is an international organization to help governments work together. It is not a world government. It does study world problems and gives ideas of what should be done. At some times it tries to prevent or stop wars between countries. It gives help to countries that need it.

Fifty-one nations joined the United Nations when it was started in 1945. Many more nations have become members since.

The purpose of the United Nations is to help world unity. The United Nations hopes:

- To keep peace;
- To keep nations friendly with each other;
- To help nations work together;
- To have a place where men of the nations can meet for this purpose.

Most member nations agree that:

- All nations are equal;
- All nations should work for the good for all;
- Each nation has rights;
- Peace is better than war;
- Those nations not members should be treated well, too;
- All countries should govern themselves.

The United Nations has three important sections: the General Assembly, the Security Council, and the Secretariat.

All nations of the United Nations have one or more members in the General Assembly. This section gives ideas of what should be done to make all parts of the world better.

Only eleven nations have members in the Security Council. This section tries to keep peace and has power to do so.

Members of the Secretariat find trouble spots in the world, and help people work out problems together.

The Economic and Social Council is another part of the United Nations. The council helps countries find new ways to earn money. It studies world trade. It helps protect people's rights.

The United Nations buildings are in New York City. Many tourists from all over the world visit there every year.

Some parts of the United Nations are located in other countries. All sections work to keep peace in the world and help men all over the world understand each other better.

There are still many, many problems to solve, and changes will need to be made in the way the United Nations works. But most people understand that today's world cannot go on developing without a way for nations to solve problems together.

GROUP INFORMAL READING INVENTORY

Grade 4

Benefic Press
Grade 4
Pages 269-272

- (F) 1. Name two purposes of the United Nations.
(1) _____ (2) _____
- (V) 2. What does the word, international, mean in the sentence, "The United Nations is an international organization."?
- (V,I) 3. The United Nations agrees that all nations should govern themselves. What do the words, govern themselves, mean in that sentence?
- (I) 4. The General Assembly gives ideas of what should be done to make all parts of the world better. Think of something that needs to be done to make the world better.
- (V) 5. The story said, "The Secretariat finds trouble spots in the world." What kinds of trouble spots do you think they are talking about?
- (F) 6. Some countries in the world are very poor. The Economic and Social Council of the United Nations helps poor countries find new ways to _____.
- (F) 7. In what city are the United Nations buildings located?
- (I) 8. When the men from the different nations of the world meet together in the United Nations buildings to talk about world problems, sometimes they have problems understanding each other. Why do you think they might have problems understanding each other?
- (V) 9. What does the word, tourist, mean in the sentence, "Many tourists come to the United Nations every year."?
- (I) 10. Can you think of any place in the world where they need the help of the United Nations today? _____ Why?

Name

School

Teacher

GROUP INFORMAL READING INVENTORY

Grade 4

Samford, Clarence, Edith McCall, and Floyd Cunningham. 1967. You and regions near and far. Chicago, Benefic Press. Pages 114 and 115.

Coastal Regions
In Other Parts of the World - Europe

There are many bays and gulfs along Europe's coastline.

Strips of land called peninsulas reach out into the sea. These peninsulas and many islands nearly enclose the seas. The seas are almost parts of the Arctic or the Atlantic Ocean. The people who live along the coastline of Europe work at fishing, shipping, and caring for the many tourists.

Some of the most important ports in the world are found in Europe.

Fleets of fishing boats are often far out to sea for many weeks. Fish are cleaned and stored on each boat or on one boat in the fleet. Fleets may go from cod to herring fishing without returning to port.

Herring are very important to the fishermen of Norway. In the season from January until April, the herring come into the waters of the Norwegian coast to lay their eggs.

Everyone in the fishing communities gets ready for the herring season. Stores get ready for new orders and supplies. People of factories, where fish will be preserved, get ready for the hard work to come.

The fishermen's families work hard, too. Warm clothing is made ready for the fishermen to wear. Others in the family must take over the work fishermen do at home.

The fishermen are busy working on their boats. Nets must be mended. All tools and machinery must be repaired. They must stock their boats for months of work.

Today's fishing boats are most often motor driven. Generally fishermen in three boats fish together. Two of the boats have a large net between them. The largest of the three boats stays behind the other two. The net is lowered into the sea. When it is full of fish, it is raised carefully. Then the fish are moved into the largest boat.

Fishermen often have hard lives. The sea is cold and often covered by heavy fog. Clothing becomes damp. Often they must fight waves and winds. Ships are crowded, and fishermen may be away from home for many weeks at a time.

Fishermen from Norwegian ports often leave home on large whaling ships. Whaling is dangerous and exciting work. The modern whaling ship carries harpoons with powder caps. When the harpoon hits the whale, the powder cap explodes.

Then a smaller boat moves in and fills the whale with air so that it will not sink. It is towed to the factory ship. A large door in the factory ship opens, and motors pull the whale inside. Then the whale is cut apart and stored for many uses.

Much of the work done on shore in a coastal region is cleaning and preparing the fish for market. In many coastal regions, there are large fish canneries. Some factories freeze fish or make useful products from certain parts of the fish. Some fish are prepared outside of factories by being dried in the air.

GROUP INFORMAL READING INVENTORY

Grade 4

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Pages 114 and 115

- (V) 1. What is the right word for a strip of land that reaches out into the sea?
- (V) 2. The people who live in coastal towns earn money by caring for the needs of tourists. What is a tourist?
- (V) 3. What does the word, fleets, mean in the sentence, "Fleets may go from cod to herring fishing without returning to port."?
- (I) 4. Name two different things that fishermen would have to store or put on board their boats to get ready for a long fishing trip?
- (F) 5. How do the men on a whaling ship catch a whale?
- (F) 6. After the whale is caught, why do they fill the whale with air?
- (I) 7. Why do the men on whaling ships have to use a motor to pull the whale into the ship?
- (I) 8. Why is fishing in the ocean a dangerous kind of work?
- (I) 9. Fresh fish spoils very fast. What would fishing boats have to keep the fish from spoiling?
- (F) 10. The main industry of the towns along the coast is preparing the fresh fish for shipment to other towns and countries. What are the two main ways that fish can be prepared and shipped so the fish will not spoil?

(1) _____ (2) _____

 Name

 School

 Teacher

GROUP INFORMAL READING INVENTORY

Grade 4

Samford, Clarence, Edith McCall, and Floyd Cunningham. 1967. You and regions near and far. Chicago, Benefic Press. Pages 168 and 169.

Living in Hill and Mountain Communities

How Do People Live in the Mountains?

Wherever there are hills and mountains, there have been men to climb them and to live on them. The people who live on the hills or the lower slopes of mountains have more communication with other places than the people who live high in the mountains.

In some places, mountain people move up and down the slopes with the season. In summer, they move up the mountains with their herds. In winter, they come back down with their animals.

The way of life of mountain people is different from region to region, but all mountain people must overcome difficulties.

Men must use as much of the earth's surface as possible, because of the growing number of people. They are learning to make greater and better use of mountain land.

As better communication brings ideas from other communities to mountain people, their ways are changing rapidly. Today many mountain communities are as modern as communities anywhere.

Since people of hill and mountain communities are more separated from the world than many other people of the earth, they hold on to old customs for a longer time. Long ago, when people of different countries were widely separated, the people of each land had their own kind of clothes.

In some mountain communities the clothes of those earlier days are saved and worn for special holidays.

Tourists who visit the communities enjoy the bright clothes and the look of life as it was lived long ago. Often people in mountain communities wear these special clothes, or costumes, for dances they do for visitors.

GROUP INFORMAL READING INVENTORY

Grade 4

Benefic Press
Grade 4
Pages 168 and 169

- (F) 1. The people who live on the lower slopes of the mountains have more _____ with other places than the people who live high in the mountains.
- (I) 2. Why would the mountain people move their animals up the mountain slopes in the summer and then move their animals down the mountain slopes when winter comes?
- (I) 3. The story said that all people who live in the mountains must overcome difficulties. What do you think one of those difficulties might be?
- (F) 4. Why must we now use as much of the earth's surface as possible?
- (V) 5. What does the word, communication, mean in the sentence, "Better communication brings new ideas to the mountain people."?
- (V) 6. What does the word, modern, mean in the sentence, "Today many mountain communities are as modern as communities anywhere."?
- (I) 7. Why are the people who live high in the mountains more separated from the other people of the world?
- (V) 8. What does the word, customs, mean in the sentence, "Mountain people hold on to old customs for a longer time."?
- (V) 9. What does the word, tourists, mean in the sentence, "Tourists like to visit mountain communities."?
- (F) 10. When do the mountain people wear their special clothes or costumes?

 Name

 School

 Teacher

GROUP INFORMAL READING INVENTORY

Grade 5

Samford, Clarence, Edith McCall, and Floyd F. Cunningham. 1964. You and the United States. Chicago, Benefic Press. Pages 337 and 338.

How Do People Make Their Living In The Rocky Mountain States?

(Idaho, Montana, Wyoming, Utah, Colorado,
Nevada, Arizona, New Mexico)

It was mining that brought the first settlers and started many of the communities in the Rocky Mountain States. Although farming today brings in more dollars than mining, mining is still very important. It is much different, however, from that done in earlier days. Even the ores that are mined are different.

During the days of the gold and silver "rushes," it was every man for himself. When the gold and silver near the surface were gone, most of the miners either left the mining area or went into another kind of business. It took costly machinery to drill down to the veins deep in the earth. No man could do the work alone, and most did not have the money for machinery and workmen. Today, most of the mining is done by large companies that have the necessary money and workmen.

Gold and silver are still mined, but many of the veins have been worked out. Idaho is the leading state in silver-mining today. Copper is among the very important mineral products of some of the Rocky Mountain States, especially in Utah, Montana, and Arizona.

There are also beds of soft coal underlying much of the land in these states, but not all of it is easily mined. Drilling into the earth for petroleum and natural gas has been more profitable. All the Rocky Mountain States produce petroleum and natural gas, with New Mexico, Montana, and Wyoming leading.

Since World War II, another great mining interest and a new source of income has come to the Rocky Mountain States, especially to Colorado and New Mexico. Both have rich deposits of uranium, which is the main source of atomic power.

The federal government has opened research and testing stations in several places. One testing ground is near Las Vegas, Nevada. Many young men are stationed there and at the government air bases in the wide open spaces of the Southwest. In New Mexico, the federal government has the largest payroll of any employer in the state.

GROUP INFORMAL READING INVENTORY

Grade 5

Benefic Press
Grade 5
Pages 337 and 338

- (V,I) 1. During the gold rush days it was every man for himself.
What do the words, every man for himself, mean?
- (V,F) 2. What is a gold rush or a silver rush?
- (V) 3. What does the word, surface, mean in the sentence, "The gold and silver near the surface were gone."?
- (F) 4. Why did most of the miners have to stop mining when the gold and silver near the surface were gone?
- (V) 5. What do the words, worked out, mean in the sentence, "Many of the veins had been worked out."?
- (F) 6. Which state is now the leading silver-mining state?
- (I) 7. Why do you think that the coal in the Rocky Mountain States is so hard to mine?
- (V) 8. What does the word, profitable, mean in the sentence, "Drilling for natural gas has been more profitable."?
- (F) 9. Why is uranium now an important mineral?
- (I) 10. Why do you think the government has so many air bases in the wide open spaces of the Southwest?

Name

School

Teacher

GROUP INFORMAL READING INVENTORY

Grade 6

Samford, Clarence, Edith M. McCall, and Floyd F. Cunningham. 1965. You and the Americas. Chicago, Benefic Press. Pages 239, 240, and 241.

URUGUAY

What is Uruguay's History?

Across the Uruguay River from Argentina, and sharing the harbors of Rio de la Plata, is the little republic of Uruguay.

Uruguay suffered several wars because of its position between the two South American giants, Brazil and Argentina. Even after Uruguay's hero, Jose Artigas, set the nation on the pathway to independence, fighting continued on Uruguay's soil. Great Britain helped Uruguay gain freedom, and in 1828 it became a republic.

Great Britain wanted wool for her textile mills and meat for her people. She helped stock Uruguayan farms with fine breeds of sheep and cattle, which to this day form the backbone of Uruguay's production and economic life.

As in other Latin American countries, there were power struggles in Uruguay. Two political parties kept up this struggle, each trying to down the other. At first, the Blancos, or "Whites," controlled the government. Then the Colorados, or "Reds," gained strength. Often the president took the powers of a dictator and refused to let free elections be held.

In 1903 a Colorado victory put Jose Batlle y Ordonez into the presidency. This man, known as Batlle, started Uruguay toward becoming one of Latin America's most prosperous countries, even though it is the smallest of the South American republics.

Among the things that Batlle did was to sell land to the people at low prices, taking it from the large landholders. He cut the power of the presidency through the establishment of a national council. Now the national council governs the country instead of a president. Nine men are elected to the council for a four-year term. All share the duties which would normally be those of the president of a republic. Of course there are also the two houses of the General Assembly, with representatives from all parts of Uruguay.

How Do the Uruguayan People Live?

The people of Uruguay, like the Argentines, are chiefly of European background.

About half of the people in Uruguay work in agriculture, raising cattle and sheep and growing wheat, corn, rice, and potatoes. The small amount of land that is farmed, about one-tenth, is in the south so that products can be transported to the port cities easily.

Meat-packing and leather tanning are Uruguay's main industries. The country also produces foods, clothing, furniture, and beverages. Banks, insurance companies, railroads, telephone companies, and many other concerns are run by the government.

Because of the mild climate, the people live in houses somewhat like those in Florida or California. As in Argentina, city dwellers live in houses or modern apartment buildings, and those in the rural areas live in adobe-type houses, either in villages or on an estancia.

Almost everyone is educated, for education is free and schools are within reach of children everywhere. For those who want higher education, the University of the Republic in Montevideo is one of the best in South America. There are also other colleges and schools where young people may learn a trade or a special skill.

GROUP INFORMAL READING INVENTORY

Grade 6

Benefic Press

Grade 6

Pages 239 to 241

- (V) 1. Why are Brazil and Argentina called South American giants in the sentence, "Uruguay is located between the two South American giants, Brazil and Argentina."?
- (I) 2. Why do you think Great Britain might have been especially interested in helping Uruguay gain its independence?
- (F) 3. How did Great Britain help the farmers of Uruguay improve their sheep and cattle raising?
- (V) 4. What is manufactured in a textile mill?
- (I) 5. Why would a ruling dictator of a country refuse to let the people have free elections?
- (F) 6. Batlle, the man who became president of Uruguay in 1903, wanted more of the people of Uruguay to own their own farm land. How did he help many people to buy their own farm land?
- (V) 7. What do the words, cut the power of the presidency, mean in sentence, "Batlle cut the power of the presidency by establishing a national council."?
- (F) 8. Almost half of the people of Uruguay do the same kind of work. What kind of work do they do?
- (I) 9. The two main industries in Uruguay are meat packing (cattle) and leather tanning. Why would you expect leather tanning to be a main industry when meat packing is also a main industry?
- (V) 10. Uruguay also produces beverages. What are beverages?

Name

School

Teacher

GROUP INFORMAL READING INVENTORY

Grade 4

Cooper, Kenneth S., Clarence W. Sorensen, and Lewis Paul Todd. 1967. Learning to look at our world. Morristown, New Jersey, Silver Burdett Company. Pages 267 and 268. Reproduced by permission of General Learning Corporation.

When Pizarro Came

Francisco Pizarro sailed across the Atlantic Ocean ten years after Columbus discovered America. He did some exploring in the southern part of Central America, then built a home there and settled down to raise cattle.

Pizarro soon began to hear interesting stories about South America. One story was that the Indians who lived in the Andes were rich, that their cities were filled with gold.

The Indians Pizarro talked to did not know whether this story was true or not. But Pizarro decided to find out. He wanted some of that gold if there was any!

Pizarro and his men landed on the west coast of South America, just south of the equator. They crossed the narrow plain and started up into the mountains. They had been told that Cuzco, a city in the mountains, was the capital of a rich Indian country.

It was a hard and dangerous trip for the Spanish explorers. The mountains were steep. No one could be sure which was the right trail. No white man had ever been there before. Pizarro did not know whether the Indians would be friendly or not.

Finally, Pizarro stopped at a town along the road and sent a messenger to the Indian king at Cuzco. He asked the king to come to meet him.

When the king came, the Spanish soldiers seized him and made him a prisoner. They threatened to kill him if the Indians attacked them.

The king then offered to make a trade. He drew a line high up on the wall of the room that was his prison. He would, he said, fill the room with gold up to that line. He would do this if Pizarro and his men would agree to let him go free.

The Spaniards agreed, and soon Indians began to arrive with the loads of gold and silver. They piled it in the rooms as the king had promised. This was more wealth than Pizarro had ever dreamed of. Now he knew the stories he had heard were true.

In spite of their promise, the Spanish soldiers killed the king. Then they marched on, captured Cuzco, and set themselves up as the new rulers of this Indian country.

Pizarro had fewer than two hundred men and only twenty-seven horses. With these he had conquered a country which had millions of people.

Today we speak of the Indian country that Pizarro conquered as the empire of the Incas. At that time the king was called the Inca.

GROUP INFORMAL READING INVENTORY

Grade 4

Silver Burdett

Grade 4

Pages 267 and 268

- (F) 1. Why did Pizarro go to the Indian country in South America?
- (V) 2. What does the word, seized, mean in the sentence, "When the king came, the Spanish soldiers seized him and made him a prisoner."?
- (F) 3. Why did the king draw a line on the wall of the room that was his prison?
- (V) 4. What does the word, promised, mean in the sentence, "They piled it in the rooms as the king had promised."?
- (I) 5. Where do you think the Indians got all their gold and silver?
- (V) 6. What does the word, wealth, mean in the sentence, "This was more wealth than Pizarro had ever dreamed of."?
- (F) 7. What did the Spanish soldiers do to the captured king after they got the gold?
- (I) 8. Why do you think the Spanish soldiers decided to capture the capital city and become the new rulers of the Indian country?
- (V) 9. What does the word, conquered, mean in the sentence, "With these he had conquered a country which had millions of people."?
- (I) 10. Think about the things that Pizarro did in this story. Can you think of two different words that tell or describe what kind of a man Pizarro was?

(1) _____ (2) _____

Name

School

Teacher

GROUP INFORMAL READING INVENTORY

Grade 5

Cooper, Kenneth S., Clarence W. Sorensen, and Lewis Paul Todd. 1967. The changing new world: United States and Canada. Morristown, New Jersey, Silver Burdett Company. Pages 380 and 381. Reproduced by permission of General Learning Corporation.

Canada Today

Like every other country in the New World, Canada was once a colony. As you know, it was first explored and settled by the French. In 1763, however, after the British won the French and Indian War, France gave the colony to Great Britain. At the time, most of the people living in Canada spoke French. Most of the people thought of themselves as French citizens. As time passed, however, thousands of people from Great Britain settled in Canada.

Neither the English-speaking citizens nor the French-speaking citizens of Canada were satisfied with British rule. They watched the American people win their independence and form the United States. As the years went by, the Canadians began to demand the right to govern themselves.

Finally, the British Parliament voted to give the Canadian people the right to govern themselves. On July 1, 1867, the former British colony became the self-governing nation--The Dominion of Canada. Although Canadians pledge their loyalty to the British monarch, Canada is today an independent nation.

Canada and the United States have been good neighbors for one hundred fifty years. There was a time, however, when the two countries were at war. Americans call this unhappy conflict the War of 1812.

The War of 1812

Actually, the War of 1812 was part of a much larger conflict raging in Europe between France and Great Britain. As the war went on, French warships captured American vessels carrying supplies to Britain. British warships captured American vessels carrying supplies to France.

The Americans, caught in the middle, were especially angry with the British. For one thing, the Royal Navy, being much more powerful than the French fleet, captured more American ships. For another, the British claimed that many American sailors were really Englishmen and so forced them to serve in the Royal Navy.

The United States government argued for "the freedom of the seas." But neither the British nor the French paid much attention to the young country's protests. Finally, in 1812, Congress declared war on Great Britain.

Many people in the United States believed that the best way to strike at Great Britain was to invade Canada, which was a British colony in 1812.

GROUP INFORMAL READING INVENTORY

Grade 5

Silver Burdett
Grade 5
Pages 380-381

- (F) 1. Which European country first explored and settled Canada?
- (I) 2. There are still two languages spoken in many parts of Canada. Can you think of two problems that this would cause?
- (F) 3. Canada wanted to become an independent nation like the United States. From which European country did Canada win its independence?
- (F) 4. Canada is now an independent nation, but it pledges loyalty to another nation. To what nation does Canada pledge its loyalty?
- (V) 5. What does the word, independence, mean in the sentence, "The Canadian people watched the American people win their independence and form the United States."?
- (V) 6. What does the word, conflict, mean in the sentence, "The War of 1812 was part of a much larger conflict raging in Europe."?
- (I) 7. The War of 1812 started between France and Great Britain. Both of these nations captured American ships even though the United States was not yet in the war. Why do you think that France and Great Britain captured the American ships?
- (v) 8. What does the word, protest, mean in the sentence, "Neither the British nor French paid much attention to the protests of the Americans."?
- (I) 9. Why do you think that Britain and France didn't pay any attention to the protests of the United States?
- (I) 10. The Congress of the United States declared war on Great Britain and decided to attack Canada. Why do you think the United States decided to attack Canada rather than Great Britain itself?

Name

School

Teacher

GROUP INFORMAL READING INVENTORY

Grade 5

Cooper, Kenneth S., Clarence W. Sorensen, and Lewis Paul Todd. 1967.
The changing new world: United States and Canada. Morristown,
New Jersey, Silver Burdett Company. Pages 372, 373, and 374.
Reproduced by permission of General Learning Corporation.

An Island Climate

The Hawaiian Islands enjoy a pleasantly warm climate all year round. In January as in June, flowers bloom and people relax on the ocean beaches. But up in the high mountains, it is always cool. Almost no one lives there.

Hawaii's ideal climate is due chiefly to its location. It is nearer the equator than any other state. Warm ocean currents wash its shores, and sea breezes add delight to sunny days.

A "Melting Pot"

Hawaii became an American territory in 1898. After that the population began to grow rapidly. People came to work in the sugar-cane fields and sugar refineries, in the pineapple fields and canning factories. They came from the States, from the Philippines, from Japan and China. They liked the "island paradise" and became Hawaiian citizens.

Today only 17 persons in 100 are Hawaiian or part Hawaiian. The rest of the people have parents, grandparents, or great-grandparents from almost every country on the face of the earth. Hawaiians are proud of the fact that in their state people from many different lands live and work together as friends and neighbors.

Hawaiians are also proud of their schools, and they have the highest rate of school attendance of any state in the Union. At the top of the school system is the University of Hawaii at Honolulu. More than six thousand students go there each year.

Sugar and Pineapples

The climate and soil of Hawaii are especially suited to growing sugar cane and pineapples. Long before the first Americans settled on the islands, Hawaiians were growing sugar cane in small patches. American businessmen soon built up production until the sugar industry became the most important business in the Islands. The best cash customers for Hawaii's sugar are the other forty-nine states.

Next to sugar, pineapples are the most important agricultural product. Some of the huge pineapple plantations cover five thousand acres of fertile land. As soon as the pineapples ripen, they are rushed by truck to the canning factories. Hawaii produces most of the world's canned pineapples. It also ships fresh pineapples to the mainland.

Hawaiian farmers also grow a number of other crops--rice, coffee, bananas, nuts, potatoes, fruits, and vegetables. They also operate a few dairy farms and poultry farms and raise beef cattle. But most of the farm land is in the big money crops--sugar and pineapples. Like Alaska, Hawaii imports food from other state.

The Tourist Industry

One of Hawaii's most important sources of income is tourists. Visitors travel to Hawaii by luxury liner or by plane. Although Washington, D. C., and New York are 5000 miles away, travelers reach Honolulu by jet plane in nine or ten hours.

Visitors are attracted to the Islands by the ideal climate, the scenic beauty of lofty mountains and fertile valleys, and by the great stretches of sun-swept beaches. They are attracted by the beautiful flowers and flowering trees. Upon arrival, visitors are greeted with the song "Aloha Oe" and are presented with garlands of flowers, called leis. Aloha means both "greetings" and "farewell."

Fishing, ocean bathing, and sailing are favorite sports. Surf-board riding is popular at Waikiki Beach, one of the world's most famous beaches.

Most of the visitors land at Honolulu. Luxury hotels line the ocean front.

Defense Outposts in the Pacific

It is easy to understand why the Hawaiian Islands are important for the military defense of North America. They are outposts far out in the Pacific Ocean. Planes based on Hawaiian airfields guard the air approaches from Asia. And navy cruisers, submarines, and carriers based at Pearl Harbor, near Honolulu, guard the sea approaches.

Steppingstones Across the Ocean

Hawaii is one of the "island steppingstones" for planes and ships crossing the Pacific. Both planes and ships stop at Honolulu to refuel and take on food and water. Hawaii lies on one of the chief routes between the mainland and Japan, Hong Kong, the Philippines, Australia, and New Zealand.

GROUP INFORMAL READING INVENTORY

Grade 5

Silver Burdett
Grade 5
Pages 372, 373, 374

- (V,F) 1. What is the equator?
- (f) 2. Many people from many lands moved to Hawaii. What kind of work did these people do when they got to Hawaii?
- (I) 3. List two reasons why Hawaii is called the "island paradise."
(1) _____ (2) _____
- (V,I) 4. Why is Hawaii called a "melting pot"?
- (f) 5. What group of people helped the sugar industry become the most important business in Hawaii?
- (I) 6. Sugar and pineapple are the most important crops raised in Hawaii, but they sell more sugar than pineapple. Why do you think people buy more suger than pineapple?
- (V) 7. What does the word, mainland, mean in the sentence, "Hawaii also ships fresh pineapples to the mainland."?
- (V,I) 8. Why do you think certain crops are called big money crops?
- (V) 9. What do the words, sources of income, mean in the sentence, "One of Hawaii's most important sources of income is tourists."?
- (f) 10. Why do we have to keep so many American sailors, soldiers, and air force men in Hawaii?

 Name

 School

 Teacher

GROUP INFORMAL READING INVENTORY

Grade 5

Cooper, Kenneth S., Clarence W. Sorensen, and Lewis Paul Todd. 1967.
The changing new world: United States and Canada. Morristown,
New Jersey, Silver Burdett Company. Pages 349, 350, 351, and 352.
Reproduced by permission of General Learning Corporation.

The Rocky Mountains

The Rocky Mountains run like a giant backbone through the four "Rocky Mountain states"--New Mexico, Colorado, Wyoming, and Montana--and on into Canada and Alaska. Any one of the Rocky Mountain states is larger than all New England.

The Lure of Gold

It was gold that first drew men in large numbers to this mountain country. The search began shortly after the gold rush to California in 1849.

One of the early discoveries was made in 1858 on Cherry Creek, Colorado, near where the city of Denver now stands. Mining towns sprang up in many places almost overnight. Most of them suffered the fate of Central City, a town west of Denver.

For forty years Central City was a prosperous mountain community. Then the gold gave out, and Central City became a ghost town. Deserted houses, empty stores, and rusting machinery were all that remained of a once busy town.

Rich discoveries of silver and gold have been made in the Rockies. But even more important are some other minerals--copper, lead, zinc, and chrome, to name a few. The most recent discovery is uranium, used as a source of atomic energy.

Rocky Mountain Forests

Large areas of the Rockies are covered with forests. Logging is not very important, however. The trees grow on steep mountain slopes, in isolated areas far from railroads and highways.

The Rocky Mountain forests are extremely valuable, nevertheless. When the rains fall or the snows melt, the forest cover helps to keep the soil from washing away. The sponge-like mass of dead leaves and needles holds the water and helps to prevent flooding.

American Switzerland

Every year millions of tourists visit the Rocky Mountains to enjoy the beauty of the forests, the mountain lakes, and the towering peaks. Caring for the needs of tourists is important business.

To preserve the beauty of the wilderness, the United States government has created national forests and national parks in the Rocky Mountains. This land is reserved forever, for all the people. Among the largest and best known of the parks are Yellowstone, Glacier, and Rocky Mountain national parks.

Some of the ranchers in the Rocky Mountains rent pasture land in the national forests. They agree to graze only a certain number of cattle or sheep on the land they rent. Too many cattle or sheep would eat the grass down to the roots. Their hoofs would cut into the bare earth. Then the rain and melting snow would wash away the topsoil and ruin the land.

Farming in the Rockies is not easy. One problem the farmers face is a short growing season. Another problem is lack of rainfall. Most Rocky Mountain farmers irrigate at least part of their land.

GROUP INFORMAL READING INVENTORY

Grade 5

Silver Burdett
Grade 5
Pages 349 to 352

- (V) 1. What does the word, prosperous, mean in the sentence, "Central City was a prosperous community."?
- (F) 2. What is uranium used for?
- (V) 3. What does the word, isolated, mean in the sentence, "Most of the trees grow in isolated areas."?
- (F) 4. If too many trees in the Rocky Mountain forests were cut down what would happen?
- (I) 5. The author said that caring for the needs of tourists is important business. What types of businesses make money from tourists? Name two.
- (1) _____ (2) _____
- (V) 6. What does the word, preserve, mean in the sentence, "The United States government wants to preserve the beauty of the wilderness."?
- (F) 7. What has the United States government done to save the wilderness areas of the Rocky Mountain states forever for all the people?
- (F) 8. Why does the government say that only a certain number of cattle and sheep can graze in the national forests?
- (I) 9. Many ranchers would like to buy the valuable land in the national forests for grazing land, but the government will not sell the land. Some ranchers feel that this is not fair because the ranchers need the land and the government needs the money. What do you think should happen to the land in the national forests? Explain your answer.
- (I) 10. The author said that one problem the farmers face is a short growing season. Why do you think a short growing season is a problem for the farmers?

Name

School

Teacher

GROUP INFORMAL READING INVENTORY

Grade 6

Harper, Robert A., Raymond E. Crist, and Clarence W. Sorensen. 1967. Learning about Latin America. Morristown, New Jersey, Silver Burdett. Pages 250, 251, and 252. Reproduced by permission of General Learning Corporation.

Paraguay

Travelers speak of Paraguay as one of the most pleasant Latin American countries. There is an occasional frost during the cool season, but Paraguay is a place where people and animals can live out of doors all year long.

Yet modern ways have come very slowly to Paraguay. It is twice the size of Uruguay, but it has about a half million fewer people. And the life of its people reminds us more of the Indians in the Andes than of the neighboring Uruguayans.

Problems of a Map and History

Paraguay and Bolivia, its neighbor, are the only two Latin American countries with no seacoast. Asunción, the capital and largest city in Paraguay, can be reached by small ships. But these ships must sail many hundreds of miles upriver through Argentina.

It is not very satisfactory for ships to pass through another country and sail up a long river to reach Paraguay. The river channel is constantly shifting, and it is a problem to keep the channel free of mud and silt. Only small ships can make the trip.

History has been even more of a problem to Paraguay than has geography. Settlements in Paraguay were among the most important in the old Spanish viceroyalty. Yet the country has suffered under harsh dictators. It has struggled through wars that have killed a large part of the population and held back progress.

A Mixture of Past and Present

Today Paraguay seems to live in the past as well as the present. People still have little voice in the government. Most people have little or no education.

The visitor to Asunción is reminded more of Central America than of the modern cities of Chile, Argentina, and Uruguay. In downtown Asunción the offices and government buildings are modern. But not far away is a large outdoor market. People from farms bring baskets of manioc--a plant sometimes called cassava--oranges, tobacco, or bananas to sell in the old way.

The people of Paraguay are a mixture of Indian and Spanish. Many people seem to have kept more Indian ways than Spanish. An Indian language, Guaraní, is spoken in many homes.

East and West of the River

Most Paraguayans live east of the Paraguay River.

Even on the fertile, rolling lands east of the Paraguay River, only a little of the land has been used. There are some large cattle estancias but not many modern farms.

Needed, New Farms and New Roads

Most farmers simply cut a few acres of land out of the forest with their machetes and raise enough crops to feed the family. If there is anything left over, it is sold in a village market.

A farmer's only tools may be a machete, a hoe, and a simple plow pulled by oxen.

Manioc is the most important food crop. It is boiled, baked, fried, and used in soup. Cotton and tobacco are the most important money crops. Cotton is used in textile mills in Asunción, but most of it is exported.

Paraguay suffers greatly from a lack of good transportation even in the settled areas. There are few railroads or highways in the entire country. Most goods are still carried by oxcart, donkey, or on people's backs.

Many experts say that Paraguay needs most of all a good transportation system. Only then can it catch up with its modern neighbors in southern South America. Recently the government began work on a highway from Asunción to Bolivia.

GROUP INFORMAL READING INVENTORY

Grade 6

Silver Burdett

Grade 6

Pages 250, 251, and 252

- (V) 1. What does the word, modern, mean in the sentence, "Modern ways have come very slowly to Paraguay."?
- (F) 2. Paraguay and Bolivia are the only two Latin American countries that do not have a _____.
- (V) 3. What does the word, shifting, mean in the sentence, "The river channel is constantly shifting."?
- (I) 4. Why is it bad to have a dictator for a ruler of a country?
- (F) 5. Why has a large part of the population of Paraguay been killed?
- (V,I) 6. Today Paraguay seems to live in the past as well as the present. What does that sentence mean?
- (V) 7. What does the word, voice, mean in the sentence, "People still have little voice in the government."?
- (I) 8. With so much land available why don't the farmers of Paraguay have large farms instead of small farms?
- (F) 9. What is the most important food crop in Paraguay?
- (V,I)10. Why are some farm crops called money crops?

Name

School

Teacher

GROUP INFORMAL READING INVENTORY

Grade 6

Harper, Robert A., Raymond E. Crist, and Clarence W. Sorensen. 1967. Learning about Latin America. Morristown, New Jersey, Silver Burdett Company. Pages 261, 262, and 263. Reproduced by permission of General Learning Corporation.

Food from the Forest

Most people in the Amazon towns and villages get much of their food from the forest. We might call them farmers, since they grow crops. But they really are farmers of small gardens. Each field is just a tiny garden patch where forest trees have been cleared away.

The main crop is manioc, grown for its roots. Manioc roots are ground into a coarse flour that is used at all meals. Sometimes it is eaten dry, and sometimes it is mixed with gravy or fat or even a little water.

As elsewhere in the tropical lowlands, these are "two-story" farm plantings. Corn, squash, watermelon, peppers, bananas, and even pineapples are all planted together with the manioc.

All the work in the clearings is done by hand or with simple tools. They use a machete to cut away a small tree.

In these hot, wet lands it is difficult to keep the garden cleared of weeds and brush. Soon after the field is cleared, the weeds and trees begin to grow again. Within two years the soil produces less than when the clearing first was made. The heavy rains have washed away some of the valuable minerals in the soil. It becomes more and more difficult to keep down the weeds and brush. Soon the family prefers to clear another patch in the forest and start over again.

Rubber from the Forest

Some men in the Amazon lowland make a living by collecting rubber from wild trees in the forest. The worker cuts grooves in the bark of the rubber tree. He usually does this in the morning, then hangs a cup underneath to catch the sap that oozes from the bark. This sap is latex, from which rubber is made. In the afternoon he returns to get the latex that has collected in the cups. He carries the latex in a large pail to a central collecting station. Here the latex is turned into crude rubber.

A week later the rubber may be sold at a trading post. A month later it may be on a river steamer. A year later it may be part of some rubber product in Europe or the United States.

Often the rubber gatherer carries a gun along on his trips through the forest. He may shoot a bird or perhaps a wild animal whose skin is valuable enough to be sold. This skin may someday be part of a fine article sold in Paris or New York.

When Rubber Was King

Today gathering rubber is only one of many different ways in which people along the Amazon make a living. But years ago rubber was king in the Amazon. Almost everyone depended on the rubber business, and it was a big business.

The rubber boom started along the Amazon River a little more than a hundred years ago. Up to that time only a few small agricultural communities and missions had been established along the great river.

But men had learned that trees yielding latex grew wild in the dense Amazon forest. As it happened, this was one of the few places on earth where fine rubber-producing trees were known to grow wild. And there was beginning to be a good market for rubber.

Soon the rubber boom was on. People hurried from Europe to buy up tracts of unknown forest land. If the land had enough rubber trees, they would be wealthy. If not, like the gold seekers, they would try again, buying a different tract of forest.

For a time the Amazon seemed to be changing into a land of settlement. Belem, near the mouth of the Amazon, grew into a busy city. Far up the river, the city of Manaus rose out of the forest. Wealthy owners of rubber lands built mansions in these cities.

In time, men learned that gathering rubber from wild forest trees was not very efficient. Dozens of different types of trees grew together in the forests. A man might need to walk some distance from one rubber tree to another. Paths were cut through the forest so that workers could reach enough trees to fill a bucket with milky latex.

All went well as long as the Amazon Valley was the only place where the world could get rubber. However, an Englishman carried some rubber seedlings to Asia. Soon rubber trees were planted on large plantations in Asia. The plantation trees were given great care, and they produced more rubber than the wild trees. It was less expensive to gather rubber from a plantation than to search through the forest for wild rubber trees.

It was not long before Brazil's rubber boom was over. Most of the world's rubber was coming from southeastern Asia.

When the rubber boom ended, many people left the Amazon. Parts of large cities were abandoned. But, as you have read, a few people stayed on, still trying to make a living by gathering rubber.

GROUP INFORMAL READING INVENTORY

Grade 6

Silver Burdett
Grade 6
Pages 261, 262, 263

- (F) 1. What part of the manioc plant is used for food?
- (I) 2. With so much land available, why don't the people in the hot, wet lands have large farms instead of small ones?
- (F) 3. Why does the man who gathers the rubber also kill animals and birds?
- (V) 4. What does the word, boom, mean in the sentence, "Soon the rubber boom was on."?
- (I,V) 5. The story said that before the rubber boom started there were only a few missions along the Amazon River. What is a mission or what is the purpose of a mission?
- (V) 6. What does the word, mansions, mean in the sentence, "Wealthy owners of rubber lands built mansions in these cities."?
- (F) 7. Why do people prefer to buy the rubber that is grown on a plantation rather than rubber from the wild trees in Brazil?
- (F) 8. Why is it easier to gether rubber from a plantation than in the forests?
- (F) 9. Where does most of the world's rubber come from now?
- (V) 10. What does the word, abandoned, mean in the sentence, "Parts of large cities were abandoned."?

Name

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GROUP INFORMAL READING INVENTORY

Grade 6

Harper, Robert A., Raymond E. Crist, and Clarence W. Sorensen. 1967. Learning about Latin America. Morristown, New Jersey, Silver Burdett Company. Pages 163, 164, and 165. Reproduced by permission of General Learning Corporation.

THE WEST INDIES

Where Sugar Has Been King

For 300 years sugar has been king in most of the islands of the West Indies. Together, these small islands are no larger than the state of Oregon or Wyoming. Yet they form the most important sugar-producing region in the world. One out of every six pounds of sugar grown in the world is grown in the West Indies.

Sugar Boom

Shortly before 1900 the sugar business in the West Indies began its modern boom. More than a hundred years had passed since the American Revolutionary War. The United States was a large country, growing still larger. It needed more and more sugar. Population was growing fast in Europe also. Europeans made much sugar from the sugar beets grown there. But more and more sugar was needed. So the countries of Europe, as well as the United States, became good markets for cane sugar.

The sugar boom would not have been possible with the old type of mill. The small mills of the past were turned by the power of animals. They could not have produced enough sugar to meet the new demand. But new, larger steam-powered mills were built. These mills could produce great quantities of sugar.

Now, however, tens of thousands of acres of cane were required to supply a single mill. New fields of cane were planted. Railroads were built to the farm lands to bring the cane to the mills. Other railroads carried the processed sugar to seaports for shipment to customers across the ocean.

It took a great deal of money to build just one new sugar mill and its railroads, also to buy all the necessary land needed for crops of sugar cane. Few people could afford such an investment. Thus, large sugar companies were organized. One company might own vast amounts of land, several big mills, and many railroads. Often the stock in the companies was controlled by people in England or in the United States.

Land, Government, and Workers

In past times in the West Indies the sugar companies owned the mills and also the vast sugar-cane fields. Sometimes the best land on a sugar island would be owned by just a few huge and wealthy sugar companies.

Several governments in the West Indies have been trying to change this way of owning the land. In Puerto Rico, for example, it now is illegal to own more than 500 acres of land. In Cuba, the land of sugar, the companies have been taken over by the government.

Harvest of Sugar Today

The sugar cane stalks are cut close to the ground. The part of the cane closest to the ground contains the most sugar. With a sharp knife called a machete, the worker also cuts off the top of the stalk, strips off the leaves, and cuts the cane into three-foot lengths for ease of handling.

Workers gather the lengths of cane, tie them into bundles, and put them in a cart. In other places, trucks have taken the place of the carts. The carts or trucks then move to a railroad siding, where a crane lifts the cane bundles and places them on large railroad cars for shipment to the mill.

The loaded cars are brought to the mill, called a central. The job of moving the cane to the mill must be done quickly, for the cane loses some of its sugar within two days after it has been cut.

The juice, or sap, of the cane is extracted and made into sugar in the sugar mill. The crystals of sugar that come from this mill are not the pure-white sugar we see on the table. Instead, they have a light brown color. The sugar crystals from this mill will have to be processed further in large sugar refineries before they come to your table.

Many of the large sugar refineries are located in the United States or in European countries rather than in the sugar islands themselves.

Finally, the sugar is ready for shipment. The sugar moves from this mill to a nearby port to begin the long journey to your table.

GROUP INFORMAL READING INVENTORY

Grade 6

Silver Burdett

Grade 6

Pages 163, 164, 165

- (F) 1. Beginning around the year 1900, what happened in Europe and the United States to cause a big demand for sugar?
- (V) 2. What does the word, markets, mean in the sentence, "The countries of Europe as well as the United States became good markets for sugar."?
- (I) 3. Why do you think so much sugar is sold to so many people in all parts of the world?
- (F) 4. The old sugar mills that used animals for power could not produce enough sugar. What changes were made in the sugar mills so they could produce more sugar?
- (V) 5. What does the word, investment, mean in the sentence, "A large investment was needed to get land and build sugar mills and railroads."?
- (F) 6. The large sugar companies of the West Indies were owned by people in _____ and the _____.
- (I) 7. Who would earn the most money from the sugar land and the sugar mills: the people in the West Indies who work in the fields and the sugar mills or the people who own the land and the sugar mills?
- Why?
- (I) 8. Why do you think that the government of Puerto Rico passed a law that said that no one could own more than 500 acres of sugar land?
- (F) 9. Why is it necessary to cut the sugar cane very close to the ground?
- (V) 10. What does the word, extracted, mean in the sentence, "The juice of the cane is extracted."?

Name

School

Teacher

GROUP INFORMAL READING INVENTORY

Grade 4

Preston, Ralph C., Caroline Emerson, Penn Elizabeth, and Arthur F. Schrader. 1966. Four lands, four peoples. Boston, D. C. Heath and Company. Pages 329 and 330. Reproduced by permission of the publishers.

SAO PAULO: FROM ONE PRODUCT TO MANY

A New Crop Makes Money

When the New World was discovered, most people had never heard of coffee. Then traders began to bring coffee beans to Europe from the Arab countries. People tried the dark, steaming drink made from hot water and ground-up coffee beans.

When people got used to the taste of coffee, they liked it better and better. Coffee was sold in stores. Little coffee shops were started in cities. Here people could sit and drink coffee with friends. Over steaming cups of the dark liquid, people talked about business, and politics, and art.

Coffee trees will grow only in warm climates. Can you imagine what this meant to people in Brazil? At about the time of the gold bust, some Brazilians were starting to plant coffee near Sao Paulo and Rio. They hoped to sell this new tropical crop to people in Europe and North America.

The State of Sao Paulo

You have read about the people who lived near the town of Sao Paulo, in Sao Paulo state. These people had started out in the New World without enough money to buy slaves. In the great sugar days, they could plant only small cane fields, not big plantations. They could not make much money.

The Sao Paulo people, or Paulistas, produced food crops and cattle. They produced enough for themselves, and some extra to sell to people in towns and to the miners in Minas. Now some Paulistas tried planting coffee as a cash crop. Their coffee trees grew well. The climate was neither too hot nor too cold, and in parts of the state there was a rich, red soil that was just right for coffee.

The news spread that Sao Paulo state was the best place to grow coffee. Men with money began to move here from other parts of Brazil. Some brought slaves with them, but they needed many more workers. And they knew that the day was coming soon when the government of Brazil would set all the slaves free. If it was not going to be lawful to

force men to work, they needed to find people who wanted jobs on coffee plantations.

At this time there were many poor people in Europe who wanted to make a new start in life. Europe had become very crowded. It was hard to get land there. It was hard to get jobs. News was sent to Europe telling people that Brazil had lots of land and lots of jobs. The government of Sao Paulo state would help pay for the trips of people who came there to live.

People came from Portugal. People came from Italy, Spain, Germany, and Poland. People who come into a new country to live are called immigrants. Thousands of immigrants came to work on the coffee farms of Sao Paulo state. Their work helped Sao Paulo to grow. In time some of them earned enough money to buy farms of their own. Some moved to the towns that were growing up in the state of Sao Paulo.

Coffee Boom

Men with money kept moving to Sao Paulo from other parts of Brazil. They bought land. They hired immigrants. More and more forests were cleared away, and more and more coffee trees were planted on the hillsides. As soil on the older coffee plantations wore out, growers just bought more and more of the new, rich, red land.

Some land was still used to produce food. After 300 years, the Paulistas were in the habit of producing their own food. But coffee became the main crop. By exporting coffee, the planters started a new boom in Brazil. All they had to do was to get the coffee down to a seaport and they could be sure of selling it for a good price.

GROUP INFORMAL READING INVENTORY

Grade 4

D.C. Heath
Grade 4
Pages 329 and 330

- (V,I) 1. Coffee is called a cash crop. Why do you think coffee is called a cash crop?
- (F) 2. Coffee trees will only grow in a certain kind of climate and a certain kind of soil.
Coffee trees must have _____ climate and _____ soil.
- (V,I) 3. Some coffee farmers used slaves as workers. How is a slave different from other kinds of workers?
- (V) 4. What does the word, plantation, mean in the sentence, "They needed to find people who wanted jobs on plantations."?
- (I) 5. Why do you think the government of Brazil decided to pass a law to set the slaves free even though the coffee farmers needed slaves?
- (F) 6. Why were some of the people in Europe looking for a new place to live?
- (F) 7. What did the government of Sao Paulo do to help people move from Europe to Brazil?
- (V) 8. What does the word, immigrants, mean in the sentence, "The coffee growers hired immigrants to work on the plantations."?
- (F) 9. The story said that the soil on the older coffee plantations wore out. What caused the soil to wear out?
- (V) 10. The farmers of Brazil export their coffee. What does the word, export, mean?

Name

School

Teacher

GROUP INFORMAL READING INVENTORY

Grade 5

Preston, Ralph C. and John Tottle. 1965. In these United States and Canada. Boston, D. C. Heath and Company. Pages 508, 509, and 510. Reprinted by permission of the publishers.

Mackenzie Reaches the Seas

As always, explorers went into the wilderness ahead of the settlers. One of Canada's great explorers was a young Scot named Alexander Mackenzie. While still a very young man, he was made chief trader at the North West Fur Company's westernmost fort. It stood at one end of Lake Athabasca.

Mackenzie was interested in exploration as well as fur trading. He hoped to discover a route to the Pacific Ocean.

In the spring of 1789, Mackenzie set out from the fort on his first long exploring trip. He and his men paddled their canoes down Slave River to Great Slave Lake. Then they floated down the mighty river that now bears Mackenzie's name. The days grew longer and longer until the sun was shining at midnight. Summer had come and the explorers were inside the Arctic Circle. They discovered that the river had many mouths. At last the mouth that they were in broadened to become a wide bay. Whales spouted here and there among the floating ice. To the north the men saw the Beaufort Sea, an arm of the Arctic Ocean.

In spite of their achievement, the explorers were discouraged. They had found that there was no easy river route to the Pacific Ocean. Mackenzie named the long river Disappointment, not guessing that his own name would replace this one on the maps of the future.

During the return journey, he noticed loose red rock known as shale near the river. He examined it and found that it contained an oil that he called petrolio when he wrote about it in his diary. It was petroleum, which, taken from wells, is now one of Canada's most valuable resources.

A few years after his return to the trading post, Mackenzie decided to try again. He built a small log fort on the Peace River, west of Lake Athabasca. There he spent the winter of 1792-1793. In May he set out with a canoe party of white men and Indians. He intended to cross the Rocky Mountains and reach the Pacific Ocean. After hair-raising adventures with rapids and whirlpools, the explorers left the river and took to the forest. Barefoot and half-starved, they struggled through the mountains. All would have perished if it had not been for Mackenzie's knack of making friends with Indians wherever he went.

At last they reached the coast. With red paint that he had mixed himself, Mackenzie printed these words on a large rock: "ALEXANDER MACKENZIE, FROM CANADA, BY LAND, THE TWENTY-SECOND OF JULY, ONE THOUSAND SEVEN HUNDRED AND NINETY-THREE." He was the first to reach the Pacific Coast by an overland route. Twelve years later the American army officers, Lewis and Clark, completed their famous journey to the coast.

GROUP INFORMAL READING INVENTORY

Grade 5

D. C. Heath
Grade 5
Pages 508, 509, 510

- (F) 1. What did Mackenzie want to discover?
- (V) 2. What does the word, bears, mean in the sentence, "Then they floated down the mighty river that now bears Mackenzie's name."?
- (I) 3. You have read about many famous explorers and their dangerous trips. Why do you think a man would want to be an explorer?
- (F) 4. What valuable resource did Mackenzie discover on his return trip?
- (F) 5. What is the name of the mountains Mackenzie had to cross to get to the Pacific Ocean?
- (V) 6. What does the word, hair-raising, mean in the sentence, "After hair-raising adventures with rapids and whirlpools, the explorers left the river and took to the forest."?
- (V) 7. What does the word, perished, mean in the sentence, "All would have perished if it had not been for Mackenzie's knack of making friends with the Indians."?
- (I) 8. What do you think Mackenzie did to make friends with the Indians?
- (F) 9. Name two other famous explorers who discovered a route to the Pacific Ocean twelve years after Mackenzie's trip.
- (I) 10. Mackenzie is one of many famous explorers in history. Can you think of any persons who are living and working today, in 1972, who could properly be called explorers?

Name

School

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GROUP INFORMAL READING INVENTORY

Grade 5

Preston, Ralph C. and John Tottle. 1965. In these United States and Canada. Boston, D. C. Heath and Company. Pages 221 and 222. Reprinted by permission of the publishers.

What is Communism?

As the term is used today, Communism is the system by which countries are governed wherever a Communist Party rules. In these countries, the people do not govern themselves. Though only a small fraction of the country's population is in the Communist Party, the party leaders govern the nation as they see fit. They control agriculture, manufacturing, mining, and all--or nearly all--other business activities. Schools, newspapers, and radio networks are in the hands of the Communist government.

The Communist Threat

Bad as such a system is, it would not be a danger to nations that aren't Communist except for one reason: Communists intend to spread their system over the whole world. Since people are not likely to choose Communism, the Communists use force, the threat of force, and trickery in spreading their system. When Communists won control first of Russia and later of China, the power of those countries was used to force Communist rule on others. Far more would now be Communist if a number of free nations had not stood firm against Communism.

Meeting the Threat

The United States is the strongest of the free nations. It has therefore played the leading part in checking Communism. The effort has cost billions and billions of dollars.

Never before in time of peace has the United States kept such large and expensive armed forces as those of today. Like the huge forces of the Soviet Union, ours are equipped with the latest weapons. The most destructive are hydrogen bombs (H-bombs), which can be carried by either planes or rockets.

In addition to arming itself, the United States has armed its friends. Wherever a Communist-threatened nation has asked for American weapons, they have been sent. In many cases United States soldiers or airmen have gone with them to train men in their use.

American lives, as well as dollars, have been spent to check Communism. In the early 1950's the United States and its allies fought a war to save South Korea from Communist invaders. Though the Communist

members of the United Nations wanted South Korea conquered, the UN voted to use force in order to save it. The armies fighting to save South Korea were made up principally of Americans. More than once since the Korean War, countries have asked the United States for help in their struggle against Communism. The United States has shown that it will fight, if necessary, to keep Communists from taking a country by force.

When Communism uses methods other than force, the threat is more difficult to meet. Suppose the Soviet Union offers to build dams and power plants for an underdeveloped country. Such an offer is dangerous, for once the Communists are in the country they may never leave. They may help the Communist Party there to seize the government.

How can the United States prevent such victories for Communism? It can prevent them by giving aid to underdeveloped countries. The United States has two advantages in this work. First, it can afford to give more aid than the Soviet Union can. Second, underdeveloped countries know that American aid is safer to accept than Russian aid, for the United States has no desire whatever to take them over.

The United States has two reasons for aiding underdeveloped and developing countries. It wants to help nations help themselves in making life better for their people. It wants to keep governments from leading their nations into the Communist trap.

For its own sake and the sake of world freedom, the United States has had to become a leader in the fight to check the spread of Communism.

GROUP INFORMAL READING INVENTORY

Grade 5

D. C. Heath
Grade 5
Pages 221 and 222

- (V) 1. What does the word, fraction, mean in the sentence, "Only a small fraction of the country's population is in the Communist Party."?
- (I) 2. In Communist countries the government controls agriculture, manufacturing, mining, and almost all businesses. How does this differ from the way things are in the United States?
- (V) 3. What does the word, hands, mean in the sentence, "Schools, newspapers, and radio networks are in the hands of the Communist government."?
- (F) 4. What is the one most important reason why Communism is so dangerous?
- (I) 5. The story said that people are not likely to choose Communism as a form of government. Why wouldn't people want to choose Communism as a form of government?
- (F) 6. Which country was the first one to become a Communist country?
- (I) 7. Fighting Communism has cost the United States billions and billions of dollars. Where do you think the United States got the money to fight Communism?
- (F) 8. What is the most destructive weapon in our modern army?
- (V) 9. What does the word, armed, mean in the sentence, "The United States has armed its friends."?
- (F) 10. When we give weapons to another country why do we usually have to send some of our soldiers and air men to that country also?

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GROUP INFORMAL READING INVENTORY

Grade 5

Preston, Ralph C. and John Tottle. 1965. In these United States and Canada. Boston, D. C. Heath and Company. Pages 466, 467, and 468. Reprinted by permission of the publishers.

Beyond the Alaska Mountains

Gold brought the first settlers to the wilderness beyond the Alaska Mountains. In 1896 the precious metal was found in a stream bed near the Yukon River in Canada. Hopeful gold hunters sailed from Pacific Coast ports and landed at Skagway, north of Juneau in the Alaskan Panhandle.

Not everyone struck it rich, of course. Many who failed to find gold went by boat down the Yukon into Alaska. At Nome, near Bering Strait, gold was found in the ocean sand. It started another rush.

From the coast, gold hunters moved into central Alaska. They found much in the Tanana Valley. Soon heavy mining machinery was being moved in. Mining camps turned into settlements. The biggest settlement was Fairbanks. Even today it is the only real town beyond the Alaska Range. The Alaska Highway and the Alaska Railroad run to it.

Defense has brought changes to the far north. Stations of the Distant Early Warning (DEW) Line have been set up across it. These lonely stations use instruments that would flash a warning if enemy planes flew over on their way toward the conterminous United States. A longer part of the line crosses Canada. Planes keep the stations supplied with food and comforts. These stations are tiny islands of civilization in a bleak wilderness.

Industries of the Great Land

Of the three sections of Alaska the two smaller ones have nearly all the people. They have nearly all the business, too.

Fishing is by far the biggest industry in Alaska. Salmon fishing leads in importance. Most of the fish are canned. In recent years the catching of king crabs has increased rapidly. These crabs usually weigh at least seven pounds each. They are sold either frozen or canned. The preparation of seafood for shipping is the most important kind of manufacturing in Alaska.

Tourism is another big business. It is the business of providing tourists with food, lodging, and entertainment. More and more tourists

visit Alaska now. Many come to enjoy the beauty of its forest wilderness. Visitors may hunt, fish, or take part in other sports.

Forest products are important now. Two up-to-date pulp plants turn logs into wood pulp for making paper. Most of the pulp is sold to Japan. Trees are cut for lumber, also.

Minerals (including petroleum and coal) also bring in much money. As you know, petroleum leads. It is far ahead of all others in yearly earnings. The mining of coal is next--a little ahead of gold.

Farm products and furs earn several million dollars each in the course of a year. But these businesses are small compared with the four just mentioned.

Money spent by the federal government helps Alaska. Soldiers, sailors, marines, and airmen are on duty there. They spend much of their pay in the state. Also, the Department of Defense is constantly putting up new buildings for use by its men and women in uniform. Defense building and other building, together, have in some years made construction almost as big a business in Alaska as mineral production.

GROUP INFORMAL READING INVENTORY

Grade 5

D. C. Heath
Grade 5
Pages 466, 467, 468

- (V) 1. What is a gold rush?
- (F) 2. What is the name of the only real town beyond the Alaska Mountain Range?
- (I) 3. Why would men leave their homes to go into the cold, Alaska wilderness to hunt for gold?
- (F) 4. What is the purpose of the Distant Early Warning (DEW) Line stations in Alaska and Canada?
- (I) 5. Why would you expect fishing to be the biggest industry in Alaska?
- (V) 6. What does the word tourism (tourist), mean in the sentence, "Tourism is another big business in Alaska."?
- (F) 7. A pulp plant turns logs into wood pulp. What is wood pulp used for?
- (F) 8. Gold is no longer the most important mineral resource in Alaska. What is the most important mineral resource in Alaska today?
- (V) 9. Money spent by the federal government helps Alaska. What government are we talking about when we use the words the federal government?
- (I) 10. What is the job or the purpose of the Department of Defense?

Name

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GROUP INFORMAL READING INVENTORY

Grade 6

Preston, Ralph C. and John Tottle. 1967. In Latin American lands. Boston, D. C. Heath and Company. Pages 454, 455, and 456. Reprinted by permission of the publishers.

Nations United

In the 1900's other steps were taken. The most important was the founding of the United Nations by the countries that were then winning the Second World War. On October 24, 1945, soon after the fighting stopped, the UN began its work. The 24th of October is now celebrated around the world as United Nations Day. Perhaps you saw the blue-and-white flag displayed somewhere last October 24.

The founders of the United Nations declared that it had four purposes:

- To maintain peace.
- To develop friendly relations among nations based on respect for the principle of equal rights.
- To cooperate in solving international problems.
- To be a center for harmonizing the actions of nations in attaining these common ends.

As you can see, the UN's purposes are very much like those of the Organization of American States. During the Dominican Republic's troubled summer of 1965, the two organizations found themselves arguing about which should take charge. Such disagreement had not occurred before and did not then become serious. In the fields of peace and human welfare, there should be room for all organizations that want to take part in the work. The UN has always said that there is.

Three Branches of the UN

The United Nations has many branches, offices, and committees. Three parts lead all others in importance for they run the whole organization. They are these:

The General Assembly. It is the most powerful branch of the UN. All of the member nations send representatives to it. The General Assembly usually meets once a year. Meetings ordinarily are held at UN headquarters in New York City. The yearly meeting lasts several months.

The Security Council. It is on duty at the New York headquarters the year round. Eleven countries are represented on it. Five of them

(Britain, France, Nationalist China, the Soviet Union, and the United States) have permanent seats. The remaining six are elected by the General Assembly for two-year terms.

The Secretariat. It is a large force made up of translators, guards, typists, messengers, and other workers. Its head is a Secretary-General who is elected by the General Assembly. The Secretary-General is the most important individual in the United Nations. He directs its work in accordance with decisions of the General Assembly and the Security Council.

Success or Failure?

How successful is the United Nations? To this question you will hear two entirely different answers given.

Some people insist that the UN isn't successful at all. They remind us that its chief purpose is to create a peaceful world. But the world is no more peaceful today than it was when the UN started work in 1945. The UN can do no more than its member nations let it do. Its members have never been able to agree on measures for establishing and maintaining true peace in the world.

But the many friends of the UN point out that it has stopped or prevented several small wars. Small wars, in addition to being bad in themselves, may turn into large ones. The UN's work for peace cannot, therefore, be called wholly unsuccessful.

In helping nations solve other difficult problems, the UN has done very well. Its experts are showing many countries how to fight disease more effectively and how to raise bigger crops. Countries that want to improve the education of their people are also being aided by the United Nations.

GROUP INFORMAL READING INVENTORY

Grade 6

D. C. Heath

Grade 6

Pages 454, 455, 456

- (V) 1. What does the word, founding, mean in the sentence, "An important event was the founding of the United Nations."?
- (I) 2. Why do you think it is more important today than ever before in history that we have an organization to prevent war?
- (F) 3. How many main branches or parts does the United Nations have?
- (F) 4. In what city are the headquarters of the United Nations located?
- (I) 5. Each member nation sends a representative to the United Nations. What kind of person or what characteristics do you think a person should have who is chosen to be a representative from his country to the United Nations?
- (1) _____
- (2) _____
- (V) 6. Five countries (Britain, France, Nationalist China, Russia, and the United States) have permanent seats on the Security Council. What do the words, permanent seats, mean in that sentence?
- (V) 7. What does the word, translators, mean in the sentence, "Translators, guards, typists, and messengers work in the Secretariat."?
- (F) 8. What is the title of the most important person or official in the United Nations?
- (I) 9. Give an example of a small war that is going on today that could become a big war.
- (F) 10. The United Nations has helped countries solve problems that have nothing to do with wars and fighting. Name one way that the UN has helped a country. Do not include stopping wars.

 Name

 School

 Teacher

GROUP INFORMAL READING INVENTORY

Grade 6

Preston, Ralph C. and John Tottle. 1967. In Latin American lands. Boston, D. C. Heath and Company. Pages 374, 375, and 376. Reprinted by permission of the publishers.

BRAZIL

The North

What Brazilians call "the North" might perhaps be better called "the Northwest." It lies west of the Northeast.

Three states and three territories make up the North. Together they cover a larger area than any other region in Brazil.

This region is a large part of the Amazon Basin. The Amazon flows completely through it from west to east. Its tributaries drain regions north and south of the great river.

More than two thirds of the region is in the Zone of Little Change. Nearly all the rest is in the Mestizo Zone. This part begins at the coast and extends westward on both sides of the Amazon. The fact that Mestizo Zone settlements have grown up mainly along the rivers shows how important water transportation is in settling the northern interior. There are practically no railroads and very few roads in this region.

To ship products out and get supplies from the East, people must live close to a river. They need not be on the Amazon itself, but they should not be far from it. Boats from coast cities steam up and down the great river. People who live far up tributaries cannot make use of Amazon transportation without taking long journeys in canoes or small boats.

But solving the transportation problem this way creates other problems. The Amazon isn't a pleasant river to live beside. Every year it floods tremendous areas. It hasn't many high banks for a river of such length, and those it has are always in danger. During storms the raging river may cut more of its banks away and carry the soil to the Atlantic Ocean. Throughout this almost level river country, swamps stretch far and wide. Insects are a plague in the hot, steamy marshlands and even on higher ground near them. Some insects carry tropical diseases.

Farming is extremely difficult here. You have read about the losing war that man fights with fast-growing wild vegetation in the

Amazon selva. A farmer seldom keeps his land cleared for more than a few years. The soil soon loses much of its fertility, too. Before long, therefore, the farmer moves to another part of the forest and clears new land.

Gilberto Freyre, a Brazilian historian, says that settlement in the North is too big a job for individual farmers. The federal government will have to take a hand in the Amazon Basin, he thinks. The government can buy the expensive machines needed. It can use the army in draining swamps, clearing land, and fighting tropical diseases.

Except in and near the few towns and cities, the Mestizo Zone people live chiefly by subsistence farming. They earn some money, however, by gathering and selling rubber, Brazil nuts, and other tree products. You may have eaten Brazil nuts. They are large and have a white meat. Brazilians call them castanhas do Pará (nuts of Pará) because most come from that state.

Large quantities of forest products are sold in the river port of Manaus (in Portuguese, Manáos). In the first half of the nineteenth century, Manaus was only a small cluster of houses dozing in the hot sunshine on a bank overlooking the Amazon. Then Europeans and North Americans began manufacturing rubber boots, raincoats, hose, and (later) tires. Manaus became the point to which wild rubber was brought from the upper Amazon Valley. Ocean going ships tied up at the town's wharves. Rubber for Europe and the United States was loaded aboard them. This business made the town grow in population and wealth. The beautiful opera house of Manaus was built during the rubber boom.

The boom didn't last very long. In the early 1900's rubber from trees planted in Southeast Asia became plentiful. Brazilian wild rubber was more expensive than this cultivated rubber, and it began to be scarce as well.

Manaus no longer had much to ship. Business became poorer and poorer. People left town, and the opera house closed its doors. Soon the once gay and busy river port was little more than a ghost town.

GROUP INFORMAL READING INVENTORY

Grade 6

D. C. Heath

Grade 6

Pages 374, 375, 376

- (V) 1. What does the word, tributaries, mean in the sentence, "The tributaries of the Amazon drain regions north and south of great river."?
- (I) 2. Why do you think there are almost no roads or railroads in the Amazon Basin region?
- (F) 3. Why isn't the Amazon River a pleasant river to live beside?
- (I) 4. If you lived in the Amazon Basin why would it be very important that your house have tight fitting screens and that the screen doors are always shut tightly?
- (V) 5. What do the words, wild vegetation, mean in the sentence, "Man is always fighting the wild vegetation."?
- (F) 6. Why is farming difficult in the Amazon Basin region?
- (F) 7. There are two forest products that the Amazon people can gather and sell to earn money. What are these two products?
 (1) _____ (2) _____
- (V) 8. What does the word, boom, mean in the sentence, "The opera house of Manaus was built during the rubber boom."?
- (F,V) 9. Explain the difference between cultivated rubber and wild rubber?
- (I) 10. Why do people move away from a town like Manaus when business becomes poorer and poorer?

Name

School

Teacher

GROUP INFORMAL READING INVENTORY

Grade 6

Preston, Ralph C. and John Tottle. 1967. In Latin American lands. Boston, D. C. Heath and Company. Pages 381, 382, 383, 384, and 385. Reprinted by permission of the publishers.

Men and Machines in Latin America

The first big, successful world's fair held in the United States was the Centennial Exposition of 1876. Centennial comes from the Latin words for "hundred" and "year." This exposition, or fair, was held in Philadelphia because the Declaration of Independence had been signed there one hundred years before. The exhibits showed how much life had changed since 1776.

Among the American manufactured products displayed was a huge stationary steam engine. This engine was of the kind that provided power for running factory machinery. But it was unusually large--a 1,600-horsepower engine taller than a four-story building. Starting the giant engine was the opening act of the fair.

While a crowd watched, two famous men operated the controls that set the wheels spinning. The men were Ulysses S. Grant, President of the United States, and Pedro II, Emperor of Brazil. Steam power had played a big part in making President Grant's country a leading manufacturing nation. Pedro II hoped that steam would bring the same kind of progress to Brazil.

The United States and Brazil were at very different stages of development. Brazil was almost entirely an agricultural country, as the United States had been a century earlier. The United States was now a country of factories, as well as of farms. It had been changed by the industrial revolution. That revolution had not yet reached Brazil or any other country in Latin America.

Industrial Revolution

A revolution overturns a system and replaces it with one of a different form. The system overturned may be a form of government, as in the case of the American Revolution. But the industrial revolution overturned an ancient system of manufacturing.

The word manufacturing comes from the Latin for "hand" and "making." In Roman times and for over a thousand years afterward, manufactured goods were made by hand. The power behind the hand tools was muscle power.

During the industrial revolution, machines took the place of most hand tools. The machines were driven by the power of water or steam. At first waterpower and steam drove machines directly. Today in nearly all cases they generate electricity. The electric current goes by wire or cable to factories, farms, and cities. Besides lighting lamps, it provides power for machines of a thousand kinds.

History books usually speak of the industrial revolution as having started in Europe about two hundred years ago. Before that time only a few manufacturing operations had been carried on by power other than that of muscles. The waterwheel, invented perhaps 2,000 years earlier, was widely used in western Europe. It turned heavy millstones that ground wheat and other grain into flour. Also, it powered saws that cut up tree trunks. By the 1300's waterwheels provided power for beating rags into the pulp from which paper was made. Where there were no waterfalls, men built windmills to grind their grain--if, that is, they could find spots where the wind blew hard and steadily. These uses of wind and water, however, were exceptions to the rule. As a rule, manufacturing was done by muscle power.

The change that is called the industrial revolution began in the late 1700's. It came then partly because the demand for manufactured goods was greater than ever before. The British, who did more buying and selling at the time, found that they could sell, at home and abroad, all the goods that they could possibly produce. If they could manage to produce more, they could sell more. It was the same in France and several other countries.

England's important cloth industry was held back by a shortage of yarn (thread). Merchants could sell all the cloth that could be woven on the wooden hand looms of the weavers. But the weavers were idle part of the time. Spinners could not produce yarn as fast as the weavers could weave it into cloth. Men began searching for a faster way to spin fiber into yarn.

English inventors built wooden machines that could spin yarn much faster than the old spinning wheels. At first these machines were run by the muscle power of their operators. But in 1771 a mill in England began spinning yarn with water-powered machines. This mill and others like it produced yarn so fast that it became necessary to speed up weaving. Water-powered looms for weaving cloth were used after 1822. Machines for manufacturing other products were invented, also.

When the steam engine was developed, it was used to run machines where there was no waterpower. It also made the locomotive possible. Steam locomotives and steamships helped manufacturing in two ways. They brought coal and raw materials to factories. They took factory-made goods to places where people would buy them.

Faster ways of making steel were developed. Clumsy machines of wood and cast iron were discarded as better ones were built of steel.

By the late 1800's power-driven machinery was producing articles of nearly all kinds. Among other things machines were producing machine parts. The parts were assembled by hand. Machinery made in this way was set up in factories newly built in Britain and other countries.

Certain advantages helped Britain win an early lead in the world's industrial revolution: Large numbers of British craftsmen had the skills for building machines--and many were able to invent machinery. Britain, unlike most countries on the European continent, was not being continually laid waste by war. The British mined both coal and iron. As a great trading nation, Britain had fleets of merchant vessels to bring in raw materials and carry manufactured goods to customers abroad.

The United States was not far behind Britain, however. Our country was rich in coal, petroleum, iron, copper, wood, and many other resources. It had a large population, one that could buy billions of dollars' worth of manufactured goods every year. Goods flowed freely across state boundaries. The flow wasn't checked by the taxes called duties that merchants were required to pay at the many national boundaries of Europe and Latin America. About 1900 the United States pulled ahead of Britain and became the world's greatest manufacturing nation.

Latest Stage--Automation

The industrial revolution is still going on. It is still transforming the world. Its latest stage is called automation. This word was unknown when your parents were your age. It comes from an ancient Greek word meaning "self-acting."

Automated factories have machines that run without guidance by workers' hands. These machines either run themselves or are guided by other machines. But this is not all that automation does. Some machines can solve mathematical problems much faster and more accurately than people can. Other machines keep records.

Notice what all this means. The first stage of the industrial revolution freed man's muscles from heavy work so that better use could be made of them. Automation, the latest stage, has freed men's brains from tasks that machines can do just as well--or even better and faster.

Yes, the industrial revolution is continuing. It is changing industry in the United States and many other countries. Not everyone is happy about all the changes it brings. As automation enables factories to produce more goods with fewer workers, there are fewer jobs than there would be otherwise.

But in Latin America the complaint is not that the industrial revolution has gone too far. The complaint there is that it has not gone far enough. Most Latin American countries want more manufacturing. The present chapter tells why. It also tells what the industrial revolution has done--and has failed to do--in the countries south of us.

GROUP INFORMAL READING INVENTORY

Grade 6

D. C. Heath
Grade 6
Pages 381 to 385

- (V) 1. What does the word, centennial, mean in the sentence, "The first big world's fair held in the United States was the Centennial Exposition of 1876."?
- (F) 2. During the time of the Romans and for a thousand years afterwards, manufactured goods were made by hand. What kind of power is used to manufacture goods by hand?
- (V) 3. What words are used to describe the change that takes place when a country begins using power driven machines to produce manufactured goods?
- (F) 4. What is the most important source of power today for all kinds of factory machines in the United States?
- (F) 5. Before the invention of steam powered machines, people used wind and water to provide power for their machines. What did they have to build to use wind for power?
What did they have to build to use water for power?
- (F) 6. Steam power was also used to move goods from one place to another. Name two kinds of transportation that used steam for power.
(1) _____ (2) _____
- (I) 7. The cloth industry has always been a leading industry in England. Why has there always been a big demand for cloth?
- (V) 8. The latest development in the industrial revolution is called automation. How is an automated factory different from other factories?
- (I) 9. An automated factory needs fewer workers. What kind of serious problem is this causing in the United States today?
- (I) 10. Many of the Latin American countries still depend on agriculture or farming for most of their income. Why is it important for the Latin American countries to build more factories and produce more manufactured goods?

Name

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Teacher

APPENDIX G

Readability Calculations for the
Nine Social Studies Textbooks

FRY READABILITY GRAPH CALCULATIONS*

Publisher designated grade level 4

Title Preston, Ralph C., Caroline Emerson, Penn Elizabeth, and Arthur F. Schrader. 1966. Four lands, four peoples. Boston, D. C. Heath. 375 p.

Equal One-tenth Sections of Text*	Random Digits	Page Sampled	No. of Sentences	No. of Syllables	Readability \pm One Year
1-36	17	18	8.9	144	7
37-73	6	43	7.9	138	6
74-110	3	77	13.0	119	2
111-147	2	113	8.3	138	6
148-184	22	170	7.3	126	5
185-221	30	215	11.6	127	3
222-258	3	225	8.3	146	7
259-295	30	289	8.6	142	6
296-332	16	312	9.8	124	3
333-360	6	339	8.0	132	5
*Exclusive of the reference sections.		TOTALS	91.7	1336	

$\frac{\text{Number of Sentences}}{\text{Samples}} = \frac{91.7}{10} = 9.2$, average sentence length.

$\frac{\text{Number of Syllables}}{\text{Samples}} = \frac{1336}{10} = 134$, average number of syllables.

Range of readability levels of samples within the textbook is grade levels two through seven.

READABILITY LEVEL, Fry Graph (Knapp, 1971) 5 \pm one year.

*Knapp, Margaret (ed.). Detailed directions for the Fry Readability Graph. Highland Park, New Jersey, Dreier Educational Systems, 1971. 23 p.

FRY READABILITY GRAPH CALCULATIONS*

Publisher designated grade level 4

Title Cooper, Kenneth S., Clarence W. Sorensen, and
Lewis Paul Todd. 1967. Learning to look at our
world. Morristown, New Jersey, Silver Burdett.
326 p.

Equal One- tenth Sections of Text*	Random Digits	Page Sampled	No. of Sentences	No. of Syllables	Readability ± One Year
1-30	11	12	8.6	126	4
31-61	24	55	6.4	145	8
62-92	9	71	6.3	138	7
93-123	26	119	6.9	121	5
124-154	18	142	8.1	122	4
155-185	5	160	8.9	129	4
186-216	7	193	9.0	130	5
217-247	22	239	8.4	146	7
248-278	25	273	10.3	128	3
279-301	13	292	10.0	139	5
*Exclusive of the reference sections.		TOTALS	82.9	1324	

$\frac{\text{Number of Sentences}}{\text{Samples}} = \frac{82.9}{10} = \underline{8.3}$, average sentence length.

$\frac{\text{Number of Syllables}}{\text{Samples}} = \frac{1324}{10} = \underline{132}$, average number of syllables.

Range of readability levels of samples within the textbook is grade levels three through eight.

READABILITY LEVEL, Fry Graph (Knapp, 1971) 5 ± one year.

*Knapp, Margaret (ed.). Detailed directions for the Fry Readability Graph. Highland Park, New Jersey, Dreier Educational Systems, 1971. 23 p.

FRY READABILITY GRAPH CALCULATIONS*

Publisher designated grade level 4

Title Samford, Clarence, Edith McCall, and Floyd
Cunningham. 1967. You and regions near and
far. Chicago, Benefic Press. 289 p.

Equal One- tenth Sections of Text*	Random Digits	Page Sampled	No. of Sentences	No. of Syllables	Readability ± One Year
1-27	9	10	8.4	141	6
28-55	2	30	6.9	129	6
56-83	10	57	4.8	136	8
84-111	23	107	6.8	152	8
112-139	3	115	12.0	143	5
140-167	22	162	7.8	140	6
168-195	24	192	7.8	124	4
196-223	10	206	6.3	140	7
224-251	8	232	9.5	140	6
252-279	5	257	6.9	127	6
*Exclusive of the reference sections.		TOTALS	77.2	1372	

$\frac{\text{Number of Sentences}}{\text{Samples}} = \frac{77.2}{10} = \underline{7.7}$, average sentence length.

$\frac{\text{Number of Syllables}}{\text{Samples}} = \frac{1372}{10} = \underline{137}$, average number of syllables.

Range of readability levels of samples within the textbook is grade
levels four through eight.

READABILITY LEVEL, Fry Graph (Knapp, 1971) 6 [±] one year.

*Knapp, Margaret (ed.). Detailed directions for the Fry Readability
Graph. Highland Park, New Jersey, Dreier Educational Systems, 1971.
23 p.

FRY READABILITY GRAPH CALCULATIONS*

Publisher designated grade level 5

Title Preston, Ralph C. and John Tottle. 1965.
In these United States and Canada. Boston,
D. C. Heath. 562 p.

Equal One-tenth Sections of Text*	Random Digits	Page Sampled	No. of Sentences	No. of Syllables	Readability \pm One Year
1-55	4	5	7.6	127	5
56-111	27	83	7.9	131	5
112-167	14	126	7.4	143	7
168-223	18	186	8.6	148	7
224-279	23	247	7.7	156	9
280-335	33	313	6.0	143	8
336-391	28	364	8.4	136	6
392-447	33	425	8.4	141	6
448-503	19	467	11.0	155	7
504-550	3	507	9.1	153	8
*Exclusive of the reference sections.		TOTALS	82.1	1433	

$$\frac{\text{Number of Sentences}}{\text{Samples}} = \frac{82.1}{10} = \underline{8.2}, \text{ average sentence length.}$$

$$\frac{\text{Number of Syllables}}{\text{Samples}} = \frac{1433}{10} = \underline{143}, \text{ average number of syllables.}$$

Range of readability levels of samples within the textbook is grade levels five through nine.

READABILITY LEVEL, Fry Graph (Knapp, 1971) 7 \pm one year.

*Knapp, Margaret (ed.). Detailed directions for the Fry Readability Graph. Highland Park, New Jersey, Dreier Educational Systems, 1971. 23 p.

FRY READABILITY GRAPH CALCULATIONS*

Publisher designated grade level 5

Title Cooper, Kenneth S., Clarence W. Sorensen,
and Lewis Paul Todd. 1967. The changing
new world, United States and Canada. Morris-
town, New Jersey, Silver Burdett. 422 p.

Equal One- tenth Sections of Text*	Random Digits	Page Sampled	No. of Sentences	No. of Syllables	Readability ± One Year
1-39	00	1	6.8	137	7
40-79	32	72	8.8	146	7
80-119	14	94	6.7	171	C
120-159	26	146	8.3	154	8
160-199	16	176	7.8	165	10
200-239	34	234	8.1	135	6
240-279	18	258	5.2	135	7
280-319	13	293	7.3	154	8
320-359	24	344	8.0	169	11
360-393	21	381	7.2	168	11
*Exclusive of the reference sections.		TOTALS	74.2	1534	

$\frac{\text{Number of Sentences}}{\text{Samples}} = \frac{74.2}{10} = 7.4$, average sentence length.

$\frac{\text{Number of Syllables}}{\text{Samples}} = \frac{1534}{10} = 153$, average number of syllables.

Range of readability levels of samples within the textbook is grade
levels six through college.

READABILITY LEVEL, Fry Graph (Knapp, 1971) 8 [±] one year.

*Knapp, Margaret (ed.). Detailed directions for the Fry Readability
Graph. Highland Park, New Jersey, Dreier Educational Systems, 1971.
23 p.

FRY READABILITY GRAPH CALCULATIONS*

Publisher designated grade level 5

Title Samford, Clarence, Edith McCall, and Floyd F. Cunningham. 1964. You and the United States. Chicago, Benefic Press. 385 p.

Equal One-tenth Sections of Text*	Random Digits	Page Sampled	No. of Sentences	No. of Syllables	Readability \pm One Year
1-37	31	32	6.8	135	6
38-75	29	67	7.1	151	8
76-113	2	78	6.7	157	10
114-151	17	131	5.9	153	9
152-189	31	183	5.3	156	10
190-227	15	205	5.2	139	8
228-265	6	234	5.4	141	8
266-303	4	270	7.1	143	7
304-341	9	313	6.1	140	7
342-377	8	350	5.8	152	9
*Exclusive of the reference sections.		TOTALS	61.4	1467	

$$\frac{\text{Number of Sentences}}{\text{Samples}} = \frac{61.4}{10} = \underline{6.1}, \text{ average sentence length.}$$

$$\frac{\text{Number of Syllables}}{\text{Samples}} = \frac{1467}{10} = \underline{147}, \text{ average number of syllables.}$$

Range of readability levels of samples within the textbook is grade levels six through ten.

READABILITY LEVEL, Fry Graph (Knapp, 1971) 8 \pm one year.

*Knapp, Margaret (ed.). Detailed directions for the Fry Readability Graph. Highland Park, New Jersey, Dreier Educational Systems, 1971. 23 p.

FRY READABILITY GRAPH CALCULATIONS*

Publisher designated grade level 6

Title Preston, Ralph C. and John Tottle. 1967.
In Latin American lands. Boston, D. C.
Heath. 480 p.

Equal One-tenth Sections of Text*	Random Digits	Page Sampled	No. of Sentences	No. of Syllables	Readability \pm One Year
1-46	23	24	5.6	135	7
47-93	40	87	6.5	157	10
94-140	37	131	6.6	166	11
141-187	19	160	7.8	144	7
188-234	31	219	7.6	159	9
235-281	28	263	7.7	153	8
282-328	39	321	7.1	135	6
329-375	10	339	8.9	150	7
376-422	6	382	7.5	180	C
423-463	23	446	8.5	144	7
*Exclusive of the reference sections.		TOTALS	73.8	1523	

$\frac{\text{Number of Sentences}}{\text{Samples}} = \frac{73.8}{10} = 7.4$, average sentence length.

$\frac{\text{Number of Syllables}}{\text{Samples}} = \frac{1523}{10} = 152$, average number of syllables.

Range of readability levels of samples within the textbook is grade levels six through college.

READABILITY LEVEL, Fry Graph (Knapp, 1971) 8 \pm one year.

*Knapp, Margaret (ed.). Detailed directions for the Fry Readability Graph. Highland Park, New Jersey, Dreier Educational Systems, 1971. 23 p.

FRY READABILITY GRAPH CALCULATIONS*

Publisher designated grade level 6

Title Harper, Robert A., Raymond E. Crist, and Clarence W. Sorensen. 1967. Learning about Latin America. Morristown, New Jersey, Silver Burdett. 326 p.

Equal One-tenth Sections of Text*	Random Digits	Page Sampled	No. of Sentences	No. of Syllables	Readability \pm One Year
1-29	21	22	7.5	159	9
30-59	25	55	4.7	147	9
60-89	15	75	7.4	176	C
90-119	7	97	4.3	166	C
120-149	5	125	7.2	166	11
150-179	13	163	8.2	174	C
180-209	17	197	4.7	133	7
210-239	11	221	8.0	159	9
240-269	28	268	6.6	140	7
270-294	13	283	6.0	138	7
*Exclusive of the reference sections.		TOTALS	64.6	1558	

$\frac{\text{Number of Sentences}}{\text{Samples}} = \frac{64.6}{10} = \underline{6.5}$, average sentence length.

$\frac{\text{Number of Syllables}}{\text{Samples}} = \frac{1558}{10} = \underline{156}$, average number of syllables.

Range of readability levels of samples within the textbook is grade levels seven through college.

READABILITY LEVEL, Fry Graph (Knapp, 1971) 9 \pm one year.

*Knapp, Margaret (ed.). Detailed directions for the Fry Readability Graph. Highland Park, New Jersey, Dreier Educational Systems, 1971. 23 p.

FRY READABILITY GRAPH CALCULATIONS*

Publisher designated grade level 6

Title Samford, Clarence, Edith McCall, and Floyd F. Cunningham. 1965. You and the Americas. Chicago, Benefic Press. 288 p.

Equal One-tenth Sections of Text*	Random Digits	Page Sampled	No. of Sentences	No. of Syllables	Readability \pm One Year
1-28	27	28	6.1	146	8
29-57	22	51	5.7	150	9
58-86	3	61	6.0	160	10
87-115	25	112	6.6	163	11
116-144	11	127	5.1	158	11
145-173	12	157	5.3	182	C
174-202	20	194	7.4	180	C
203-231	6	209	6.6	172	C
232-260	5	237	7.4	160	10
261-281	5	266	6.9	152	8
*Exclusive of the reference sections.		TOTALS	63.1	1623	

$\frac{\text{Number of Sentences}}{\text{Samples}} = \frac{63.1}{10} = \underline{6.3}$, average sentence length.

$\frac{\text{Number of Syllables}}{\text{Samples}} = \frac{1623}{10} = \underline{162}$, average number of syllables.

Range of readability levels of samples within the textbook is grade levels eight through college.

READABILITY LEVEL, Fry Graph (Knapp, 1971) 11 \pm one year.

*Knapp, Margaret (ed.). Detailed directions for the Fry Readability Graph. Highland Park, New Jersey, Dreier Educational Systems, 1971. 23 p.