# CRITERIA FOR EVALUATING STRUCTURE IN GEOGRAPHY TEXTBOOKS

by

JOHN GILMAN DAYTON

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ABSTRACT

Supervisor: Professor Edward E. Owen

One of the major problems confronting geography teachers in secondary schools is the selection of textbook materials from the wide range of books available. More specifically teachers require some criteria for selecting textbooks that reflect the nature of the field of geography. The purpose of this study was to derive a set of criteria useful in examining the geographic quality of textbooks, and then to apply these criteria to selected geography textbooks used in grades eight, nine and ten in British Columbia Schools.

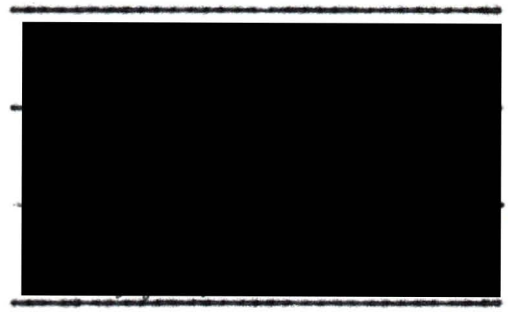
The statements of prominent geographers concerning the nature of geography were analyzed to determine a set of fundamental concepts and a mode of inquiry common to all fields of geographic study. A representative sample of 34 geography textbooks was then selected from 177 principal textbooks in use in Scotland. These were examined to determine the most effective organizations of content, structures of learning activities, and qualities of geographic resource materials. Tentative conclusions regarding these were checked against the principles of geography teaching in widely accepted manuals on geography instruction. From this process a set of criteria for each of three categories was derived: fundamental concepts, learning activities, and resource materials. The criteria of these categories were applied to the three prescribed and to nine randomly selected supplementary textbooks used in grades eight, nine and ten in British Columbia.

The analysis indicated that overall the British Columbia textbooks achieve a fair standard of quality. The prescribed textbooks are of a uniformly higher geographic standard than those supplied as

optional textbooks, and in no case did the prescribed textbooks show weakness in any of the major categories. The selected optional textbooks showed a marked range in quality, thus demonstrating the need for an objective set of criteria for the use of the classroom teacher. Over one-half of them rated as weak or poor in quality while two of them were rated as good.

The conclusions of the study were that the three prescribed textbooks were wisely selected, and that the ratings of the selected optional textbooks indicate that among the optional textbooks there is a sizeable minority of above-average books available to geography teachers. The criteria themselves, deduced from the theoretical structure of the discipline of geography, clearly discriminated the different geographic qualities of the textbooks. This analysis of selected British Columbia textbooks demonstrated the three categories of criteria developed in the study would be useful to the classroom teacher.

Examiners:



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# CHAPTER 1

# INTRODUCTION

## The Problem

The implementation of the present Social Studies Program in British Columbia in 1968 resulted in a change from one textbook for each secondary grade to a wide choice of textbooks. This broadening of choices has meant that social studies departments in schools have been given considerable responsibility in selecting textbooks to meet the needs of their students, and that individual teachers must evaluate the effectiveness of these textbooks in the classroom. The problem is that teachers need to have some criteria for the selection of textbooks based upon the geographic quality of their contents.

A review of the literature revealed that, while a number of generalized and specific studies have been made of geography textbooks, only one of these studies (Jewell, 1964) was concerned with analyzing the degree to which social studies and geography textbooks reflected the fundamental concepts and method of inquiry unique to the discipline of geography. Jewell's study was confined to textbooks used in elementary schools, grades one to six.

## Purpose of the Study

The purpose of the present study is to develop a set of criteria which reflect the nature of the discipline of geography for the evaluation of secondary school geography textbooks, and to apply these criteria to the evaluation of selected textbooks used in grades eight,

nine and ten in British Columbia schools. It is intended that the proposed set of criteria, and the evaluation, should meet particular needs in the field of geographic education:

1. the needs of educators, teachers, administrators, and curriculum committees who require a framework for constructing selection criteria, tailored to the particular needs of geography teaching.
2. the needs of textbook writers and publishers for identifying the types of textbook materials pertinent to sound methods of geography instruction.
3. the needs of textbook reviewers for analysing new titles in geography textbooks.

## Scope and Limitations of the Study

This study will be primarily concerned with the examination of geography textbooks insofar as they reflect the fundamental concepts and method of inquiry representative of the field of geography, and with the degree to which the learning activities and geographic materials in the textbooks facilitate the acquisition of these concepts and this method by the student. It will not be concerned with the content or ideas concerning any particular place, with accuracy or balance of description, with difficulty of reading levels, with auxiliary learning aids such as pupil workbooks, tests and teacher manuals, nor with physical or mechanical aspects such as binding, layout, size of type, page format and quality of paper. While these factors are obviously important in a textbook, and have been examined in a variety of studies such as Smith (1972), Slade and Wilson (1973), Brown and Brown (1969) and Cronbach et al. (1955), they are not germane to the central purpose of this study.

# CHAPTER II

## BACKGROUND OF THEORY AND RESEARCH

### Literature Relevant to the Study

An extensive review of British and North American literature has revealed that within the last four decades, very few significant analytic studies of geography textbooks have been published. The single, most relevant study published in the first half of this century was Halverson's Quantitative Analytic Comparison of Geography Textbooks (1936).

Halverson's study is centered around a table of twenty items developed "to indicate a possible basis for the comparison of texts" (p. 62). The items in the tabulation dealt with "the written word or textual material, . . . the use of pictures, maps, and grafs" (sic), plus "exercise" material included for "emphasis, for review, the guidance of study, and in some cases . . . special techniques valuable to the teacher" (p. 61).

Halverson proposed that textual material is first to be measured quantitatively by the number of column-lines, "not including exercise material", then by counting the "number of relationships expressed definitely in the text" (p. 61), that is "relationships between the 'man-made' and the 'natural' elements in the landscape" (p. 60). Qualitatively the textual material was to be evaluated simply by ranking the several textbooks under consideration. Although the author acknowledged more than once that the "evaluation of quality is difficult" (p. 63), at no place in the study was it suggested by what criteria the quality

of the textual material was to be evaluated and ranked.

Pictures, maps, and graphs were similarly evaluated in terms of the numbers of each appearing in a unit (but "not classed by quality"), plus the number of times they were referred to in the textbook material (p. 62).

The "supplementary exercises and explanatory materials" were to be measured in terms of the number of column-lines devoted to them and by the largely subjective judgement of the examiner as to whether or not they emphasized "the use of maps, . . . special problems, . . . notebook work, (and) . . . the outstanding facts and relationships." Finally, the examiner was to decide "Does the unit promote and require that students working thru (sic) it do geographic thinking" (p. 62).

Judging from the preponderance of qualitative judgement called for (over half of the twenty items on the table), and the paucity of specific criteria provided, it would appear that Halverson's proposal for the evaluation of geography textbooks is probably mistitled. It is neither truly "quantitative" nor rigorously "analytic"; nor could it be, given the nature of the materials under investigation, and the apparent absence of theory underlying the analysis.

To understand the confidence with which such studies were titled "quantitative analytic" it is necessary to understand the nature of educational research in the early part of this century. In reviewing the "so-called scientific movement" in textbook analysis, McMurray and Cronbach (1955, p. 14) pointed out that in this earlier period

> . . . "measurement" was king. The textbook was judged by a score card not unlike the card used in selecting a prize cow. Certain characteristics of the text were singled out for inspection, scoring weights were assigned on each characteristic, and the summary score was used to decide whether the text should be adopted.

A long series of studies made under the influence of Bagley and Thorndike culminated in 1931 in the most comprehensive volume yet published on all that was then known about the textbook, The Textbook in American Education, the thirtieth yearbook of the National Society for the Study of Education. The eighteen chapters reflect the concerns of that era; with items like typography, cost, and marketing each rating a chapter, while only one chapter was devoted to the relationship between the textbook and the method of teaching. The investigation was preoccupied not with philosophic considerations surrounding the nature of textbooks and learning, but rather with matters such as the proposed change from one sequence of geographic topics to another, or the ratio of textual material to illustration.

Halverson's quantitative analysis of geography textbooks seems to illustrate the faith of this era in the validity of quantitative measurement. Indeed, in the concluding statement Halverson asserted (p. 67):

> In any analysis it seems desirable that items capable of quantitative measurement should be so measured, since judgements based upon such concrete data should be much more convincing than unsupported expressions of opinion.

The most significant proposal for the organized investigation of textbooks since the N.S.S.E. yearbook of 1931 was the Text Materials in Modern Education study by Cronbach et al., published in 1955. This was a co-operative attempt by the staff members of the College of Education of the University of Illinois to establish "a comprehensive theory and platform for research". Cronbach's opening statement that the textbook is at "the center of the present day educational scene in America" is still pertinent. And in spite of extensive research in other media it still holds that "there has been an almost total absence of similar

research on the more ubiquitous textbook, even though the textbook is a source of dissatisfaction and a subject of controversy" (p. 4).

Cronbach further maintained that "in research as in all other pursuits, some styles are more popular than others, and it has certainly been unfashionable during the last twenty years to take text materials seriously" (p. 4).

A review of the literature following the Text Materials in Modern Education study reveals that a number of studies were made on the use of generalized selection criteria and the use of point scales for the evaluation of textbooks, such as McNeill and Wilkinson (1956), Anderson (1957), King (1958), Miller and Berry (1962), and Sternig (1966). A few studies involved the evaluation of social studies textbooks: Fraser (1955), Brown and Brown (1961 and 1969), Arnsdorf (1963), Shaver (1965), and Chabe (1966). Since none of these was concerned with geographic content they were not directly relevant to this study.

Two recent studies in specific fields of social science are noteworthy. In 1963 the Textbook Study Committee, a committee of thirteen economists of the American Economic Association analyzed and evaluated the economic content of the principal textbooks used in three courses in the high school social studies field. Using six criteria the committee reached the conclusion that (pp. x - xi, emphasis added)

> Perhaps the most alarming characteristic of textbooks in all three courses is the dominance of description over analysis in the treatment of those economic topics selected for discussion.... The real offense against understanding committed by these books, however, is that the endless cataloguing of facts is regarded as an end in itself . . . in short, (the student) knows trivial institutional detail but little of its significance for the structure and functioning of the economic system.

It was at the level of methodology that the committee was most critical

of these texts, noting "the absence of any consistent and effective use of economic analysis" (p. 11).

Smith (1967) made a somewhat similar study of social studies textbooks for their treatment of the modes of enquiry and key concepts used in the discipline of political science.

Only three studies were specifically concerned with the analysis of geography textbooks. Zobel's (1961) study focused upon the role of geography textbooks in the United States in relationship to class instruction from 1918 to 1941. It dealt only summarily with the contents of geography books, stating whether they were physical, economic, general or world regional in emphasis.

In an analysis of thirty-six geography and social studies textbooks for grades one to six, Jewell (1964) considered three criteria important in a geography textbook (as cited in Rice, 1965, p. 132):

> . . . the extent to which geographic concepts are made explicit by definition, generalization, and supporting descriptive data; the specificity with which the author integrates the phenomena into a consistent analytic and interpretive pattern reflecting a particular geographic point of view; and the extent to which geographic skills are progressively developed as a basis for further analysis and synthesis.

Jewell's conclusions, as reported by Rice (pp. 131-4), were that the organization of both the elementary school geography and social studies textbooks did not facilitate the teaching of geographic knowledge as a science. He called for improvement in both types if they were to transmit geographic concepts and skills.

Jewell found that geographic concepts used in selecting illustrative material were not made explicit. Both geography and social studies books tended to be encyclopaedic in their treatment, stressing the transmission of discrete facts rather than the use of details to develop

geographic concepts applying to a particular area. His analysis of the organization and methods in these textbooks indicated that the principles of a social studies emphasis and organization had so influenced the geography books that distinctions between geography and social studies textbooks were more apparent than real. Both types of textbooks, but particularly the social studies books, posed problems for the pupil to solve but did not provide him with sufficient data to do so.

According to Jewell only one of the geographic skills was found to be adequately developed, that of map location. Since the locational practices were not used to indicate relationships, however, they simply reinforced the encyclopaedic, discrete nature of the textbooks. The integration of map usage with the textual exposition of the books was insufficient so that the maps, like most of the illustrations, were more often used simply to relieve the monotony of the text.

In summary, the review of relevant literature indicates that there have been few studies made of geography textbooks and, while one of these (Jewell, 1964) was specifically concerned with analyzing their geographic structure, it was confined to textbooks used in elementary schools.

## Theory Underlying the Study

A theory of education was enunciated in 1960 by Jerome Bruner in his exposition on the "structure" of the disciplines as the organizing principle around which a curriculum should be designed (Bruner, 1960, pp. 23-6). In defining the structure of a discipline Bruner included both the fundamental concepts and the method of inquiry characteristic of that discipline (Bruner, 1960, pp. 6-8, 20-1).

In the ensuing decade serious study and discussion have centered

on defining and evaluating the usefulness of the "structure of the disciplines" as a basis for developing curricula (Tanner, 1966, pp. 362-72, surveyed a number of significant studies on this topic). Ford and Pugno defined the concept of structure as referring to (1964, pp. 2-3)

> . . . the parts of an object and the ways they are interrelated. . . . The structure of a curriculum would be the various subjects and educational activities and their vertical and horizontal arrangement. . . . Also, the total curriculum of the school is part of a more inclusive structure--perhaps the structure of knowledge--and it in turn is composed of structures generally labelled subjects (themselves amenable to analysis into additional structures).

The proponents of this theory have not usually claimed that the analysis of the structure of the various fields of knowledge is, in itself, a completely adequate method for developing curricula. Rather, as Tyler has pointed out, from "the standpoint of the curriculum, the disciplines should be viewed primarily as a source that can be drawn upon for the education of students" (as quoted in Ford and Pugno, p. 4). Each of the disciplines may be understood as an historically refined viewpoint through which we may understand some portion of reality. While the needs of students and society, and theories of teaching and learning are also important factors in curriculum development, the structures of the various disciplines remain an important framework for bringing students to some understanding and mastery of their world.

To determine the nature of that framework posses difficulties. Joseph Schwab defined three fundamental but related problems. First is "the problem of identifying the significantly different disciplines, and of locating their relations to one another (Schwab, 1964, p. 11). As he stated:

> . . . to identify the disciplines that constitute contem-

> porary knowledge and mastery of the world, is to identify the subject matter of education, the material that constitutes both its resources and its obligations.

It would seem imperative, therefore, that the subjects presented in school should genuinely reflect the underlying structure of the disciplines they represent.

Having identified the different disciplines, the second problem posed by Schwab (1964, pp. 12-3) is to identify the "conceptual structures" of the various disciplines "and understand the powers and limits of the enquiries that take place under their guidance". To Schwab this constitutes the problem of understanding the "substantive structure" of each discipline. To know the degree of complexity of the conceptual structures of a body of knowledge is to know the degree of difficulty that will be met in imparting that body of knowledge.

Schwab added an important dimension to the theory of the "structuralists" by emphasizing that the substantive or conceptual structure of each discipline contains an inherent revisionary character, in that knowledge developing from the use of a particular concept reveals further complexities, requiring still newer and more complex substantive structures. This characteristic of knowledge makes it imperative that we develop in the student an understanding of the changing nature and limitations of conceptual structures (Schwab, 1964, pp. 13-4, 28-30).

The third problem of the structure of the disciplines presented by Schwab was "the problem of determining for each discipline . . . the route or pathway by which the discipline moves from its raw data . . . to its conclusion" (1964, p. 14). This problem was designated as the problem of the "syntactical structure" of a discipline, and its value derives from its instruction of students in the soundness or dependa-

bility of the body of knowledge represented. By the "syntax" of a discipline Schwab meant "the pattern of its procedure, its method, how it goes about using its conceptions to attain its goals" (1962, p. 203).

Schwab's theory of teaching for the structure of the disciplines in terms of their "substance" and "syntax" further clarified and elaborated Bruner's earlier definition of structure as including both the fundamental concepts and method of inquiry characteristic of a subject.

In summary, it is apparent that if geography textbooks are to reflect the nature of the discipline they should be written so as to transmit to students the geographer's fundamental concepts and mode of inquiry.

# CHAPTER III

## PROCEDURES FOR THE STUDY

The focus for the present study of geography textbooks was threefold:

1. How clearly does the textbook's organization of content reflect the conceptual structure of the discipline of geography?
2. How effectively do the learning activities transmit the geographer's method of inquiry to the student?
3. How effectively do the geographic resource materials facilitate the learning of the structure by the student?

From these questions an attempt was made to derive a set of criteria useful for the analysis of geography textbooks. This set of criteria was developed by the following procedures:

Analysis of significant statements on geography: A review of the relevant literature was made to identify significant statements made by prominent scholars on the nature of geography. These statements were analysed to discover a set of fundamental concepts and a mode of inquiry common to all fields of geographic study.

Selecting the textbooks for analysis: Geography teaching and textbook writing in North America suffered from the fusion movement in the social studies from 1930 to World War II (Mayo, 1965, pp. 37-8, 49-93, and Rice, 1965, pp. 126-34). While changes now in progress represent a return to the traditional status of geography in some North American schools the text materials produced thus far hardly constituted a sufficient range

of materials for the development of criteria for the present study.

For that reason the textbooks selected for analysis were drawn from those recently in use in Britain where geography has been considered a major field of study in the school system since the turn of the century. In a review of the history of teaching geography in Britain the Incorporated Association of Assistant Masters in Secondary Schools has explained this continued growth of school geography in terms of the frequent revision of geography syllabuses, the interest show by Geographical Societies, and the teachings of eminent scholars (1967, pp. 1-12).

The popularity of geography in Britain is attested by the number of candidates in English secondary schools who sat for the ordinary level of the general certification of education. In 1959 geography ranked fifth (Macdonald, 1961, p. 310) and by 1962 it ranked fourth in number of students writing, being exceeded only by English, French and mathematics (Scarfe and Tomkins, 1969, p. 132).

Geography education in British schools is usually based upon a careful sequence of studies organized around one of three common types of syllabus: the "regional", the "systematic", or the "concentric" (Graves, 1971, p. 61). Consequently, textbooks have been published in graded series to fit the continuing programmes. This long continued development of geography teaching in Britain has provided a considerable variety and range of textbooks useful for analysis in the present study.

A sample of geography textbooks was selected from the results of a questionnaire prepared by Owen (1972) and distributed in 1967-8 to every secondary school in Scotland. The response from Principal Teachers of Geography in the schools surveyed was 79.4%. The study by Owen was a comprehensive survey of secondary school geography teaching throughout

a school system, and it was the only study available in which teachers identified the principal geography textbooks in use. For the present study a representative sample of thirty-four books was drawn from the total population of 177 principal textbook titles reported in use in Scotland (Owen, 1972, pp. 365-9).

Analysis of the textbooks: An examination was made of the selected textbooks to determine the various organizations of content, the different structures of learning experiences, and the qualities of geographic resource materials which most effectively transmit the fundamental concepts and the mode of inquiry of geography.

Derivation of a set of criteria: Tentative conclusions regarding the most effective types of content organization, learning structure, and resource materials were checked against the principles of geography teaching advocated in widely accepted manuals on geography instruction. From this process a set of criteria for each of three categories was derived.

Selecting textbooks used in British Columbia schools for evaluation: The catalogue of Prescribed Textbooks: 1973-74 lists geography books for British Columbia secondary schools under two categories: "A Issue", which are supplied for each student in each class and could be considered as 'prescribed', and "B Issue", which are available in sets up to 50% of the total grade or course enrolment and could be called 'optional'.

Since some 90 geography titles (excluding atlases) are listed under A and B issues for all secondary grades, from eight to twelve, it was necessary to limit the evaluation to a manageable proportion of the

books, namely, those used in grades eight to ten. All three grade eight, nine, and ten A Issue textbooks were selected since they may be considered as 'prescribed'. Using a process of stratified random selection (Snedecor, 1962, pp. 10-13) approximately one-third of the B Issue geography books were also chosen from each of the three grade levels. Where an issue consisted of several titles from a series, each with the same apparent organization and style, the sample was then selected at random within that issue and counted as one title.

In all, 12 textbooks were analyzed and evaluated from a total number of 57. However, as many of the titles selected are one of a series listed in the catalogue of British Columbia textbooks, the number of books covered in the evaluation represents 36.3% of the titles.

Evaluation of the textbooks used in British Columbia secondary schools:

The evaluation necessarily required qualitative judgements since the interaction of textual exposition, student activities, and resource materials in the presentation of concepts often made line counts or other such quantitative methods inapplicable.

The rating scales devised for each set of criteria were similar to those used by Smith (1972) with five points awarded for "good", two points for "fair" and no points for "poor". Since the three categories used in the evaluation contained different numbers of criteria, the total score for each category was calculated as a percentage of the maximum possible score for that category. A rating was then given for the category according to the following scale:

Good: 70 - 100%

Fair: 55 - 69%

Weak: 30 - 54%

Poor: 0 - 29%

Each textbook was evaluated under the categories listed below:

Category I - Fundamental concepts made explicit: Each book was examined to determine if the following four fundamental concepts were made explicit by textual exposition and by demonstration through student activities.

1. Scale, and shifts in scale.
2. Areal association.
3. Spatial interaction.
4. Regions and regionalizing.

The book was rated for each of the four concepts in the following way:

Good: the concept made explicit both through exposition and through student activities (five points).

Fair: the concept made explicit either through exposition or through student activities (two points).

Poor: the concept made explicit neither through exposition nor through student activities (no points).

Category II - Provision for geographic inquiry: Each textbook was examined to discover if the learning activities met the following criteria:

1. Integration: Student activities are an integral part of the development of a topic.
2. Data: The data required for at least 67% of the student activities are available in the textbook or in a standard student atlas.
3. Processes: Student activities emphasize
   a. observation or description of elements or data
   b. analysis of the data for interrelations

c. generalization or synthesis in which the student is asked to define or delimit the region, or regions, for which the sample data is typical.

The learning activities were evaluated by each of the three criteria and rated as follows:

1. Integration

Good: over two-thirds of the activities integrated with exposition (five points).

Fair: one-third to two-thirds of the activities integrated with exposition (two points).

Poor: less than one-third of the activities integrated with exposition (no points).

2. Data

Good: data available for over two-thirds of the activities (five points).

Fair: data available for one-third to two-thirds of the activities (two points).

Poor: data available for less than one-third of the activities (no points).

3. Processes

Good: all three processes emphasized (five points).

Fair: one or two processes emphasized (two points).

Poor: none of the processes emphasized (no points).

Category III - Geographic quality of resource materials: Each book was examined to evaluate the resource materials by the following criteria:

1. Photographs: All of the photographs were analyzed, according to Halverson's criteria (cited in Moore & Owen, 1966, p. 96) with superior

ratings being given to those books containing a majority of photographs emphasizing areal relationships (types #1, 2 and 3) as opposed to specific features (type #4). Each book was rated by the following scale:

Good: over 50% showing areal relationships.

Fair: 25% to 49% showing areal relationships.

Poor: under 25% showing areal relationships.

2. Maps: The maps were evaluated by the following criteria:

(a) three types are included (location, simple distribution, and quantitative distribution) with over 33% being of the third type.

(b) there are both large-scale and small-scale maps of the same area under study with a minimum of 10% being large-scale maps.

(c) maps are marked by simplicity and clarity, and include the 'cardinals' (title, scale, legend, direction).

(d) maps are consistent in cartographic style and symbolization from map-to-map.

Each book was rated by the following scale:

Good: maps satisfy all four criteria.

Fair: maps satisfy two or three of the four criteria.

Poor: maps satisfy less than two of the four criteria.

3. Graphic materials: Graphic materials (other than photographs) were to meet the following criteria:

(a) there are examples from a minimum of three of five categories of graphic materials: sections or profiles, diagrams and sketches, flow charts,

seasonal work charts and models, statistical tables, and graphs.

(b) they are marked by simplicity and clarity, and include the 'cardinals' (title, scale, index, direction, labelling and annotation - where applicable).

(c) there is consistency of format or style.

Each book was rated by the following scale:

Good: graphics satisfy all three criteria.

Fair: graphics satisfy two of the three criteria.

Poor: graphics satisfy less than two of the three criteria.

4. Printed Extracts: Extracts were evaluated as follows:

(a) there is an average of at least three extracts per 100 pages of text.

(b) they include, at least, two of the three categories: newspapers and periodicals, government publications, and literature.

(c) they employ imagery in presenting the character of places.

(d) they present concepts which are accurate and typical of the region.

Each book was rated by the following scale:

Good: extracts satisfy all four criteria.

Fair: extracts satisfy two or three criteria.

Poor: extracts satisfy less than two of the four criteria.

Establishing consistency in application of the criteria: In order to apply the criteria consistently the investigator selected from the

twelve textbooks four books of apparently different characteristics. This was done by perusing the twelve books and selecting four whose characteristics, on cursory examination, appeared to show marked variation on the rating scales within each of the three categories of criteria. The four books were then evaluated against the criteria in each of the three categories. The remaining textbooks were similarly evaluated and, following evaluation of the twelfth book, the first four were re-evaluated to counter possible variations in the early stages of the analysis.

Overall rating of the textbooks: The ratings for the three categories having been calculated in percentages for each textbook, an overall rating was assigned to each book by calculating the mean of the percentage scores awarded in each of the three categories. A mean rating was similarly calculated for both "A Issue" and "B Issue" textbooks, plus on overall rating for the total number of books evaluated (see Table III, p. 88). In all of these ratings, for categories, for textbooks for the "A Issue" and "B Issue" groups, and for the combined groups, the same scale was used:

Good: 70 - 100%

Fair: 55 - 69%

Weak: 30 - 54%

Poor: 0 - 29%

# CHAPTER IV

# THE DEVELOPMENT OF CRITERIA

## The Nature of Geography

To evaluate the degree to which geography textbooks reflect the structure of geography it was necessary to determine the distinctive viewpoint of the discipline. Any discipline worthy of serious study must have a structure consisting of a set of organizing concepts and a particular method of inquiry. This structure must reflect a philosophically justifiable function within the infinitely complex sum of human knowledge.

The philosophical justification for geography within the field of knowledge was established in the latter part of the Eighteenth Century by the German philosopher Immanuel Kant. The distinctive viewpoint of geography as developed by Kant, and later by Alexander von Humboldt, Alfred Hettner and others, has been thoroughly analysed and stated in the works of Richard Hartshorne (1939, 1959). Other significant statements include those of Whittlesey and James in James and Jones et al. (1954), Ackerman (1958), Wooldridge and East (1961), The National Academy of Sciences: National Research Council (1965), Chorley and Haggett (1965), Cohen et al. (1967), and Minshull (1967, 1970). Inherent in all these statements is the assumption of two fundamental approaches to the study of geography, the "systematic" and the "regional". This has been clearly expressed in a Ministry of Education (U.K.) pamphlet (1960, p. 7):

> Systematic geography may be defined as the study of the

> earth as a globe and the study of the distribution of a single phenomenon, or group of phenomena, over the surface of the earth. Regional geography is the study and interpretation of those phenomena that together form the character of a given region and distinguish it from neighbouring regions.

This duality of approaches does not imply a dichotomy in the structure of the discipline. Geographic study is unified both in its point of view and in its method. The point of view is spatial, it is the study of areal or spatial associations of phenomena on the earth (Taafe, 1967, pp. 55-7), or, in more current phraseology, it may be broadly defined as "spatial systems analysis" (James, 1967, p. 5). The method of geography is the regional method. The regional method is used by the geographer in both systematic and regional studies (Hartshorne, 1959, p. 121).

> All studies in geography analyze the areal variations and connections of phenomena in integration. There is no dichotomy or dualism, but rather a gradational range along a continuum from those which analyze the most elementary complexes in areal variation over the world to those which analyze the most complex integrations in areal variation within small areas.

Berry also emphasized that the "topical approach" (systematic) and the "regional approach" are really two extremes along a continuum, (Berry, 1964, p. 2). At one extreme is the study of one element in its world-wide distribution and at the other extreme is the study of the arrangement of all the elements within a particular region. Every geographic inquiry lies somewhere between, and uses both "analysis of segments of integration" (the topical or systematic approach) and "analysis by sections of area" (the regional approach, Hartshorne, 1959, p. 144).

## Fundamental Concepts as "Substance"

For the purpose of examining the "substance" or substantive struc-

ture reflected in geography textbooks it was necessary to identify the fundamental organizing concepts which characterize such geographic inquiry.

McNee, drawing upon the work of William Pattison and a committee of the National Research Council in 1965, outlined "five research areas or traditions" which have encompassed the work of geographers. Within these traditions he identified four fundamental concepts common to all fields of geographic endeavor:

1. Scale, and shifts in scale
2. Areal association
3. Spatial interaction
4. Regions and regionalizing

These major concepts hold together the whole system of geographic thinking, they span the five research traditions, and provide an important key to the 'geographer's way' (McNee, 1967, p. 58).

McNee's four major concepts were selected for the present study because they appear to represent the concepts most commonly proposed in studies of the conceptual framework of geography. (Steinhauser, 1967, and Warman, 1966, summarized a number of such studies). These concepts form the framework of Greco's model of "Fundamental Ideas of Geography": whereby phenomena (physical, biotic or societal) occuring in space and time as perceived at first- or second-hand (through fieldwork, maps, expository reports, photographs or statistics), constitute geographic facts which, on a certain scale, constitute geographic distributions which, on a certain scale via areal association (constituting formal regions of accordant features) or via spatial interaction (constituting functional regions tied together by patterns of circulation), help to

explain areal differentiation (Greco, as presented in Morrissett, 1967, p. 35).

An understanding of the first concept, scale, and the significance of shifts in scale, is fundamental to the study of geography. In describing the character of regional geography Hartshorne concluded that (1939, p. 454):

> . . . in addition to general reconnaissance studies and detailed systematic studies covering large areas, accurate generalizations for larger regions require an examination of the total fundamental complex of interrelated features that can be examined in detail, only in the small area.

It is important, therefore, that the student be aware of the significance of scale to a study. Bird has demonstrated that (1956, p. 26)

> . . . generalizations, justified on a small-scale over a large area, may not always be proved upon large-scale examination of a smaller area; and . . . that important details of a large-scale study may become irrelevant when a small-scale resume is required.

The second concept, areal association, refers to the identification of the world's human and physical features that are causally related, resulting in the different character of places and regions. The investigation of such accordant features, sharing the same space, is essential to the establishment of formal regions. An example of such an association is the "Corn Belt" farm of the Northern Interior of the United States, an element-complex consisting of a type of landholding, fields, barns, machine cultivation, and a particular crop and livestock combination (Hartshorne, 1959, p. 125).

The third concept, spatial interaction, is the interrelationship between elements or element-complexes in horizontal integration between different places or regions (Hartshorne, 1959, p. 19). All the places on the earth's surface are interconnected by various functional rela-

tionships. The movement of air masses, rivers, ocean currents, glaciers, animals, birds and men all represent patterns of circulation which move phenomena from place to place. The study of such patterns in interrelation constitutes the study of functional regions.

The final concept, regions and regionalizing, represents the end purpose of geographic study since it is the concept through which the geographer organizes his knowledge of the world (Hartshorne, 1959, p. 164). The term "region" is used by geographers for several different concepts (Hartshorne, 1959, p. 142).

> The concept of an area homogenous in particular categories, the formal region, and the concept of an area coherently organized in particular ways, the functional region, are concepts of partial integration - the topical approach. For the concept of a unit of areal division in regional study, we use the word "region" in essentially its original and common meaning.

In actual studies the geographer alternates between the topical or systematic approach and the regional approach. In both he uses the regional method, in that he divides the total area being studied into sections having the highest degree of unity (Hartshorne, 1959, p. 144).

The selected textbooks were examined to discover the degree to which each of these four concepts, scale, areal association, spatial interaction, and regions, was made explicit by definition, by examples, and by demonstration through student activities.

## Learning Activities as "Syntax"

Germane to the curriculum theory of teaching for structure is the idea that learning should focus upon the structure of disciplines rather than upon their content per se. In Schwab's view, the objective of teaching any discipline, including geography, should be to facilitate the discovery by the student of not only the fundamental concepts (substance)

but also the method of inquiry (syntax) around which that discipline is organized (Schwab, 1962, p. 199-205).

According to Bruner (1965, p. 1013):

> There is nothing more central to a discipline than its way of thinking. There is nothing more important in its teaching than to provide the child the earliest opportunity to learn that way of thinking. . . . If you have an eventual pedagogical objective in mind you can translate the way of thought of a discipline in its Piagetian (or other) equivalent appropriate to a given level of development and take the child onward from there.

From the viewpoint of teaching for structure, intellectual activity at the expanding frontiers of knowledge is of the same quality as intellectual activity in the classroom. To paraphrase Bruner: The schoolboy learning geography is a geographer, and it is easier for him to learn geography behaving like a geographer than doing something else. For Bruner (1960, p. 14, emphasis added)

> The "something else" usually involves the task of mastering . . . a "middle language"--classroom discussions and textbooks that talk about the conclusions of a field of intellectual inquiry rather than centering on the inquiry itself.

A textbook which presents only conclusions can inhibit the learning of the structure of a discipline by robbing a student of the excitement of discovery. There should be much less emphasis upon telling in the form of textual exposition and much more emphasis upon doing. According to Piaget (as quoted in Silberman, 1971, p. 218):

> Teaching means creating situations where structures can be discovered; it does not mean transmitting structures which may be assimilated at nothing other than the verbal level.

Because some advocates of the "self-discovery" method have proceeded on the assumption that it is the only technique for achieving learning, considerable opposition has arisen from those who plead for

"meaningful verbal learning" (Ausubel, 1963). The position taken in the present study is that of Kohnstamm, who maintained that "it is important for all of us to find a balance between these extreme views. For it is simply not true that children ought to discover all insights by experience" (as quoted in Sullivan, 1967, p. 32). On the basis of his experiments on teaching Piagetian thought operations Kohnstamm proposed that learning take the form of both guided discovery and didactic exposition.

One of the objectives of a geography curriculum then, should be the development of what has been variously referred to as the "discovery", "inquiry", or "inductive" approach to the understanding and mastery of reality. Unfortunately the term "induction" has frequently been glossed over as implying that it stands for some simple, well defined process. As Schwab has pointed out, however, "induction . . . is an honorific word attached by various philosophers to whatever mode of inquiry they favor" (1964, p. 24). The regional method is the geographer's mode of inquiry but it consists of patterns of discovery and verification which become meaningful to the student only from their context within the syntax.

For the purpose of this study each geography textbook was evaluated to determine how effectively its learning activities involved the student in the process of inquiry, in discovering and verifying the four major concepts of scale, areal association, spatial interaction, and regions.

The most effective organizing technique yet developed for exposing the student to the geographer's point of view and method of inquiry is the sample study. The use of sample studies has been described by

Hickman (1950), Honeybone (1962) and Long and Roberson (1966), and most geography teachers are acquainted with the approach. The first of an early series of textbooks to use this approach, Geography for Schools, appeared in 1950 with the publication of Book 1, Britain and Overseas (Honeybone, 1956).

Long and Roberson have defined a sample study as (1966, p. 102)

> . . . a detailed study of a unit, chosen particularly to show human response to environment, and chosen so as to be typical of the region concerned. In the classroom the word 'study' must be taken in its active sense. Geographical details should be presented in a variety of ways so that children may make for themselves conclusions concerning man and the world he lives in.

Moore and Owen have identified two kinds of sample studies which reflect two traditional approaches, namely, regional and systematic geography (1966, pp. 68-70). The first, the regional sample study, is a study of a unit representing the character of the larger region in which it is located. It represents the regional geographer's attempt to discover all significant areal associations which give character to a particular place. The second, the type sample study is a study of a unit representing particular physical or cultural phenomena, and the nature of their distribution. It illustrates the systematic geographer's concern to isolate a phenomenon or groups of phenomena for study of their world wide distribution. Through these approaches the sample study lends itself to the discovery and verification of the four major concepts selected: scale, areal association, spatial interaction, and regions.

Inherent in a regional study carefully organized around a series of characteristic samples is an opportunity for the student to experience shifts in scale as he builds up his concept of the region. The

problems attendant upon reducing selected parts of the world to a scale which can be comprehended have never been completely solved (Haggett, 1967, pp. 164-85). For this reason Bird emphasized the need to steer a course between superfluous detail and unwarranted generalization in order to achieve a "well-balanced" textbook (1956, p. 25).

Whatever the problems of scale linkage, there is little doubt that the sample study approach can provide a structured framework following Greco's model of "Fundamental Ideas of Geography" whereby phenomena studied at a certain scale constitute geographic facts which, via areal association or spatial interaction, help to explain regions (1967, p. 35). The sample study also follows Greco's model in making liberal use of a variety of geographic materials--photographs, maps, graphs and statistics, and descriptive extracts--closely integrated with textual matter. It provides for the student a simulated field study of a small area or site patterned after the inductive processes commonly used by geographers. From the statements of Hartshorne (1959, p. 171) and Long and Roberson (1966, pp. 108-11) these processes have been identified as:

1. Observation or description of elements or data
2. Analysis of the data for interrelations
3. Generalization or synthesis in which the student is asked to define or delimit the region, or regions, for which the data is true.

Analysis of the selected British textbooks seemed to support these conclusions concerning the merits of structuring textbooks around a series of representative sample studies. The most impressive of those examined was the Geography for Schools series edited by Honeybone. In the first of the series, Britain and Overseas (Honeybone and Goss, 1956), the rationale of the approach is explained thus (p. vii, emphasis added):

> The book differs from most textbooks in that Ordnance Survey maps, sketch maps, diagrams, pictures and other forms of geographical data have been included as material which the pupils have to study in order to answer the questions included in the text.

This follows one of the important textbook teaching strategies recommended by those who advocate a textbook with "supporting data of every type likely to be of use in a geography lesson" (Long and Roberson, 1966, p. 92; also UNESCO, 1965, pp. 147-8). In this type of textbook both the data and the exercises are linked to the exposition "as an integral part of the text" (Long and Roberson, 1966, p. 94).

One of the shortcomings of some of these textbooks is that "the whole work of synthesis remains to be done and the textbook does not even give a hint of how to go about it" (UNESCO, 1965, p. 147). One recently published example of this is seen in the Study Geography series (Rushby et al., 1967-8). Each book consists of a number of excellent, but largely disconnected, sample studies. This criticism must be tempered somewhat by the authors' recommendation that "planning the most effective use of the studies with any particular group of pupils lies within the province of the teacher" (Rushby et al., 1967, Stage 4, p. 1). Nevertheless, the Geography for Schools series has demonstrated success in combining "concrete work" using materials with "connected exposition leading up to general conclusions the nature of which follow strictly from the preliminary work" (UNESCO, 1965, p. 148).

From the preceding discussion on the method of inquiry three criteria emerge as important to the learning structure of a textbook:

1. Integration: Student activities are to be an integral part of the development of a topic.

2. Data: The data required for the majority (at least 67%) of the

student activities should be available in the textbook or in a standard student atlas.

3. Processes: Student activities are to emphasize

   a. observation or description of elements or data

   b. analysis of the data for interrelations

   c. generalization or synthesis in which the student is asked to define or delimit the region, or regions, for which the sample data is typical.

## Geographic Resource Materials as Data for Inquiry

The variety and quality of geographic resource materials available in a textbook is one measure of the textbooks' effectiveness in encouraging the student to learn the geographer's method of inquiry. The 'first-hand' or 'primary' material of the geographer is, of course, the surface of the land. Along with direct field observation, however, he makes use of 'second-hand' or 'secondary' materials to supplement his knowledge of the area under study.

The geographer's materials include photographs, maps, various types of graphs and statistics, and verbal descriptions. The integrated study of these materials is advocated by the writers of standard manuals on school geography teaching, such as Garnett (1956), Gopsill (1966), Long and Roberson (1966), Moore and Owen (1966), Thralls (1958), and UNESCO (1965).

### Photographs

Photographs are the simplest and most direct means of bringing the visual landscape into the classroom. Long and Roberson (1966, p. 61), in summarizing the research findings of Honeybone (1950), Long (1953 and

1961), Dilworth (1954), and Lovatt (1955), emphasized that the study of photographs should be an integral part of geography teaching.

Photographs may be roughly categorized into two types: (Moore and Owen, 1966, pp. 92-3) those taken at ground level and those taken from an elevation. While those taken from the ground offer easier recognition of details they suffer from a restriction in range. They are best used in combination with photographs taken from a high vantage point. Two of the most valuable types for the geographer are low obliques, and vertical photographs viewed in stereo pairs. These can provide unselected detail for the student to identify the facts, and sufficient perspective that he can see the generalized patterns of areal association and differentiation (Long, 1966, p. 74).

The criteria for evaluating photographs in this study were based upon Halverson's appraisal of pictures in Geography Via Pictures, 'Do it This Way' series, U.S. National Council for Geographic Education, as presented in Moore and Owen (1966). The following hierarchy of categories was set out in order of theoretical usefulness from highest to lowest (Moore and Owen, 1966, p. 96):

1. Pictures of people performing some activity where the relationship between the activity and some elements in the environment is obvious.

2. Pictures showing strong evidence of human activity in a natural setting.

3. Pictures of either natural landscapes where landforms, vegetation or soils are easily defined, or essentially cultural landscapes, such as settlement pictures, or a combination of both. These are invariably aerial photographs--high obliques or verticals--and careful analysis along with other evidence is usually necessary before relationships and regional characteristics can be established.

4. Pictures of specific features. These are invariably ground pictures or low obliques and show accurate,

> realistic images of a host of things beyond the child's physical experience. . . . Pictures of architectural forms and house types, bridges, river scenes, Dutch dikes, a desert sandstorm, canals, types of transport, peoples' dress and customs, landforms and vegetation are some examples. The value of these 'thing-centred' or specific pictures lies in the visual image they create in the child's mind.

For the purposes of this study Halverson's categories will be summarized as follows:

1. explicit relationships of human activities to the natural environment
2. implicit relationships of human activities to the natural environment
3. indefinite areal relationships of natural and/or cultural landscapes requiring supplementary evidence
4. specific 'thing-centered' photographs.

The first three categories of the hierarchy were rated higher because they present areal relationships more useful for analysis than that of the last category which shows only specific features.

The criterion established for photographs was that over 50% of them should be of the first three types listed above, which show areal relationships.

Maps

Geography has one technique which is common to all geographers: the technique of cartographic presentation. Maps are a visible technique in the work of professional geographers in both the assembly and interpretation of spatial relationships. The observation of Isaiah Bowman (as quoted in Thralls, 1958, p. 20) holds true today:

> Maps embody some of the most distinctive measurements of geography. A map is a locational guide for both earth features and human distributional elements. It is also a means for putting related things together.

Raisz described the cartographic approach of the geographer in the following way (1962, p. 223):

> A paper in regional analysis will usually start with a location map, showing the relation of the region to a larger generally known segment of the world. . . . Next comes a general map of the study area. This should contain all place names mentioned and should be handled as a simplified topographic map reproducible without color. Then come the various special maps . . . using dots, isopleths, choropleths, and diagrams . . .

The "special maps" mentioned by Raisz may be described as quantitative distributional maps and they constitute the types most useful for determining the concepts of areal association and spatial interaction.

For the present study maps will be classified by three types:

1. Location: including simplified topographic type maps.

2. Simple distribution: including chorochromatic maps, often called "color patch" or "tint" or "shade" maps (Monkhouse and Wilkinson, 1971, p. 38), such as land use or geologic maps.

3. Quantitative distribution maps (as described by Monkhouse and Wilkinson, 1971, pp. 25-33, 39): including (a) point-symbol maps, such as quantitative dot, percentage dot, colour dot, and proportional symbol maps, (b) isopleth maps where quantities are indicated by lines of equal value, such as isotherms and isohyets, and (c) choropleth maps which show average values per unit of area over some statistical region, such as population density per square mile and yield per acre of cultivated land.

The criteria established for good textbook maps were the following:

1. all three types of maps should be included, with over 33% of them being of the quantitative distribution type.

2. there should be both large-scale and small-scale maps (using 1:200,000, about three miles to one inch, as an approximate division) with large-scale maps making up at least 10% of the total.
3. the quality of the maps should be marked by simplicity and clarity, and they should include the 'cardinals' or good mapping (a title, scale, legend of symbols, and direction indicator where necessary).
4. there should be consistency of cartographic style and symbolization from map-to-map to facilitate comparisons by the student.

Graphic Materials (Other than photographs)

A perusal of geographic publications reveals a liberal use of a variety of graphic materials (other than photographs). According to standard manuals on cartography such as Monkhouse and Wilkinson (1971, pp. 25-9), these may be categorized as: (a) sections or profiles, (b) diagrams and sketches, (c) flow charts, seasonal work charts, and models, (d) statistical tables, and (e) graphs (line, bar, percentage bar, circle, cube, and pictorgraph).

Sections, diagrams and models permit varying degrees of abstraction and generalization to help the student focus upon certain features or relationships important to a study. Statistics, whether presented in tabular or graphic form, offer the student opportunities to make precise comparisons of differences in distances, areas, volumes and other quantities.

The criteria established for evaluating graphic materials in geography textbooks were the following:

1. there should be a variety of graphic materials with a minimum of three of the five categories described above.
2. they should be marked by simplicity and clarity, and include the

'cardinals' (title, scale, index, direction, labelling and annotation--where applicable).

3. there should be consistency of format or style to facilitate comparisons by the student.

Literary Extracts

The fourth class of materials to be examined in this study was the presentation of literary extracts. From earliest times geographers have depended upon the verbal descriptions of travellers, poets and writers, as well as upon the more precise scientific studies of trained scholars. The growth of the field of geography, as Hettner noted (Hartshorne, 1939, p. 132), resulted from the integration of these two approaches, and what had been simple description was replaced by interpretive description which searches for causal relationships.

Literary descriptions, be they prose, poetry, or song lyrics, add a dimension to the understanding of the character of a place which cannot be gained solely from photographic representation, abstract symbolization or quantitative measurement. In his essays on Human Nature in Geography Wright developed the idea (1966, pp. 6-7)

> . . . that geographical writing and teaching could be made more interesting, inspiring, and generally effective were there at least a few scholars who could and would treat geography as one of the humanities rather than as a natural or socionatural science.

In an essay on "The Imagination in Geography" Wright pointed to the mistaken belief that subjectivity is the antithesis of objectivity (p. 73). In light of the present concern of many geographers to develop 'The Science of Geography' geography teachers might do well to heed his call to retain the "aesthetic imagination in selecting and emphasizing aspects of the region that are distinctive or characteristic" (p. 75).

This quality is exemplified in the substantive work of Spate who pleaded the case "that training as a human geographer fosters a lively eye for significant detail; and more specifically, that a long devotion to Lusian culture" gives the geographer the background important for the analysis of social environments (Spate, 1966, p. 38).

In the end, however, the role of the geographer is not the role of the poet or artist. The geographer's primary concern is for accurate, objective analysis with personal reactions kept to a minimum. Therefore, while printed extracts may be used to initiate interest, their primary purpose is to provide the student with accurate impressions not available from other kinds of resource materials.

A second reason for the inclusion of extracts is to make the student aware of the variety of printed materials used by the geographer. Snow and Hauck's threefold classification of printed materials recommended for student use in Canadian school libraries, represents a variety of resources that could usefully be reflected by extracts in geography textbooks, namely: newspapers and periodicals, government publications, and literature.

Concerning the first category, the authors point out (Snow & Hauck, 1971, p. 47):

> Newspapers and periodicals . . . are appealing to young people because of their ephemeral quality, their modernity, entertainment value and style. . . . The events of the past and present, the personalities of the time, the fashion, flavour, and style of the age are nowhere else better portrayed.

For the purposes of the present study the term periodical shall include printed extracts which in their original form share the characteristics described above. Thus, historical documents such as diaries, journals and letters are included in this first category.

The second category, government publications, includes pamphlets, booklets, manuals and hardcover publications (p. 72) on a great array of topics which could be useful to the geography student. For the purposes of this study this category will be extended to include technical and scientific publications.

The third category, literature, includes fiction, poetry, essays, and plays (pp. 85-93) which provide a variety of means for expressing the character of places. For the purposes of the present study this category will be extended to include biographies and travel stories.

The criteria applied to printed extracts used in geography textbooks were as follows:

1. there should be an average of at least three extracts per 100 pages of text.
2. there should be variety of types with a minimum of two of the three types included: newspapers and periodicals, government publications, and literature.
3. they should employ some imagery in presenting the character of places.
4. they should present concepts which are accurate and typical of the region.

TABLE I

Summary of Evaluation Criteria

Category I: Fundamental Concepts
1. Scale and shifts in scale
2. Areal association
3. Spatial interaction
4. Regions and regionalizing

Category II: Learning Activities
1. Integration of exposition, activities and materials
2. Data availability:
   (a) average at least 1 illustration per page
   (b) data available for over 67% of activities
3. Processes
   (a) observation of data
   (b) analysis of interrelations
   (c) synthesis of regions

Category III: Resource Materials
1. Photographs: over 50% showing areal relationships
2. Maps
   (a) over 33% quantitative distribution type
   (b) over 10% large-scale
   (c) quality ('cardinals' where appropriate)
   (d) consistency of format
3. Graphics
   (a) variety; at least 3 of 5 types (sections, diagrams, models, tables, and graphs)
   (b) quality ('cardinals') where appropriate
   (c) consistency of format
4. Extracts
   (a) over 3 extracts per 100 pages
   (b) variety; at least 2 of 3 types (newspapers and periodicals, government publications, literature)
   (c) aesthetic imagery
   (d) accurate concepts

# CHAPTER V

## ANALYSIS OF THE BRITISH COLUMBIA TEXTBOOKS

Having devised a set of criteria for evaluating the geographic structure of textbooks, it remains to discuss the application of these criteria to the three prescribed and nine optional textbooks selected from those in use in grades eight to ten in British Columbia schools.

A list of the selected textbooks is provided in the first section of the bibliography (p. 91).

### The Analysis

The three categories of criteria--geographic concepts, learning activities, and resource materials--were initially applied to four textbooks selected for their apparent diversity within the range of criteria. The textbooks selected were the following: Carswell et al., Man in the Tropics, Dempster, Rich and Poor Lands, Moore, The World and Man, and Robinson, Resources of the Canadian Shield. The remaining eight books were analyzed and evaluated; then the four original titles were reassessed to achieve greater objectivity in their ratings.

A summary of the criteria used is shown in Table I (p. 39). Table II (p. 41) summarizes the ratings given to each book analyzed, while Table III (p. 88) gives the overall percentage ratings of the books by groups. The tables in the Appendix provide a summary of the criteria by categories (Tables I-IV, pp. 100-3), and the number of items in the books appearing in each category (Tables V-VIII, pp. 104-7).

#### Group A: Prescribed Textbooks

Of the twelve books analyzed three are the prescribed textbooks

issued to students in grades eight to ten. It would seem important, therefore, that these books should be of high quality. They are, in fact, superior to the average caliber of the books analyzed.

TABLE II

Ratings Awarded to Textbooks Analyzed
(See Chapter III, pp. 16-20, for definitions of criteria)

| Group | Grade | BOOK | Concepts | Activities | Materials | OVERALL |
|---|---|---|---|---|---|---|
| A (prescribed) | 8 | Carswell, Man in the tropics | GOOD | GOOD | GOOD | GOOD |
| | 9 | Carswell, Man in the great ... | GOOD | GOOD | FAIR | GOOD |
| | 10 | Tomkins, A regional geog. ... | GOOD | GOOD | GOOD | GOOD |
| B (optional) | 8 | Dempster, Rich and poor ... | POOR | POOR | POOR | POOR |
| | 8 | Moore, The world and man | WEAK | POOR | WEAK | WEAK |
| | 8 | Young, A course in world ... | GOOD | GOOD | GOOD | GOOD |
| | 9 | Grime, Landscapes of the ... | GOOD | GOOD | GOOD | GOOD |
| | 9 | Pounds, Europe with focus ... | WEAK | WEAK | WEAK | WEAK |
| | 9 | Ryckman, Europe and Asia | WEAK | FAIR | WEAK | WEAK |
| | 10 | Devereux, Mapwork with ... | FAIR | GOOD | FAIR | FAIR |
| | 10 | Forrester, Making steel ... | GOOD | FAIR | FAIR | FAIR |
| | 10 | Robinson, Resources of ... | WEAK | POOR | WEAK | POOR |

Carswell, Morrow and Honeybone, Man in the Tropics, 1968 (Grade VIII)

I. CONCEPTS:

1. Scale: On the average the student encounters changes of scale twice in each chapter. A sample study of a peasant farm at Marassena in Ceylon, for example, involves the student in the interpretation of three maps ranging in scale from approximately one inch to 100 miles, one inch to two miles, to one inch to 60 yards (pp. 70-1). Furthermore, the student makes practical use of scale in activities such as the one requiring measurement between the limestone cliffs on a section across the Nile Valley (p. 122).

Rating: Good (five points)

2. Areal Association: This concept is made explicit both through exposition and through the student's own analysis of relationships existing between elements located in the same place. A typical example is the series of activities requiring interpretation and analysis of seven maps of the Indian sub-continent depicting "seasonal winds and rainfall", "main rice growing areas", "relief", "geology", "distribution of wheat and millet", and "distribution of cotton and tea" (pp. 53-60).

Rating: Good (five points)

3. Spatial Interaction: Examples of spatial interaction, while present, are not as well represented as the first two concepts. Where the concept is presented it is more often through exposition than through the student's analysis of the data. Processes of interaction--such as trade, migration, and diffusion and association through interdependence, are often implied but only occasionally made explicit to the student.

Rating: Fair (two points)

4. Regions and Regionalizing: In every regional study the student is called upon to define regions on the basis of data provided. This is often done through a mapping exercise such as the sketch map called for in delimiting a "Forested area in which villages similar to Ilishan (the sample study) are found" (p. 206). The book contains no explanation, however, of formal or functional regions; nor does it assist the student in understanding the process by which regions are defined.

Rating: Fair (two points)

Accumulation for Category I is fourteen our of twenty, or 70%, giving a rating of GOOD.

II. LEARNING ACTIVITIES:

1. Integration: The book displays skilful integration of textual exposition and inductive inquiry. There is repeated referral of the student to the variety of accompanying resource materials, and the exercises interspersed throughout each chapter encourage him to develop a number of practical skills. The first regional study in the book, a study of Southwest Asia (pp. 7-47) is a typical example. The characteristics of the region are developed through brief expository passages combined with the student's observation, analysis, or generalization from various resource materials. The materials in this case include the following: eight aerial oblique and eighteen ground photographs, several location maps from the student's atlas, five simple distribution and three quantitative distribution maps, three sectional diagrams, a block diagram, a sketch, four statistical tables, and six climate graphs.

Rating: Good (five points)

2. Data: The book includes a total of 356 maps, diagrams, photographs,

and extracts, a ratio of exactly one resource material for each of the 356 pages. There are fourteen literary extracts, an average of one per chapter. The student is also frequently referred to a variety of maps found in a standard classroom atlas. Some 87% of the student exercises can be completed from data included in either the book or an atlas.

Rating: Good (five points)

3. Processes: In most cases the student exercises are carefully structured to guide the student through observation and recording of specific elements, to an analysis of their relationships and, thence, by mapping, diagramming, or written report to a generalization concerning places sharing similar characteristics. This is the essence of the geographer's method of inquiry namely, the regional method.

Rating: Good (five points)

Accumulation of points for Category II is fifteen out of fifteen, or 100%. Rating GOOD.

III. MATERIALS:

1. Photographs: Of the 190 photographs the majority (55%) were rated as 'specifics'.

Rating: Fair (two points)

2. Maps: The variety of maps is sufficient but only 13% are of the quantitative distribution type. There is considerable variety in scales with 13% being large-scale maps. The quality and consistency of cartographic style is good.

Rating: Fair (two points)

3. Graphics: All five types are included and are of acceptable quality and consistency.

Rating: Good (five points)

4. Extracts: A wide variety of extracts of considerable interest and value are integrated into the learning activities. The sources of the fourteen extracts include newspapers, periodicals, novels, non-fiction books, and commercial booklets.

Rating: Good (five points)

Accumulation of points for Category III is fourteen out of twenty, or 70%, giving a rating of GOOD.

Average percentage score for the three categories is 80%. Overall rating of the book is GOOD.

Carswell, Wiley, and Honeybone, Man in the Great Community 1969, (Grade IX)

I. CONCEPTS:

1. Scale: Examples of scale are introduced in every chapter. An excellent illustration of the importance of changes in scale is given in the text describing the Chinese village of Kai-Hsien-Kung on the Yangtze Kiang Delta. As the text points out (p. 45) a small-scale map (approximately 1:13,000,000) showing the location of the village gives the impression

> . . . that Kai-Hsien-Kung is a pleasant little village on the shores of Lake Tai. This is only partly true, as Figure 53 shows. The wole area is a maze of canals, lakes, and islands. There is water everywhere and the only means of getting quickly from one village to another is by boat.

The second map referred to, Figure 53, is drawn at a scale of approximately 1:150,000 and shows much greater detail. Student activities requiring the use of scale to estimate such things as the length of a river (p. 116), the area of a region (p. 116), and the distance between two locations (p. 155) are also found in every chapter.

Rating: Good (five points)

2. Areal Association: The relationships that exist between such phenomena as climate, economy and relief (p. 3) are explained in a number of cases. The concept is more skilfully presented through numerous activities in which the student discovers for himself the significant associations that explain the character of a region. In a sample study of a Japanese farm village on Kyushu, for example, through the analysis of a textual description, photographs, maps and a diagram the student learns the geographic factors promoting the cultivation of rice (pp. 14-9).

Rating: Good (five points)

3. Spatial Interaction: The functional relationship between the Ruhr Valley and the port of Rotterdam (p. 122) is one example among a number of textual discussions of spatial interaction. Again, the concept is made even clearer through student exercises. In one such instance (p. 126) the student is instructed to use his atlas to draw a sketch map with arrows to show the routes oil from Southwest Asia and iron ore from Canada and Sweden would follow to get to Rotterdam; plus a dotted arrow to indicate the movement of coal from the Ruhr to Rotterdam.

Rating: Good (five points)

4. Regions and Regionalizing: The characteristics of a functional region are explained in at least three instances in the text. One example is the discussion of Paris as a node dominating the economy of France (pp. 147-54). The nature of formal regions is presented through such studies as the description of a collective farm as typical of agricultural areas in the Ukraine (pp. 81-3). Each regional study concludes with student activities which aid the student in synthesizing important features of the region. The study of China concludes by

directing the student to copy a map of China correlated with a summary chart. For each of the four sub-regions the student is expected to provide an annotated summary of the relief features, climate and weather, crops grown, minerals, and main towns and their functions (p. 58). The final chapter of the book is devoted to student activities requiring the synthesizing or regionalizing of data presented throughout the book.
Rating: Good (five points)

The accumulation of points for Category I is twenty out of twenty, or 100%, giving a rating of GOOD.

II. ACTIVITIES:

1. Integration: Of the books evaluated in this study this book represents one of the best for integration of text, materials and activities. There are seven regional sample studies and four type sample studies, each covering an average of three pages of the text book and typically including three illustrated figures and several student activities. The life and work of the people of an older style Japanese village, Kawaze Buraku (pp. 14-6), is presented as typical of a small Japanese settlement in the southern region of Japan. A study of the Bayer Company plant near Cologne (pp. 117-19) is a type sample pointing out the site, processes, movement of materials, and markets related to the plant's location.
Rating: Good (five points)

2. Data: For both the large-scale sample studies and the small-scale studies of regions there is a good number and variety of resource materials. The 179 illustrated figures and four printed extracts provide an average of 1.1 resource materials per page of text. The data for 93% of the student exercises are found in the book or in a standard

school atlas.

Rating: Good (five points)

3. Processes: The student activities are well structured to develop the procedures commonly used by geographers. An exercise requiring the student to examine a large-scale map of a Japanese village will demonstrate the method (p. 19, my comments are added in parentheses):

> (a) How many households are there in Kawaze Buraku? (observation and recording of elements) (b) If there is an average of eight people per household, what is the population of the village? (analysis of data) (c) What is the main crop in this village? (interpretation from data) (d) What local geographical factors favor its growth? (analysis for causal explanation of areal association)

The process by which students are guided to synthesize and regionalize has been described in the foregoing evaluation of the concept of regions and regionalizing.

Rating: Good (five points)

The accumulation of points for Category II is fifteen out of fifteen, or 100%, giving a rating of GOOD.

III. MATERIALS:

1. Photographs: Only 43% of the 63 photographs were considered to be suitable for the study of geographic relationships.

Rating: Fair (two points)

2. Maps: All three of the major categories of maps are included. The quantitative distribution maps embrace the three sub-types but this category as a whole made up only 14% of the total number of maps. Maps are drawn at a variety of scales and 10% of them are classed as large-scale. With the exception of five maps which should have been provided with scales the 71 maps contained all of the 'cardinals' and were con-

sistent in format.

Rating: Fair (two points)

3. Graphics: All of the five types of graphic materials are included except for the third classification (models, flow charts, and seasonal work charts). Over one-half of the graphic figures are statistical tables and in a number of cases the student is directed to make and interpret his own charts, diagrams, or graphs using the tables for his data. A study of oil production in the U.S.S.R., for example, guides the student in making a map of the oilfields. The student is then asked to draw a column by each field proportionate to the production shown in a table on the previous page, using one-tenth of an inch to represent a half million tons (p. 90).

Rating: Good (five points)

4. Extracts: The four printed extracts represent the three classifications but their total number does not meet the ratio of three extracts per 100 pages of text. The selections present vivid and accurate images of the regions under study.

Rating: Fair (two points)

The accumulation of points for Category III is eleven out of twenty, or 55%, giving a rating of FAIR.

Average percentage score for the three categories is 85%. Overall rating of the book is GOOD.

Tomkins, Hills, and Weir, A Regional Geography of North America, 1967 (Grade X)

I. CONCEPTS:

1. Scale: Scale and the significance of changes in scale to a detailed study are explicitly discussed in Chapter Two, "Geographic Patterns in

North America". Specific examples are given, such as the contrast in areal coverage referred to between a 1:50,000 topographic map of Lunenburg, Nova Scotia and a small-scale map of North America at a scale of approximately one inch to 800 miles (p. 33).

Rating: Good (five points)

2. Areal Associations: This concept is introduced as the "association of things in an area" (p. 33) through the student's analysis of a ground photograph of a dairy farm in the Lower Fraser Valley of British Columbia. It is also illustrated in various other studies and the term is specifically defined in a glossary as the "association between the distribution of two or more phenomena within a specific area" (p. 603).

Rating: Good (five points)

3. Spatial Interaction: This concept is presented in several places including a study of a railway map of North America (pp. 28-9) and in a discussion of the conceptual structure of geography (pp. 30-1). There are a number of explicit illustrations of the concept such as the discussion of the effects of the Cariboo Road in British Columbia (p. 298). The glossary defines the term as the "exchange of goods, services or ideas between places" and explains the causes and results of the phenomenon (p. 611).

Rating: Good (five points)

4. Regions and Regionalizing: The concept of regions is illustrated in the subdivision of British Columbia into formal regions (p. 31) and of Southern Quebec into nodal regions (p. 32). Two of the important ideas concerning regionalizing emphasized in the early pages of the book are the following (p. 32):

> There are many different definitions of region. Each definition has value, according to the purpose of the

> geographer. There are no "true" or "right" regions. There are seldom sharp boundaries between regions, but usually gradual transition zones.

According to the authors, the six general geographical regions they have selected "reflect the physical and economic diversity of Canada" and they emphasize that these "are regions chosen for study purposes" (p. 35). The regional sub-divisions throughout the book give considerable emphasis to urban areas as nodal regions. The study of the Yorkdale Shopping Center (p. 181) is one example.

Rating: Good (five points)

The accumulation of points for Category I is twenty out of twenty, or 100%, giving a rating of GOOD.

II. LEARNING ACTIVITIES:

1. Integration: The character of the learning activities varies. In every region or topic presented there is an integration of textual exposition with at least some student directed activities employing a great variety of resource materials. The studies of Canadian regions in the first two-thirds of the book often show an integrated development of regional concepts. The study of Southwestern British Columbia, for example, begins with the student's analysis of a location map, an oblique air photograph, a soils map, and an isohyet map (pp. 300-3). From these the student works toward a set of generalizations concerning the effects of the physical environment on Southwestern British Columbia. In the latter third of the bock covering the regions of the United States, however, topics are developed primarily through textual exposition followed by a set of questions which are used mainly to illustrate, amplify, reinforce, or review concepts introduced in the exposition. Except in a limited number of cases, such as the study of Chicago (pp.

454-8), the physical geography of the South (pp. 493-6), and the climate of the Central Valley of California (pp. 541-5), inquiry by the student is not usually an integral part of the development of a topic or region in this final section of the book. Since, however, the major portions of the studies in the book are integrated the book received a favorable rating.

Rating: Good (five points)

2. Data: The book contains a total of 766 resource materials, a ratio of 1.3 for each of the 602 pages. It provides an average of two printed extracts per chapter, representing the most liberal use of extracts of any book analyzed. Of the numerous student activities included 94% can be completed directly from the resource data within the book, or from a standard student atlas. For those activities where the student is referred to an outside reference, in each case he is directed to a specific source such as a particular issue of the Financial Post (p. 172) or the Canada Year Book (p. 194). In the opinion of the appraiser, this textbook rates higher on this category than any of the other textbooks evaluated.

Rating: Good (five points)

3. Processes: The book contains some excellent examples of studies which guide the student through the processes of observing and recording specific data in an area, to analyzing their interrelations and, finally, to synthesizing regional characteristics. The study of South-Central Ontario (pp. 164-72) is one such example. The great majority of the studies throughout the book, however, depend mainly on textual exposition with student activities of minor significance in the development of concepts.

Rating: Fair (two points)

The accumulation of points for Category II is twelve out of fifteen, or 80%, giving a rating of GOOD.

III. MATERIALS:

1. Photographs: All of the photographs are directly related to the topic being developed. Of the 208 photographs included the majority, 64%, were useful for the analysis of significant relationships.

Rating: Good (five points)

2. Maps: All three categories of maps are included. Over one-third (35%) are of the quantitative distribution type. These include 44 point symbol, 35 isopleth, and 21 choropleth type maps, providing ample opportunity for the student to develop skills in map interpretation. Of the total 288 maps provided 12% are large-scale and usually depict an area included in an accompanying small-scale map of the same region. Cartographic quality and consistency of style and format are of a high caliber.

Rating: Good (five points)

3. Graphic Materials: There are 229 graphic figures with at least several in each of the five categories. All are clearly labelled, with appropriate annotations where required, and their format is consistent in style for easy comparison of data.

Rating: Good (five points)

4. Extracts: A variety of literary extracts (41) is incorporated into the studies including newspapers and periodicals, government publications, plus fiction, poetry and biography. Passages like Hugh MacLennan's description of the "sombre green . . . primeval forest of spruce" of the New Brunswick interior (p. 78) help create accurate images of the region under study.

Rating: Good (five points)

Accumulation of points for Category III is twenty out of twenty, or 100%, giving a rating of GOOD.

Average percentage score for the three categories is 93%. Overall rating of this book is GOOD.

Group B: Optional Textbooks

The following nine books were selected randomly, three for each grade, from the list of optional supplementary textbooks for grades eight to ten. They are discussed here in alphabetical order by author for each grade.

Dempster, Rich and Poor Lands in N. America and Asia, 1967 (Grade VIII)

I. CONCEPTS:

1. Scale: There is no explicit treatment of scale in the exposition or in student exercises.

Rating: Poor (no points)

2. Areal Association: While areal associations are present in the exposition and materials there is little emphasis given in the exposition or exercises to show how features are tied together causally.

Rating: Fair (two points)

3. Spatial Interaction: This concept is largely ignored. Where it is treated the data provided is often inadequate. One exception is a question (p. 99) concerning the interaction between "ranchers in the west" and "corn belt farmers".

Rating: Fair (two points)

4. Regions and Regionalizing: Regions of various types are indicated by a variety of maps but seldom is it indicated by what processes these

regions are defined. In the few instances where the student is asked to define regions he is given no data or directions as to how to do so. For example, Question 3 under "Tokyo", (p. 107): "Make a map of your town to show the industrial shopping and residential areas".

Rating: Poor (no points)

The accumulation of points for Category I is four out of twenty, or 20%, giving a rating of POOR.

II. LEARNING ACTIVITIES:

1. Integration: This is a conventional, expository style textbook. Exercises are all inconveniently grouped at the end of the book. Many are so vague or ambiguous as to seem to be without purpose. For example, in a section presenting different regions of the United States five paragraphs are inserted, with no apparent reason, on "The Earth and Space" (pp. 18-19). An accompanying question at the end of the book asks "What have you found out about space from TV programmes?" (p. 99).

Rating: Poor (no points)

2. Data: A number of brief sample studies are included but there is seldom sufficient data available for completing the accompanying exercises. Only 32% of the student activities could be completed from data supplied in the book or from a student's atlas.

Rating: Fair (two points)

3. Processes: The book provides no systematic guidance for student in the skills of geography.

Rating: Poor (no points)

The accumulation of points for Category II is two out of fifteen, or 13%, giving a rating of POOR.

III. MATERIALS:

1. Photographs: The photographs are occasionally irrelevant; for example, a picture of "A fur seal in the tundra" in a section titled "Farming in the Great Plains" (pp. 6-7). The majority (69%) are photographs of 'specifics'.

Rating: Fair (two points)

2. Maps: While all three types of maps are to be found, only 12% are of the quantitative distribution type. Both large- and small-scale maps are presented, but in no case are they related to the same location to facilitate understanding of shifts in scale. Many of the maps are inaccurate or deceptive, and lack some of the 'cardinals'. The colony of Hong Kong, for example, is incorrectly referred to as the "Territory" in the textual description (p. 78) and the accompanying map lacks a title, fails to label The New Territories and confuses the boundary between Hong Kong and the Kowloon Peninsula (p. 79).

Rating: Poor (no points)

3. Graphics: The book contains a good variety of graphic materials. Some of the graphs are incompletely labelled or have imprecise titles. The temperature, precipitation, and months of the year, for example, are not labelled on some climate graphs, and a combined climate graph and seasonal work chart is vaguely titled "The Year's Work on a Farm in U.S.S.R." (p. 40).

Rating: Fair (two points)

4. Extracts: None were included.

Rating: Poor (no points)

Accumulation of points for Category III is four out of twenty, or 20%, giving a rating of POOR.

Average percentage score for the three categories is 17%. Overall rating of this book is POOR.

Moore, The World and Man, 1966 (Grade VIII)

I. CONCEPTS:

1. Scale: There is a brief definition of scale in a chapter on map construction (p. 26), but the significance of scale or changes in scale to a study are nowhere made explicit. Both topical and regional studies are treated comprehensively and are characterized by reduction to a very small scale. In the chapter on map construction there are no student activities making use of scale. Even the seven brief sample studies included do not provide an opportunity for work at different scales. Where a map is included in a sample study it is typically at a scale of 400 miles to the inch (e.g. p. 289).

Rating: Poor (no points)

2. Areal Association: This concept is adequately treated in the latter half of the book (Chapter 21-33), with clear explanations and examples provided of relationships between physical and cultural features. Such relationships are less clear in the first half which draws heavily upon the natural sciences, and is preoccupied with systematic description and explanation of physical processes, rather than with areal relationships. Student activities are not structured so as to clarify this concept.

Rating: Fair (two points)

3. Spatial Interaction: This concept is made explicit by explanation and example in the section on "Natural Regions" (Chapters 21-29). The "silent trading" arrangement between the hunters and agriculturalists

of the African rain forest (p. 259) is one example. The concept is made even clearer in the final four chapters which cover various themes from human geography. An example is the interaction between ports and their hinterlands (pp. 393-5, 414). Unfortunately none of the student exercises is designed to give the student experience in working with this concept.

Rating: Fair (two points)

4. Regions and Regionalizing: In a short but effective chapter titled "Natural Regions" (pp. 248-9) generic concepts are discussed in terms of "a broad sameness existing within infinitely varied detail". The book then differentiates between areas of "considerable uniformity" and those which "depend for their character more on the possession of a focus". Thus a distinction is drawn between formal and functional regions. The succeeding eight chapters (pp. 250-366) divide the world into formal "natural regions" which are based primarily on vegetation types. Functional regions are treated in the final chapters (particularly pp. 377-83; 393-409). Opportunities are provided for students to synthesize the characteristics of a region. One activity, for example, requires the student to summarize the similarities and differences he has noted between economic development in southern California and the Mediterranean region (pp. 329).

Rating: Good (five points)

The accumulation of points for Category I is nine out of twenty, or 45%, giving a rating of WEAK.

II. LEARNING ACTIVITIES:

1. Integration: This book is essentially an expository rather than an integrated textbook. The learning structure, which is not made explicit

in the book, consists mainly of reading a straightforward, comprehensive exposition of, first, mathematical and systematic physical geography, then, formal regional geography. The student exercises at the end of each chapter serve primarily to review or elaborate concepts developed earlier in the exposition.

Rating: Poor (no points)

2. Data: A shortcoming of the book in this category is the occasional inadequacy of data provided for the student to answer the questions. Approximately one-third of the questions require data which is not available in the textbook or in a standard student atlas. Overall the book has a ratio of only 0.7 figures per page of text.

Rating: Poor (no points)

3. Processes: While the exercises require the range of cognitive skills, including observation, analysis, and synthesis, there is little effort to integrate the textual content, exercises and source materials into any meaningful structure in the student's mind. For example, the economic concepts in Questions 3 to 7 (p. 383) do not seem to be directly related to the development followed in the accompanying chapter. Many of the questions (such as Questions 1 to 3, p. 302) only require the recall of sections in the preceding exposition.

Rating: Fair (two points)

The accumulation of points for Category II is two out of fifteen, or 13%, giving a rating of POOR.

III. MATERIALS:

1. Photographs: The photographs are of good quality reproduction and generally relevant to the topic under discussion. However, the majority (60%) were judged to be of specific features which do not easily lend

themselves to analysis of significant relationships.

Rating: Fair (two points)

2. Maps: There are no point-symbol, choropleth or large-scale maps in the book. The only quantitative distribution maps are the isopleth type and these make up only 16% of the total 58 maps. The cartographic quality of the maps is very good.

Rating: Fair (two points)

3. Graphics: The first half of the book, dealing with mathematical and physical geography, has an average of two graphic figures for every three pages. All five types (except statistical tables) are liberally represented and the quality and consistency of format are excellent.

Rating: Good (five points)

4. Extracts: The use of literary extracts, which could have added vividness and a sense of reality to an otherwise monotonously didactic style, is nowhere evident.

Rating: Poor (no points)

Accumulation of points for Category III is nine out of twenty, or 45%, giving a rating of WEAK.

Average percentage score for the three categories is 34%. Overall rating of the book is WEAK

Young and Lowry, A Course in World Geography, Book II: People Round the World, 1968 (Grades VIII and IX)

I. CONCEPTS:

1. Scale: The significance of scale to a study is introduced through exposition and student activity within the first two pages of the book. Other activities require the student to make further use of scale by measuring and comparing distances and areas such as the distances of

major Canadian cities from the U.S. border (p. 177).

Rating: Good (five points)

2. Areal Association: This concept is presented through exposition (e.g. p. 44) and student exercises which show associations are causally related. A brief study of a diagram and two photographs is used, for example, to illustrate how contrasts in farming on mountain slopes is caused by different angles of exposure to the sun (p. 66-7).

Rating: Good (five points)

3. Spatial Interaction: The book contains several effective studies of interrelationships between areas of differing characteristics. A study of the functional relationship between Australia and Great Britain (p. 161) is an example of such an analysis.

Rating: Good (five points)

4. Regions and Regionalizing: The basis for defining regions and the process of regionalizing receive very little emphasis until the final few pages of the book (pp. 209-13). The regions presented are formal physical regions determined by natural vegetation as a response to variations in climate. A study of one functional region, the Great Lakes and St. Lawrence Seaway (pp. 164-77) is included, but the interrelationships within the region are not clearly defined.

Rating: Fair (two points)

The accumulation of points for Category I is seventeen out of twenty, or 85%, giving a rating of GOOD.

II. LEARNING ACTIVITIES:

1. Integration: Student activities are an integral part of the development of the sample studies used. The development of skills and the introduction of concepts from systematic geography are usually integrated

into the study of a particular region. Time zones, for example, are studied as incidental to a study of the longitudinal extent of the U.S.S.R. (pp. 130-3).

Rating: Good (five points)

2. Data: There is an average of 1.2 resource materials per page, each of which is directly related to the activities or exposition with which it appears. Of the many student activities integrated into the studies, 86% can be completed from resource data contained in the textbook or a student atlas.

Rating: Good (five points)

3. Processes: Skills of observation and analysis are often developed in the exercises but questions are sometimes poorly sequenced. There is a tendency to develop topics through exposition by stating a generalization and then presenting data to support the generalization rather than by requiring the student to think inductively or deductively to reach his own conclusions. For example, before beginning a study of California the student is informed (p. 96) that the "purpose of this chapter is to show how . . . California has become one of the world's most prosperous farming areas". There is also a tendency to ask a question and then provide the answer in the next line rather than in a later section of the chapter. One such instance is the question which asks the student to make a list of the important differences between methods of farming in Sarawak and Canada. The next sentence begins a paragraph describing some of the major differences (p. 18).

Rating: Fair (two points)

The accumulation of points for Category II is twelve points out of fifteen, or 80%, giving a rating of GOOD.

III. MATERIALS:

1. Photographs: The photographs are generally of good quality and interest, with a slight majority, 51%, judged to be of the three categories emphasizing relationships between the human and natural environments.

Rating: Good (five points)

2. Maps: Of the 35 maps only three (9%) are quantitative distribution types. No choropleth or large-scale maps are included. The maps are clear and simple to read and the style is fairly consistent from map to map.

Rating: Fair (two points)

3. Graphics: Every variety of graphic data is included. Like the maps, they are easily interpreted and compared. In some cases they are cleverly correlated together. For example, four contrasting climate graphs are placed in sequence with an annotated sectional diagram and related photographs superimposed above (pp. 158-9).

Rating: Good (five points)

4. Extracts: Four extracts only are provided including one song lyric (p. 39), a brief quotation from the Psalms (p. 89), a short extract from a letter (p. 149) and one very descriptive passage about the onset of the monsoon in India from Gertrude Emerson's, Voiceless India (p. 186). In no case is the student called upon to analyze or generalize from the extracts.

Rating: Fair (two points)

The accumulation of points for Category III is fourteen out of twenty, or 70%, giving a rating of GOOD.

Average percentage score for the three categories is 78%. Overall

rating of this book is GOOD.

Grime, Landscapes of the World, 1966 (Grade IX)

I. CONCEPTS:

1. Scale: The three methods of expressing map scales, by statement, by subdivided line, and by a representative faction, are clearly explained and demonstrated in a section on map skills (pp. 24-6). The student is given experience in the use of scales and in the identification of small-scale and large-scale maps (e.g. pp. 25, 32, and 191). A comparative study of two topographic maps of the same area at scales of 1:50,000 and 1:500,000 (pp. 26-30), plus exercises such as the one in which the student is required to reproduce certain features of a given map at half the scale (p. 134), help to clarify the significance of changes in scale.

Rating: Good (five points)

2. Areal Association: The book affords a number of opportunities for the student to understand the significance of associated features in the landscape. Common interrelationships between climate, vegetation, and soils are discussed at length in the chapter on "Climate and Landscapes" (pp. 112-23). One of several such activities directs the student to draw and place an overlay of settlement areas over another map showing drainage, relief, forest, and communications of the area. The student is then to describe and account for the distribution of settlement (p. 134).

Rating: Good (five points)

3. Spatial Interaction: This concept is implied in a number of places (pp. 95, 107, 129, 149, 164 and 250) but is not clearly defined or

explicitly illustrated in either the textual exposition or in the student activities.

Rating: Fair (two points)

4. Regions and Regionalizing: This concept is adequately treated both in textual exposition and student activities. Approximately 40% of the book is given to a presentation of "the major regions of the world" (p. 242), which are primarily climatic regions. Some eight per cent is devoted to industrial regions. In several activities the student is guided to recognize the major characteristics of a region through examination of sample studies and their related resource materials. For example, the settlement patterns, seasonal work and climate characteristics of two Indian villages, one on the Malabar Coast the other on the Deccan Plateau, are used to develop the concept of rural regions in monsoon India (pp. 151-4). Elsewhere the student is directed to synthesize by completing a chart of climatic regions by summarizing their locations, climate graphs, explanation of climates, and main features of agriculture (p. 246).

Rating: Good (five points)

The accumulation of points for Category I is seventeen out of twenty, or 85%, giving a rating of GOOD.

II. LEARNING ACTIVITIES:

1. Integration: The wide variety of data provided in the book is well integrated into the exposition. Student activities, however, with a few exceptions, such as the excellent crop interpretation exercises in Chapter Two (pp. 20-32), tend to follow after the exposition of a topic and serve primarily to illustrate or elaborate the concepts previously introduced. Thus the student's work with resource data is not usually an

integral part of the development of regional concepts.

Rating: Fair (two points)

2. Data: The data for a majority (79%) of the student's exercises are available in the textbook or in a standard student atlas. The data include every variety listed in the criteria for photographs, maps, graphic materials and extracts. The ratio of resource materials is 1.0 per page.

Rating: Good (five points)

3. Processes: The geographic skills of observation, analysis, and synthesis are developed through carefully structured exercises, although a considerable amount of teacher assistance would be necessary because of the complexity of some of the activities. Map reading skills (pp. 20-32) and graph reading skills (p. 119) are clearly explained. The student is guided in developing generalizations and in synthesizing the characteristic features of a landscape through the provision of an outline. For example, after studying two examples of hydro-electric projects at Kariba and Kitimat, the student is asked to write a brief account of the economic and physical conditions which favor the development of such projects, using the headings: "(a) Demand for power, (b) Site for reservoir and dam, (c) Provision for sufficient 'head' of water, (d) Climatic factors such as amount of distribution of rainfall, and evaporation" (p. 107).

Rating: Good (five points)

The accumulation of points for Category II is twelve out of fifteen, or 80%, giving a rating of GOOD.

III. MATERIALS:

1. Photographs: Of the 69 photographs, 51% are amenable to analysis of significant relationships. Every photograph is directly related to the

accompanying text or student exercises.

Rating: Good (five points)

2. Maps: All three categories of maps are found, including the three sub-types of the quantitative distribution category. 30% of the 95 maps are of this last category and 11% of the total are large-scale and, as in the case of the study of rubber estates near Kuala Lumpur (pp. 132-3), the large-scale map is sometimes accompanied by a small-scale map which includes the same area. The maps are simple, clear and usually include all of the 'cardinals' (seven maps, however, lack scales). Because slightly less than the required one-third of the maps are of the quantitative distribution type this category must be rated accordingly.

Rating: Fair (two points)

3. Graphics: All five types are represented within the 131 graphic figures included. All are clearly labelled and their formats are consistent in style for easy comparison.

Rating: Good (five points)

4. Extracts: The book's ten extracts include all three types and some of them provide particularly vivid and accurate images of the regions under study. Included, for example, is John Steinbeck's animated description of the Great Central Valley of California in springtime (pp. 170-2).

Rating: Good (five points)

The accumulation of points for Category III is seventeen out of twenty, or 85%, giving a rating of GOOD.

Average percentage score for the three categories is 83%. Overall rating of the book is GOOD.

Pounds, Europe: With Focus on Germany, 1966 (Grade IX)

I. CONCEPTS:

1. Scale: The content organization of this book is based upon a social studies approach. In the approximately 40% of the book devoted to geography there is only slight emphasis given to the concept of scale. Graphic scales and representative fractional scales are briefly explained in two paragraphs at the end of the book in a section entitled "Learning Map Skills" (pp. 310-15). Only one question throughout the book, however, required the student to make use of scale (p. 26). At no place is there any indication to the student of the significance of changes in scale to the study of a region.

Rating: Poor (no points)

2. Areal Association: This concept is implicit in the textual exposition of a number of regions but at no point is the concept clearly defined for the student. In a few cases the student is made aware of a causal explanation of particular associations. For example, the student is directed to examine a set of diagrams showing causes of rainfall (pp. 38-9), a landform map of Europe (p. 12), and an average annual precipitation map of the world (p. 40) in order to answer the question "Why does the northwest coast of Spain receive more rainfall than the southeast coast?" (p. 44). In most cases, however, causal explanations are fairly superficial and only lightly supported by resource data.

Rating: Fair (two points)

3. Spatial Interaction: This concept also receives only superficial treatment. Even in Chapter Ten (pp. 152-62), which deals with trade, transportation and communication in Europe, little place is given to the important interrelations existing between Europe and other parts of the

world. Similarly in Chapter Twenty-four (pp. 258-65), on transportation and communication in Germany, the emphasis is more on describing the excellence of these facilities than on their function in connecting Germany's economy to other regions.

Rating: Fair (two points)

4. Regions and Regionalizing: Although the book claims to be a "Depth-Study Textbook" (p. 2), this is not apparent in its treatment of regions. The agricultural regions of Europe (pp. 126-30) receive an average of less than one page of text per region, and those of West Germany (pp. 229-31) only one paragraph per region. Even the Ruhr industrial region is dispatched in a few brief references under "Natural Resources" (p. 237), "Industry" (p. 241) and "Canals and Waterways" (pp. 254-256). At no point in the book is the process of regionalizing explained or demonstrated to the student.

Rating: Fair (two points)

The accumulation of points for Category I is six out of twenty, or 30%, giving a rating of WEAK.

II. LEARNING ACTIVITIES:

1. Integration: This book is an expository rather than an integrated textbook. The references to resource materials are generally for illustrative purposes and are ancillary to the development of geographic concepts.

Rating: Poor (no points)

2. Data: There is a total of 191 photographs, maps, and graphic figures within the 133 pages devoted to geography, a ratio of 1.4 figures per page. In every case the figure was found to be applicable to the topic under study.

Rating: Good (five points)

3. Processes: The book purports to use a problem-solving method of learning (p. 7) whereby the student is encouraged to select a problem, hypothesize a solution and then test the hypothesis against information in the textbook and other sources. In fact, there is little guidance given the student to locate or use resources beyond the textbook so that most students will probably use the generalizations and conclusions already presented in the chapter text preceding the questions. For example, the question "What are some of the factors that contributed to Europe's rise to power?" (p. 17) is readily answered from an earlier paragraph which begins "Many factors contributed to Europe's rise to power . . ." (p. 14). The first 44 pages contain only two questions (p. 44) directing the student to observe and analyze some of the many geographic resource materials provided in the book. The great majority of the questions throughout the book involve simple recall of preformed concepts or generalizations from the text.

Rating: Poor (no points)

The accumulation of points for Category II is five points out of fifteen, or 33%, giving a rating of WEAK.

III. MATERIALS:

1. Photographs: In the geographic sections of the book only 25% of the 103 photographs are considered suitable for the analysis of geographic relationships.

Rating: Fair (two points)

2. Maps: Every category of map is represented in the book's 67 maps but quantitative distribution maps made up only 28%, representing slightly less than the one-third criterion. Only one of the maps was large-scale.

In quality and consistency the maps rated well.

Rating: Fair (two points)

3. Graphics: The graphic figures are rather limited in both number and type. There are only 21 figures and three of the five categories (sections, statistical tables, and graphs) are not represented. The few that are included are adequate in quality and consistency.

Rating: Fair (two points)

4. Extracts: No use is made of literary extracts.

Rating: Poor (no points)

The accumulation of points for Category III is six out of twenty, or 30%, giving a rating of WEAK.

Average percentage score for the three categories is 31%. Overall rating of the book is WEAK.

Ryckman and Thompson, Europe and Asia, Book Four, Aldine Geography, 1965, (Grade IX)

I. CONCEPTS:

1. Scale: There is no systematic development of concepts or skills evident in this book. The meaning of scale and the significance of shifts in the scale of a study are nowhere explained. There are, however, several activities requiring the use of scale (e.g. pp. 33, 217 and 234).

Rating: Fair (two points)

2. Areal Association: This concept is made explicit in the exposition through a number of examples such as the association between agricultural products of fiord farms and the climate, relief and soils common to farms in Western Norway (pp. 33-7). The concept is also reinforced by activities such as the one requiring the student to state the geogra-

phic factors responsible for the location of industry in the Indian subcontinent (p. 283).

Rating: Good (five points)

3. Spatial Interaction: This concept receives little emphasis. Even in discussion of such functional regions as the Ruhr (pp. 74-6) and the Paris Basin (pp. 85-8) there is only passing reference made to the patterns of functional relationships which explain the significance of these regions. None of the students activities clearly illustrate this concept.

Rating: Poor (no points)

4. Regions and Regionalizing: The processes by which a geographer identifies homogeneous factors in a formal area or the interrelated patterns of a functional region are not made clear through definition, example, or student activities.

Rating: Poor (no points)

The accumulation of points for Category I is seven points out of twenty, or 35%, giving a rating of WEAK.

II. LEARNING ACTIVITIES:

1. Integration: Although the book contains five sample studies (pp. 25, 33, 84, 132, and 261) the student activities are not an integral part of the development of concepts in these studies. Typically the samples contain two or three illustrative figures but the associated exercises require little analysis of these materials. This is essentially an expository style textbook presenting a comprehensive but compressed coverage of regions at a small scale in a somewhat gazetteer style of organization. Because a proportion of the exercises do involve student examination and analysis of geographic materials related to the exposi-

tion the book is given some points in this category.

Rating: Fair (two points)

2. Data: The book contains a total of 429 illustrated figures, evenly balanced among the three categories (150 photographs, 154 maps and 125 graphic figures). This is a ratio of 1.2 figures per page of text. Of 148 student activities checked, 111, or 75%, were based upon data available either in the textbook or in a standard school atlas.

Rating: Good (five points)

3. Processes: The student exercises are not structured toward the sequential development of geographic skills or concepts, although many of the exercises, and particularly the questions accompanying the illustrations, are quite analytic. In the chapter on the Mediterranean Lands of Europe, for example, the student is asked to explain the relationship existing between the major industrial regions, the most important trade routes, and the physical features, as revealed in three maps of these phenomena (p. 127). No activities can be found, however, which guide the student through the process of regionalizing.

Rating: Fair (two points)

The accumulation of points for Category II is nine out of fifteen, or 60%, giving a rating of FAIR.

III. MATERIALS:

1. Photographs: Only 43% of the 150 photographs were rated suitable for the study of geographic relationships.

Rating: Fair (two points)

2. Maps: Only 18% of the maps are of the quantitative distribution type and only five per cent are large-scale maps. The maps were considered satisfactory in quality and consistency of format.

Rating: Fair (two points)

3. Graphics: All of the five categories are represented within the 125 graphic figures in the book. All are of suitable quality and consistent in style for purposes of comparison.

Rating: Good (five points)

4. Extracts: The book makes no use of literary extracts.

Rating: Poor (no points)

The accumulation of points for Category III is nine out of twenty, or 45%, giving a rating of WEAK.

Average percentage score for the three categories is 47%. Overall rating of the book is WEAK.

Devereux, Mapwork With Pictures: North America, 1967 (Grade X)

I. CONCEPTS:

1. Scale: This series of geography workbooks is an excellent example of the skilful development of geographic concepts and skills through student activities. The concept of scale and the effect of changes in scale is encountered eighteen times within the 39 pages of the booklet. Scale is used by the student for activities such as measuring distances between points (p. 7), calculating the scale of a vertical aerial photograph from a topographic map (p. 10), and estimating the area of a map (p. 31). The student experiences the effect of shifts in scale in several of the exercises. In one case (pp. 14-5) he is presented with a large-scale map at a scale of 1:62,500 and a small-scale map at a scale of 1:250,000, plus an oblique aerial photograph of the same area. After analyzing these materials he is asked: "What advantages has the large scale over the smaller scale when studying the township?"

Unfortunately, because this excellent workbook consists almost entirely of student exercises, and includes little exposition whereby the various concepts and skills are explained to the student, it must be rated accordingly.

Rating: Fair (two points)

2. Areal Association: This concept is similarly well illustrated through several student activities. In one exercise (p. 13) the student is asked to examine a vertical aerial photograph, plus large- and small-scale maps showing the relief, vegetation, and communication routes along the Mohawk River Valley of New York State. The final activity of the exercise reads: "Describe and suggest reasons for the distribution of settlement in the area shown on the map."

Rating: Fair (two points)

3. Spatial Interaction: This concept receives less emphasis but, considering the short length of the book, the three examples are judged adequate. In one example (p. 31) the student is directed to draw a map of Canada marking on it the Prairies, the Great Lakes and the towns of Vancouver, Winnipeg, Port Arthur, Fort William, Montreal and Churchill. Using arrows he is to show the rail and boat journeys followed by wheat from the prairies to the ports of Vancouver, Churchill and Montreal.

Rating: Fair (two points)

4. Regions and Regionalizing: The student exercises illustrate both formal and functional regions. The student is involved in the process of regionalizing in some twelve cases. In one such activity (p. 38) he is asked to draw a detailed plan of Regina at the scale of the photograph provided. He is then to mark on it the areas of different land use. In the process he is required to generalize in order to determine

the dominant characteristics of different areas of the city. Again, in spite of the high quality of such activities the book cannot be given full credit because of the lack of explanation of the concept.

Rating: Fair (two points)

The accumulation of points for Category I is eight out of twenty, or 40%, giving a rating of WEAK.

II. LEARNING ACTIVITIES:

1. Integration: The many student exercises, resource materials and limited exposition are very effectively integrated for the development of concepts and skills.

Rating: Good (five points)

2. Data: There is a ratio of 1.3 resource items per page and the data for completing the exercises is available in the book or in a student atlas for 97% of the 95 activities.

Rating: Good (five points)

3. Processes: In almost every exercise the five to seven questions require the student to use all three of the defined geographic processes. One typical example is Exercise Seven (p. 17). Initially the student is asked to locate and estimate distances between various points shown on a large-scale topographic map and related aerial photograph (observation and recording of elements). He next determines in what direction a river is flowing and gives reasons for his conclusion (analysis of data). After examining the part played by erosion in the landscape (observation) he is instructed to draw a sketch map showing the drainage pattern on the photograph and comment on the size and distribution of the population (analysis of the data for areal associations and synthesis of elements typifying the region).

Rating: Good (five points)

The accumulation of points for Category II is fifteen out of fifteen, or 100%, giving a rating of GOOD.

III. MATERIALS:

1. Photographs: All of the photographs are carefully selected to depict significant areal relationships in both natural and cultural landscapes. Practically all of them (88%) are vertical or oblique aerial photographs.

Rating: Good (five points)

2. Maps: All categories of maps except choropleth maps are included. The majority (69%) are of the two remaining quantitative distribution types, point symbol and isopleth. Most of the maps are topographic maps and of the 29 maps included in the book 55% are large-scale. The cartography and reproduction are excellent and comparisons are easily made between maps.

Rating: Good (five points)

3. Graphics: Since this workbook is primarily concerned with the study and comparison of maps and photographs there are very few other graphic materials included. Of the four included all are diagrams or charts. These, however, are cartographically of high quality.

Rating: Fair (two points)

4. Extracts: None is included.

Rating: Poor (no points)

The accumulation of points for Category III is twelve out of twenty, or 60%, giving a rating of FAIR.

Average percentage score for the three categories is 67%. Overall rating of the book is FAIR.

Forrester, Making Steel in Hamilton, 1967 (Grade X)

I. CONCEPTS:

1. Scale: This short booklet (24 pages) is a type sample study. While there are four questions (pp. 5, 7, and 23) requiring the student to use the map scales provided, there is no opportunity for him to understand the significance of shifts in scale.

Rating: Fair (two points)

2. Areal Association: The emphasis of this booklet, like the other thirteen of the series, centers on the processes of production rather than on geographic relationships. The first three pages, however, deal effectively with various associated human and physical factors which account for the location of Hamilton as a steel producing center.

Rating: Good (five points)

2. Spatial Interaction: This concept is adequately treated through textual exposition and questions (pp. 7, 23-4). The explanation and student exercises clearly indicate the functional relationships existing between Hamilton, its sources of raw materials and its markets.

Rating: Good (five points)

3. Regions and Regionalizing: Three questions (pp. 5, 7, and 24) guide the student to progressively list the advantages of Hamilton's location as a steel center. A question comparing the potential of the Labrador iron ore field to Hamilton as a steel producing center serves to emphasize the significance of Hamilton as a node of an industrial region (p. 23). Since the student himself is not guided through activities to use the regional method, however, the booklet is rated accordingly.

Rating: Fair (two points)

Accumulation of points for Category I is fourteen out of twenty,

or 70%, giving a rating of GOOD.

II. LEARNING ACTIVITIES:

1. Integration: The learning structure of this and other booklets in the series consists essentially of a short textual exposition followed by several questions intended to elaborate or review the concepts previously expounded. Only six of the questions included in the exposition were judged to be an integral part of the development of geographic concepts (pp. 3, 5, and 23).

Rating: Fair (two points)

2. Data: The booklet contains 25 photographs, three maps, and eight other graphic figures, a ratio of 1.5 per page. All of the materials are directly related to the topics being presented and 77% of the 31 student activities could be completed from these materials.

Rating: Good (five points)

3. Processes: Approximately 75% of the textual exposition is devoted to the description of the operations and processes involved in the production of steel while only 25% is concerned with geographic concepts. Slightly over one-half of the questions, on the other hand, are concerned with geographic relationships and are fairly well structured to guide the student to observe, analyze, and, finally, synthesize the characteristics that explain Hamilton's development as a steel producing center. Because of the overall limited emphasis upon such activities the booklet was rated lower on this category.

Rating: Fair (two points)

The accumulation of points for Category II is nine out of fifteen, or 60%, giving a rating of FAIR.

III. MATERIALS:

1. Photographs: The photographs are always related to the topic being presented but only 44% are judged to be suitable for interpretation of geographic relationships. This booklet has a lower ratio of suitable photographs than some others in the same series. A Forest Industry at Port Alberni, for example, earned a rating of 87% in this category.

Rating: Fair (two points)

2. Maps: The three maps provided are adequate for this short study. The first two are large-scale and small-scale simple distribution maps, while the third is a small-scale, quantitative dot population map thus satisfying the first and second criteria. The three maps also meet the standards for quality and consistency.

Rating: Good (five points)

3. Graphics: The eight graphic figures include four of the five categories of graphic materials and are of good quality and consistency.

Rating: Good (five points)

4. Extracts: None is included.

Rating: Poor (no points)

The accumulation of points for Category III is twelve out of twenty, or 60%, giving a rating of FAIR.

Average percentage score for the three categories is 63%. Overall rating of this book is FAIR.

Robinson: Resources of the Canadian Shield, 1969 (Grade X)

I. CONCEPTS:

1. Scale: There is an explanation of the "Scale of Generalization in Geography" (pp. 6-7), including an example of how, through the years,

the scale of studies of the economic activities of the Canadian Shield have had to be changed from a consideration of a large number of individual activities to a study of areal groups of related activities (p. 7). Since there are no student exercises in the book it cannot fulfill the other criteria of demonstration of scale through student activities.

Rating: Fair (two points)

2. Areal Association: The book discusses areal patterns and their causes. For example, in Chapter Five (pp. 61-82), the character of rivers and the elements of climate which alter river run-off are woven through the discussion on water power. Again there are no student activities to demonstrate the concept.

Rating: Fair (two points)

3. Spatial Interaction: This concept is presented in a variety of topics. One of the themes developed in the book is the outward-moving distribution pattern of resource developments from their functional cores in the southern Shield. One example is the explanation of the importance of rivers as functional links connecting timber producing areas with export centers (pp. 41-2). There are no student activities to clarify the concept.

Rating: Fair (two points)

4. Regions and Regionalizing: The process by which the Canadian Shield is defined as a region, and the importance of arbitrary decisions in such a definition, are clearly explained (pp. 1-2). Chapter Two (pp. 9-13) presents the factors used in subdividing the Shield into more specific physical regions, while Chapter Eight (pp. 119-37) elaborates the similarities and differences of the four physical regions defined. There are no student activities to demonstrate the concept.

Rating: Fair (two points)

The accumulation of points for Category I is eight out of twenty, or 40%, giving a rating of WEAK.

II. LEARNING ACTIVITIES:

None of the three criteria can be applied since this book is completely expository in style, containing no activities for the student beyond reading.

There are no points awarded for Category II, giving a rating of POOR.

III. MATERIALS:

1. Photographs: Fifteen (88%) of the book's seventeen photographs are aerial obliques, while the remaining two are rated as specifics. Thus the photographs are almost entirely of the type considered suitable for geographic analysis.

Rating: Good (five points)

2. Maps: Of the book's eighteen maps only two (11%) are of the quantitative distribution type and there are no large-scale maps. All maps meet the criteria for quality and consistency.

Rating: Fair (two points)

3. Graphics: The book's seven graphic figures consist entirely of statistical tables, thus providing very limited experience for the student in working with materials of this category. Because these tables are appropriately labelled and consistent in format it was necessary to award the book a higher rating than it probably deserves in this category.

Rating: Fair (two points)

4. Extracts: The seven extracts, all found in Chapter Six, are from three sources but they represent only one of the three types--government publications. As might be expected of most government publications the extracts are not noteworthy for their imagery. Since they are included in the book to point out the inaccurate characterization of the Clay Belt in an official "geography" of the turn of the century they may be considered to show concepts which were considered to be accurate at that time. Thus the extracts meet one of the three criteria.

Rating: Poor (no points)

The accumulation of points for Category III is nine out of twenty, or 45%, giving a rating of WEAK.

Average percentage score for the three categories is 22%. Overall rating of the book is POOR.

Overall Rating of the Prescribed Textbooks

Table III (p. 88) shows the percentages awarded to each book analyzed, as well as the mean percentages, for the three categories: fundamental concepts, learning activities, and resource materials. Tables I to IV in the Appendix (pp. 100-3) give the points accumulated and the percentages awarded to each textbook by individual criteria within the three categories. Tables V to VIII in the Appendix show the incidence of particular resource materials contained in each book, plus percentages of materials by groups where they are relevant to the criteria. All tables are organized to show the prescribed textbooks first, followed by the optional textbooks presented alphabetically by grades eight to ten.

The overall ratings of Group A indicate that with the exception of the resource materials in the grade nine book, which received a fair

rating, the prescribed textbooks for grades eight to ten are consistently good. In the judgement of the evaluator the grade eight and grade nine prescribed books, Carswell, Man in the Tropics and Carswell, Man in the Great Community, were exceptional in their skilful integration of learning activities using materials with connected exposition leading to generalizations which follow directly from the preliminary work. The best variety, balance, and quality of geographic resource materials of all the books analyzed is found in the grade ten prescribed textbook, Tomkins, A Regional Geography of North America, (Appendix V, p. 104).

The overall percentage rating for the prescribed textbooks is 86.11%, or 36.15 percentage points higher than the overall percentage for the optional books, indicating a marked overall superiority in the geographic quality of these books.

Overall Rating of the Optional Textbooks

The overall rating of 49.96% for the nine books in Group B indicates that they fall below the acceptable standard (55%). Table III (p. 88) shows that the books as a group are uniformly weak in all three categories with less than three percentage points separating the mean percentage scores of the major categories. Within the group, however, there are marked differences in quality between the books, with 66 percentage points separating the poorest (17%) and the finest (83%) examples. One of the two best optional textbooks, Grime, Landscapes of the World, was, in fact, rated three percentage points higher than Carswell, Man in the Great Community, one of the three prescribed textbooks. Five of the eight books, nevertheless, were either weak or poor in geographic quality.

Overall Rating of the Combined Books

The rating of the combined groups of geography textbooks available to grades eight, nine and ten in British Columbia (Table III, p. 88) shows that a fair standard was maintained in the overall selection of books. With overall percentage scores for concepts, activities and materials rating 60.00%, 68.25% and 57.08% respectively, no marked differences are evident between the categories of criteria. As with the optional books, however, the range between the ratings of the poorest (17%) and the best book (93%) in the combined group is considerable.

Usefulness of the Criteria Developed in the Study

If the primary test of a set of criteria is its power to clearly discriminate between the qualities of data, then the preceding analysis of British Columbia textbooks appears to indicate that the criteria developed in this study could be useful to teachers of geography in the selection of textbooks.

The criteria posed some problems, however, in application. In evaluating fundamental concepts it was difficult to determine if textual explanation was always necessary to the development of a concept where skilfully structured student activities might serve the same purpose. For the sake of consistency, for example, Devereux's Mapwork with Pictures was given a lower rating even though the four fundamental concepts were implicit in some of the exercises.

In assessing the learning activities qualitative judgements were necessary in determining if particular activities could be completed by most students from the data supplied, or would require supplementary materials beyond the textbook or student's atlas.

The only difficulty encountered in applying the third category of

criteria was in classifying the photographs in the hierarchy. It was necessary to decide the classification by first impression since it was unlikely that students could distinguish the more subtle or obscure relationships revealed through close analysis. A further problem was that the degree to which geographic relationships were made explicit was sometimes affected more by the quality of photographic reproduction than by the content of the photograph itself.

A more general problem posed by the application of the three categories of criteria is that of weighting. The selection process is the responsibility of the teacher who might place greater or less emphasis upon particular criteria than was the case in this study. This would change the ratings of some of the textbooks.

Whatever the problems involved, the analysis of the selected British Columbia textbooks has shown that the criteria, deduced as they are from the theoretical structure of the discipline of geography, can offer a useful framework for the analysis of the geographic quality of textbooks.

TABLE III

Percentages Awarded to Textbooks Analyzed by Categories, With Overall Ratings

| Group | Book | Concept | Activities | Materials | Overall % |
|---|---|---|---|---|---|
| A | Carswell, Man in the ... | 70 | 100 | 70 | 80.00% |
| | Carswell, Man in the great comm. | 100 | 100 | 55 | 85.00% |
| | Tomkins, Regional geog. of N.A. | 100 | 80 | 100 | 93.33% |
| | TOTAL | 270 | 280 | 225 | 258.33 |
| | Mean % | 90.00% | 93.33% | 75.00% | |
| | TOTAL of means | 258.33 | | | |
| | | | Group A Overall % (GOOD) | | 86.11% |
| B | Dempster, Rich and poor lands | 20 | 13 | 20 | 17.67% |
| | Moore, The world and man | 45 | 13 | 45 | 34.33% |
| | Young, A course in world geog. | 85 | 80 | 70 | 78.33% |
| | Grime, Landscapes of the world | 85 | 80 | 85 | 83.33% |
| | Pounds, Europe with focus on Germ. | 30 | 33 | 30 | 31.00% |
| | Ryckman, Europe and Asia | 35 | 60 | 45 | 46.67% |
| | Devereux, Mapwork with pictures | 40 | 100 | 60 | 66.67% |
| | Forrester, Making steel in Ham. | 70 | 60 | 60 | 63.33% |
| | Robinson, Resources of the Can. Sh. | 40 | 0 | 45 | 28.33% |
| | TOTAL | 450 | 439 | 460 | 449.66 |
| | Mean % | 50.00% | 48.78% | 51.11% | |
| | TOTAL of means | 149.89 | | | |
| | | | Group B Overall % (WEAK) | | 49.96% |
| | TOTAL | 720 | 819 | 685 | |
| | Mean % | 60.00% | 68.25% | 57.08% | |
| | TOTAL of means | 185.33 | | | |
| | | | Groups A & B Overall % (FAIR) | | 61.78% |

# CHAPTER VI

# SUMMARY AND CONCLUSIONS

## The Purpose of the Study

A major problem confronting teachers of geography in secondary schools today is the selection of textbook materials from the wide ranges of choices available. The problem more specifically is that teachers need some criteria for making their selection so that the textbook materials they choose will reflect the nature of the field of geography.

The purpose of this study was to derive a set of criteria which could be useful in evaluating the geographic quality of secondary school textbooks, and to then apply these criteria to selected textbooks used in grades eight, nine and ten in British Columbia schools.

## Summary of Findings

An examination of a selection of geography textbooks used in British secondary schools led to the conclusion that there exists a wide range of approaches to structuring geographic studies. An analysis of significant statements on the nature of geography along with a study of widely advocated principles of geography instruction, led to the development of three categories of textbook criteria: the fundamental concepts of geography are to be made explicit, provision is to be made for geographic inquiry, and geographic resource materials are to be made available for such inquiry.

The application of these criteria to the three prescribed and nine

optional British Columbia textbooks indicated that overall the books achieve a fair standard of quality. The prescribed textbooks are of a uniformly higher geographic standard than those provided as supplementary textbooks and in no case did the prescribed books show weakness in any of the major categories.

There is considerable variation in the quality of the selected optional textbooks. Over one-half of them are of a weak or even poor standard although two of them were rated as good.

## Implications

One of the conclusions of this study is that the curriculum committee responsible for selecting geography textbooks for British Columbia secondary schools has shown wisdom in their choice of prescribed textbooks. In selecting optional books, however, it is apparent that careful discrimination is necessary to avoid choosing the poorer examples. This demonstrates the need for an objective set of criteria for the use of the classroom teacher. It is further evident that if the nine randomly selected optional textbooks are typical of the remainder of the optional books then there is a sizeable minority of better-than-average textbooks available to the geography teacher in secondary schools of British Columbia. The analysis of the selected British Columbia textbooks shows that the set of criteria devised was effective in clearly discriminating the different geographic qualities of textbooks. On the basis of this investigation it appears that the three categories of criteria developed in the study would be of considerable use in helping teachers.

# BIBLIOGRAPHY

A. Textbooks Analyzed from the British Columbia Prescribed Textbooks: 1972-73

Carswell, G. E., Morrow, R., & Honeybone, R. C. Man in the tropics. Scarborough, Ontario: Bellhaven House, 1968.

Carswell, G. E., Wiley, W. H., & Honeybone, R. C. Man in the great community. Scarborough, Ontario: Bellhaven House, 1969.

Dempster, P. Rich and poor lands in N. America and Asia. London: Ward Lock, 1967.

Devereux, E. J. P. & Morgan, M. A. Mapwork with pictures: North America. London: Burns and MacEachern, 1966.

Forrester, J. Making steel in Hamilton. Canada: Ginn and Company, 1967.

Grime, A. R. Landscapes of the world. Scarborough, Ontario: Bellhaven House, 1969.

Moore, P. E. The world and man. Toronto: Copp Clark, 1966.

Pounds, N. J. G. (Ed.) Europe with focus on Germany. Toronto: Fideler, 1966.

Robinson, J. L. Resources of the Canadian Shield. Toronto: Methuen, 1969.

Ryckman, E. T., & Thompson, H. E. Europe and Asia. Toronto: Dent, 1965.

Tomkins, G. S., Hills, T. L., & Weir, T. R. A regional geography of North America. Toronto: Gage, 1970.

Young, E. W., & Lowry, T. H. Course in world geography, book II: People round the world. Toronto: Macmillan, 1967.

B. British Textbooks Analyzed

Brooks, L., & Finch, R. Peoples and countries of the world. London: University of London Press, 1950.

Burrell, E. R., & Hancock, J. A sample study of Great Britain. London: Methuen, 1967.

Carter, C. C., & Brentnal, H. C. Man the world over. Oxford: Blackwell, 1949.

Devereux, E. Mapwork with pictures: Western Europe. London: Burns and MacEachern, 1963.

Dobson, F. R., & Virgo, H. E. A new school geography. London: English Universities Press, 1967.

Dury, G., & Morris, J. A. The land from the air. London: George G. Harrap, 1963.

Ellis, P. M., & Ellis, W. R. A. Geography around us. London: University of London Press, 1963.

Ferriday, A. A map book of Africa and South America. Toronto: Macmillan, 1960.

Gadsby, V., & Gadsby, D. Looking at Britain. London: A. & C. Black, 1959.

Hawkes, L. R. Real life geographies: Strange peoples. London: Wheaton, 1963.

Herdman, T. Geography for today, book I: The world. London: Longman's, Green, 1950.

Hobbs, J. S. General school geography, book III: North America, Europe and the British Isles. London: The English Universities Press, 1965.

Hobbs, J. S. General world physical and human geography: An intermediate course. London: The English Universities Press, 1957.

Honeybone, R. C., & Roberson, B. S. The southern continents. London: William Heinemann, 1959.

Honeybone, R. C., & Long, M. World geography. London: William Heinemann, 1965.

Jackson, N., & Penn, P. Groundwork geographies: Europe. London: George Philip & Son, 1959.

Lowry, J. H. A course in world geography, book IV: The British Isles. London: Edward Arnold, 1960.

Meux, A. H. Reading topographical maps. London: University of London Press, 1960.

Monkhouse, F. J. Landscape from the air. Cambridge: Cambridge University Press, 1962.

Monkhouse, F. J., & Hardy, A. V. North American landscape. Cambridge: Cambridge University Press, 1965.

Moore, W. G. New visual geography, economic series: The production of oil. London: Hutchinson University Library, 1961.

Morris, R. W. Britain and beyond, book I: People of the world. London: Blackie, 1960.

Murray, A. The study map note books, book IV: North and South America. Glasgow: Collins Press, 1955.

Pickles, T. Junior world geography. London: Dent, 1963.

Preece, D. M., & Wood, H. R. B. Modern geography series, book I: Foundations of geography. London: University Tutorial Press, 1960.

Robinson, H. The new certificate geography series, book II: Western Europe. London: MacDonald & Evans, 1964.

Rushby, J. G., Bell, J., & Dybeck, M. Study geography, stage IV. London: Longman's, Green, 1967.

Silley, P. T. Secondary school geographies: The British Isles. Huddersfield: Schofield and Sims, 1955.

Stamp, L. D. A regional geography for advanced scholarship courses. Toronto: Longmans, Green, 1954.

Stembridge, J. H. The new world geographies: South America. Oxford: Clarendon Press, 1957.

Stembridge, J. H. The new world wide geographies, book I: North and South America. Oxford: Oxford University Press, 1963.

Unstead, J. F. & Taylor, E. G. R. The essentials of world geography. London: George Philip and Son, 1956.

Watkins, W. J. H., & Watkins, H. S. L. How to look at geographic pictures. London: Macmillan, 1965.

Wood, M. Map studies and landscape types. London: George G. Harrap, 1963.

C. References Cited

Ackerman, E. A. Geography as a fundamental research discipline. Department of Geography Research Paper, No. 53, Chicago: University of Chicago Press, 1958.

Anderson, P. S. How teachers share in textbook selection. Nations Schools, 1957, 60 (57).

Arnsdorf, V. E. Readability of basal social studies materials. Reading Teacher, 1963, 16, 243-246.

Ausubel, D. P. The psychology of meaningful verbal learning. New York: Grune & Stratton, 1963.

Berry, B. J. L. Approaches to regional analysis. Annals of the American Association of Geographers, 1964, 54, 2-11.

Bird, J. Scale in regional study. Geography, 1956, 191, 25-38.

Brown, R. & Brown, M. How to select a social studies textbook. Social Education, 1961, 25, 391-397.

Brown, R. & Brown, M. Selecting social studies textbooks: the challenge of choice. Social Education, 1969, 33, 314-320.

Bruner, J. S. Process of education. Cambridge: Harvard University Press, 1960.

Bruner, J. S. The growth of mind. American Psychologist, 1965, 20, 1007-1017.

Buckingham, B. R. Textbooks. In C. W. Harris (Ed.), Encyclopedia of educational research, New York: Macmillan, 1960, 1517-1524.

Chabe, A. M. Evaluating elementary social studies textbooks. Educator, 1966, 86, 302-307.

Chorley, R. J., & Haggett, P. (Eds.) Frontiers in geographical teaching: The Madingley Lectures for 1963. London: Methuen, 1965.

Cohen, S. B. (Ed.) Problems and trends in American geography. New York: Basic Books, 1967.

Cronbach, L. J. (Ed.) Text materials in modern education: A comprehensive theory and platform for research. Urbana, Illinois: University of Illinois Press, 1955.

Ford, G. W., & Pugno, L. (Eds.) The structure of knowledge and the curriculum. Chicago: Rand McNally, 1964.

Fraser, D. M. Improving social studies textbooks. Journal of Education, 1955, 137, 16-18.

Garnett, O. Fundamentals in school geography. London: Harrap, 1956.

Gopsill, G. H. The teaching of geography. London: Macmillan, 1966.

Graves, N. J. Geography in secondary education. London: Geographical Association, 1971.

Greco, P. The structure of geography. In I. Morrissett (Ed.), Concepts and structure in the new social science curricula. New York: Holt, Rinehart and Winston, 1967.

Haggett, P. Scale components in geographic problems. In R. J. Chorley & P. Haggett (Eds.), Frontiers in geographical teaching. London: Methuen, 1965.

Halverson, L. H. A quantitative analytic comparison of geography textbooks. Journal of Geography, 1936, 35 (2), 60-67.

Halverson, L. H. Geography via pictures: Do it this way series, No. 2. National Council for Geographic Education. Cited by E. Moore & E. E. Owen, Teaching the subjects in the social studies: a handbook for teachers. Toronto: Macmillan, 1966.

Hartshorne, R. The nature of geography: A critical survey of current thought. Lancaster, Pennsylvania: American Association of Geographers, 1939.

Hartshorne, R. Perspective on the nature of geography. Chicago: Rand McNally, 1959.

Hickman, G. M. The sample study: A method and its limitations. Journal of Geography, 1950, 49, 151-159.

Honeybone, R. C. An investigation into the attitudes of adolescent students toward methods of teaching geography. Unpublished M.A. thesis. University of London, 1950.

Honeybone, R. C. The sample study method. Sample studies. (United Kingdom) Geographical Association, 1962.

Honeybone, R. C. & Goss, M. Geography for schools, book 1: Britain and Overseas. London: Heinemann, 1956.

Incorporated Association of Assistant Masters in Secondary Schools. The teaching of geography in secondary schools. Cambridge: Cambridge University Press, 1967.

James, P. E. Continuity and change in American geographic thought. In S. B. Cohen (Ed.) Problems and trends in American geography. New York: Basic Books, 1967.

James, P. E., Jones, C.E. & Wright, J. K. W. (Eds.) American geography: Inventory and prospect. Syracuse, New York: Syracuse University Press, 1954.

Jewell, J. An analysis of geography and social studies textbooks, grades 1-6. Unpublished working paper for Geography Curriculum Project, University of Georgia, 1964. Cited in M. J. Rice. Improving elementary geography. Elementary School Journal, 1965, 66, (3) 128-138.

King, L. W. The teacher-publisher team in textbook selection. The Instructor, 1958, 67 (84).

Kohnstamm, G. A. Experiments on teaching Piagetion thought operations. Paper presented at the Conference on Guided Learning of the Educational Research Council of Greater Cleveland, 1966.

Long, M. & Roberson, B. S. The sample study method. Sample Studies (United Kingdom) Geographical Association, 1962.

Long, M. & Roberson, B. S. Teaching geography. London: Heinemann, 1966.

Lovatt, G. W. Teaching with filmstrips: an enquiry into problems arising from the use of filmstrips in the teaching of geography. Unpublished M.A. thesis, University of Birmingham, 1955. Cited by M. Long, & B. S. Roberson, Teaching geography. London: Heinemann, 1966.

Macdonald, W. Geography in the English school. Journal of Geography, 1961, 60, 310-312.

Mayo, W. L. The development and status of secondary school geography in the United States and Canada. Ann Arbor, Michigan: University Publishers, 1965.

McMurray, F. & Cronbach, L. J. The controversial past and present of the text. In L. J. Cronbach (Ed.), Text materials in modern education. Urbana, Illinois: University of Illinois Press, 1955.

McNee, R. An approach to understanding the current structure of geography. In I. Morrissett (Ed.), Concepts and structure in the new social science curricula. New York: Holt, Rinehart and Winston, 1967.

McNeil, G. & Wilkinson, D. H. Operation of a textbook selection program. National Elementary Principal, 1956, 36 (26).

Miller, W. R. & Berry, R. H. Adopting the right textbook. Clearing House, 1962, 37 (1) 18-23.

Ministry of Education (U.K.) Geography and education: Ministry of Education Pamphlet No. 39, 1960.

Minshull, R. Regional geography: Theory and Practice. London: Hutchinson, 1967.

Minshull, R. The changing nature of geography. London: Hutchinson, 1970.

Monkhouse, F. J. & Wilkinson, H.R. Maps and diagrams: Their compilation and construction. London: Methuen, 1971.

Moore, E. & Owen, E. E. Teaching the subjects in the social studies: A Handbook for teachers. Toronto: Macmillan, 1966.

Morrissett, I. (Ed.) Concepts and structure in the new social science curricula. New York: Holt, Rinehart and Winston, 1967.

Owen, E. E. The nature and development of geography teaching in secondary schools in Scotland. Unpublished doctoral dissertation, University of Edinburgh, 1972.

National Academy of Sciences: National Research Council. The science of geography: Report of the ad hoc committee on geography, earth sciences division, No. 1277. Washington D.C.: National Academy of Sciences - National Research Council, 1965.

National Society for the Study of Education. The textbook in American education. Thirtieth Yearbook of the National Society for the Study of Education, Part 2. Bloomington, Illinois: Public School Publishing Company, 1931.

Raisz, E. Principles of cartography. New York: McGraw-Hill, 1962.

Rice, M. J. Improving elementary geography. Elementary School Journal, 1965, 66, 126-138.

Rushby, J. G., Bell, J. & Dybeck, M. W. Study Geography: Stage one. London: Longmens, 1967.

Scarfe, N. V. & Tomkins, G. S. Research in geographical education: Problems and progress. In J. Lewis (Ed.), Teaching for tomorrow: A symposium on the social studies in Canada. Toronto: Nelson, 1969.

Schwab, J. J. The concept of the structure of a discipline. Educational Records, 1962, 43, 197-205.

Schwab, J. J. Structure of the disciplines: Meanings and significances. In G. W. Ford & L. Pugno (Eds.), The structure of knowledge and the curriculum. Chicago: Rand-McNally, 1964.

Shaver, J. P. Reflective thinking values and social studies textbooks. School Review, 1965, 73, 226-257.

Silberman, C. E. Crisis in the classroom: The remaking of American education. New York: Vintage, 1971.

Slade, K. & Wilson, D. C. The reading difficulty levels of some social studies resource texts, grades 8-11. Exploration, 13 (1), 7-14.

Smith, R. O. An evaluation of secondary school social studies textbooks in problems courses, civics, and government as to their

treatment of the modes of enquiry used for the advancement of knowledge in the discipline of political science. Dissertation Abstracts, 1967, 28: 1013-A

Smith, S. A. An identification of central themes in the geography of tropical Africa; and an examination of the treatment of tropical Africa in geography textbooks used in British Columbia schools. Unpublished M.A. thesis, University of Victoria, 1972.

Snedecor, G. W. Statistical methods. Ames, Iowa: Iowa State University Press, 1962.

Snow, K. M. & Hauck, P. Canadian materials for schools. Toronto: McLellan and Stewart, 1971.

Spate, O. H. K. Let me enjoy: Essays partly geographical. London: Methuen, 1966.

Steinhauser, F. R. The study of geography. Journal of Geography, 1967, 66, 350-359.

Sternig, J. How to select new textbooks. Nation's Schools, 1966, 77, 114.

Sullivan, E. V. Piaget and the school curriculum: A critical appraisal. The Ontario Institute for Studies in Education, Bulletin No. 2, 1967.

Taafe, E. J. Introductory economic geography: Selected ideas on thorough coverage? Association of American Geographers Commission on College Geography, Publication No. 5, 1967.

Tanner, D. Curriculum theory: Knowledge and content. Review of Educational Research, 1966, 36, 362-371.

Textbook Study Committee of the Committee on Economic Education. American Economic Association. Economics in the schools. American Economic Review, 1963, 53 (1) (Pt. 2 - supplement).

Thralls, Z. A. The teaching of geography. New York: Appleton-Century-Crofts, 1958.

UNESCO. Source book for geography teaching. London: Longmans, 1965.

Warman, H. J. Major concepts in geography. In W. Hill (Ed.) Curriculum guide for geographic education. Normal, Illinois: National Council for Geographic Education, 1966.

Woolridge, S. W. & East, W. G. The spirit and purpose of geography. London: Hutchinson, 1961.

Wright, J. K. Human nature in geography: Fourteen papers, 1925-1965. Cambridge, Massachusetts: Harvard University Press, 1966.

Zobel, H. L. High school geography textbooks (1918-1941) and their relationship to classroom instruction. Journal of Geography, 1961, 60, 416-420.

# APPENDICES

## Table I

Ratings of Prescribed Textbooks by Category
(Points: 5, good; 2, fair; 0, poor)

| CATEGORY | Carswell et al. Man in the Tropics (Gr. 8) | Carswell et al. Man in the Great ... (Gr. 9) | Tomkins et al. A Regional Geog.... (Gr. 10) | Mean per c'tgy |
|---|---|---|---|---|
| I Concepts | | | | |
| Scale | 5 | 5 | 5 | 5.0 |
| Areal Assoc. | 5 | 5 | 5 | 5.0 |
| Spatial Int. | 2 | 5 | 5 | 4.0 |
| Regions | 2 | 5 | 5 | 4.0 |
| total | 14 | 20 | 20 | 18.0 |
| % | 70% | 100% | 100% | 90% |
| II Activities | | | | |
| Integration | 5 | 5 | 5 | 5.0 |
| Data | 5 | 5 | 5 | 5.0 |
| Processes | 5 | 5 | 2 | 4.0 |
| total | 15 | 15 | 12 | 14.0 |
| % | 100% | 100% | 80% | 93% |
| III Materials | | | | |
| Photographs | 2 | 2 | 5 | 3.0 |
| Maps | 2 | 2 | 5 | 3.0 |
| Graphics | 5 | 5 | 5 | 5.0 |
| Extracts | 5 | 2 | 5 | 4.0 |
| total | 14 | 11 | 20 | 15.0 |
| % | 70% | 55% | 100% | 75% |
| OVERALL | | | | |
| % | 80% | 85% | 93% | 86% |
| rating | GOOD | GOOD | GOOD | GOOD |

Table II

Ratings of Optional Textbook by Category: Grade VIII
(Points: 5, good; 2, fair; 0, poor)

| CATEGORY | Dempster, Rich and poor lands in ... | Moore, The world and man | Young, A course in world geog.... | Mean per c'tgy |
|---|---|---|---|---|
| I Concepts | | | | |
| Scale | 0 | 0 | 5 | 1.7 |
| Areal Assoc. | 2 | 2 | 5 | 3.0 |
| Spatial Int. | 2 | 2 | 5 | 3.0 |
| Regions | 0 | 5 | 2 | 2.3 |
| total | 4 | 9 | 17 | 10.0 |
| % | 20% | 45% | 85% | 50% |
| II Activities | | | | |
| Integration | 0 | 0 | 5 | 1.7 |
| Data | 2 | 0 | 5 | 2.3 |
| Processes | 0 | 2 | 2 | 1.3 |
| total | 2 | 2 | 12 | 5.3 |
| % | 13% | 13% | 80% | 35% |
| III Materials | | | | |
| Photographs | 2 | 2 | 5 | 3.0 |
| Maps | 0 | 2 | 2 | 1.3 |
| Graphics | 2 | 5 | 5 | 4.0 |
| Extracts | 0 | 0 | 2 | 0.7 |
| total | 4 | 9 | 14 | 9.0 |
| % | 20% | 45% | 70% | 45% |
| OVERALL | | | | |
| % | 17% | 34% | 78% | 43% |
| rating | POOR | WEAK | GOOD | WEAK |

Table III

Ratings of Optional Textbooks by Category: Grade IX
(Points: 5, good; 2, fair; 0, poor)

| CATEGORY | Grime, Landscapes of the world | Pounds, Europe with focus on Germany | Ryckman, Europe and Asia | Mean per c'tgy |
|---|---|---|---|---|
| I Concepts | | | | |
| Scale | 5 | 0 | 2 | 2.3 |
| Areal Assoc. | 5 | 2 | 5 | 4.0 |
| Spatial Int. | 2 | 2 | 0 | 1.3 |
| Regions | 5 | 2 | 0 | 2.3 |
| total | 17 | 6 | 7 | 10.0 |
| % | 85% | 30% | 35% | 50% |
| II Activities | | | | |
| Integration | 2 | 0 | 2 | 1.3 |
| Data | 5 | 5 | 5 | 5.0 |
| Processes | 5 | 0 | 2 | 2.3 |
| total | 12 | 5 | 9 | 8.7 |
| % | 80% | 33% | 60% | 58% |
| III Materials | | | | |
| Photographs | 5 | 2 | 2 | 3.0 |
| Maps | 2 | 2 | 2 | 2.0 |
| Graphics | 5 | 2 | 5 | 4.0 |
| Extracts | 5 | 0 | 0 | 1.7 |
| total | 17 | 6 | 9 | 10.7 |
| % | 85% | 30% | 45% | 53% |
| OVERALL | | | | |
| % | 83% | 31% | 47% | 54% |
| rating | GOOD | WEAK | WEAK | WEAK |

Table IV

Ratings of Optional Textbooks by Category: Grade X
(Points: 5, good; 2, fair; 0, poor)

| CATEGORY | Devereux, Mapwork with pictures | Forrester, Making steel in Hamilton | Robinson, Resources of the Canadian Shield | Mean per c'tgy |
|---|---|---|---|---|
| I Concepts | | | | |
| Scale | 2 | 2 | 2 | 2.0 |
| Areal Assoc. | 2 | 5 | 2 | 3.0 |
| Spatial Int. | 2 | 5 | 2 | 3.0 |
| Regions | 2 | 2 | 2 | 2.0 |
| total | 8 | 14 | 8 | 10.0 |
| % | 40% | 70% | 40% | 50% |
| II Activities | | | | |
| Integration | 5 | 2 | 0 | 2.3 |
| Data | 5 | 5 | 0 | 3.3 |
| Processes | 5 | 2 | 0 | 2.3 |
| total | 15 | 9 | 0 | 8.0 |
| % | 100% | 60% | 0% | 53% |
| III Materials | | | | |
| Photographs | 5 | 2 | 5 | 4.0 |
| Maps | 5 | 5 | 2 | 4.0 |
| Graphics | 2 | 5 | 2 | 3.0 |
| Extracts | 0 | 0 | 0 | 0.0 |
| total | 12 | 12 | 9 | 11.0 |
| % | 60% | 60% | 45% | 55% |
| OVERALL | | | | |
| % | 67% | 63% | 22% | 51% |
| rating | FAIR | FAIR | POOR | WEAK |

Table V

Incidence of Resource Materials in Prescribed Textbooks

| RESOURCE | Carswell et al. Man in the Tropics (Gr. 8) | | | Carswell et al. Man in the Great ... (Gr. 9) | | | Tomkins et al. A Regional Geog.... (Gr. 10) | | | Mean per c'tgy |
|---|---|---|---|---|---|---|---|---|---|---|
| **Photographs** | | | | | | | | | | |
| explicit relat'n | 34) | | | 13) | | | 17) | | | |
| implicit relat'n | 21) | 86 | 45% | 3) | 27 | 43% | 27) | 135 | 63% | 50% |
| indef. relat'n | 31) | | | 11) | | | 88) | | | |
| specific feature | 104 | | 55% | 36 | | 57% | 76 | | 37% | 50% |
| total | 190 | | 100% | 63 | | 100% | 208 | | 100% | 100% |
| **Maps** | | | | | | | | | | |
| location | 43) | | | 27) | | | 55) | | | |
| simple distrib'n | 43) | 86 | 87% | 34) | 61 | 86% | 133) | 188 | 65% | 79% |
| quant. distrib'n | | | | | | | | | | |
| point symbol | 3) | | | 1) | | | 44) | | | |
| isopleth | 8) | 13 | 13% | 8) | 10 | 14% | 35) | 100 | 35% | 21% |
| choropleth | 2) | | | 1) | | | 21) | | | |
| total | 99 | | 100% | 71 | | 100% | 288 | | 100% | 100% |
| **Graphics** | | | | | | | | | | |
| sections | 13 | | | 3 | | | 13 | | | |
| diagrams | 27 | | | 9 | | | 12 | | | |
| models | 4 | | | 0 | | | 7 | | | |
| statistic tables | 41 | | | 25 | | | 118 | | | |
| graphs | 18 | | | 8 | | | 79 | | | |
| total | 103 | | | 45 | | | 229 | | | |
| **Extracts** | | | | | | | | | | |
| newsp. & period. | 5 | | | 1 | | | 18 | | | |
| gov't. publicat'n | 3 | | | 1 | | | 17 | | | |
| literature | 6 | | | 2 | | | 6 | | | |
| total | 14 | | | 4 | | | 41 | | | |
| Resource mat's | 406 | | | 183 | | | 766 | | | |
| Pages | 356 | | | 160 | | | 602 | | | |
| Ratio (Mat's/pg.) | 1.1 | | | 1.1 | | | 1.3 | | | |

Table VI

Incidence of Resource Materials in Optional Textbooks: Grade VIII

| RESOURCE | Dempster, Rich and poor lands ... | | | Moore, The world and man | | | Young, A course in world geog.... | | | Mean per c'tgy |
|---|---|---|---|---|---|---|---|---|---|---|
| Photographs | | | | | | | | | | |
| explicit relat'n | 16) | | | 6) | | | 26) | | | |
| implicit relat'n | 10) | 35 | 29% | 5) | 34 | 40% | 18) | 51 | 50% | 40% |
| indef. relat'n | 9) | | | 23) | | | 7) | | | |
| specific feature | 85 | | 71% | 51 | | 60% | 50 | | 50% | 60% |
| total | 120 | | 100% | 85 | | 100% | 101 | | 100% | 100% |
| Maps | | | | | | | | | | |
| location | 16) | | | 31) | | | 26) | | | |
| simple distrib'n | 21) | 37 | 86% | 18) | 49 | 84% | 6) | 32 | 91% | 87% |
| quant. distrib'n | | | | | | | | | | |
| point symbol | 1) | | | 0) | | | 1) | | | |
| isopleth | 5) | 6 | 14% | 9) | 6 | 16% | 2) | 3 | 9% | 13% |
| choropleth | 0) | | | 0) | | | 0) | | | |
| total | 43 | | 100% | 58 | | 100% | 35 | | 100% | 100% |
| Graphics | | | | | | | | | | |
| sections | 4 | | | 13 | | | 3 | | | |
| diagrams | 3 | | | 105 | | | 72 | | | |
| models | 2 | | | 8 | | | 1 | | | |
| statistic tables | 2 | | | 5 | | | 27 | | | |
| graphs | 20 | | | 20 | | | 25 | | | |
| total | 31 | | | 151 | | | 128 | | | |
| Extracts | | | | | | | | | | |
| newsp. & period. | 0 | | | 0 | | | 0 | | | |
| gov't publicat'n | 0 | | | 0 | | | 0 | | | |
| literature | 0 | | | 0 | | | 4 | | | |
| total | 0 | | | 0 | | | 4 | | | |
| Resource mat's | 194 | | | 294 | | | 268 | | | |
| Pages | 107 | | | 434 | | | 219 | | | |
| Ratio (Mat's/pg.) | 1.8 | | | 0.7 | | | 1.2 | | | |

Table VII

Incidence of Resource Materials in Optional Textbooks: Grade IX

| RESOURCE | Grime, Landscapes of the world | | | Pounds, Europe with focus on Germany | | | Ryckman, Europe and Asia | | | Mean per c'tgy |
|---|---|---|---|---|---|---|---|---|---|---|
| Photographs | | | | | | | | | | |
| explicit relat'n | 7) | | | 10) | | | 27) | | | |
| implicit relat'n | 8) | 35 | 50% | 10) | 26 | 25% | 26) | 64 | 43% | 39% |
| indef. relat'n | 20) | | | 6) | | | 11) | | | |
| specific feature | 34 | | 50% | 77 | | 75% | 86 | | 57% | 61% |
| total | 69 | | 100% | 103 | | 100% | 150 | | 100% | 100% |
| Maps | | | | | | | | | | |
| location | 12) | | | 10) | | | 56) | | | |
| simple distrib'n | 54) | 66 | 70% | 38) | 48 | 72% | 75) | 131 | 82% | 75% |
| quant. distrib'n | | | | | | | | | | |
| point symbol | 15) | | | 13) | | | 3) | | | |
| isopleth | 12) | 29 | 30% | 3) | 19 | 28% | 14) | 23 | 18% | 25% |
| choropleth | 2) | | | 3) | | | 6) | | | |
| total | 95 | | 100% | 67 | | 100% | 154 | | 100% | 100% |
| Graphics | | | | | | | | | | |
| sections | 18 | | | 0 | | | 7 | | | |
| diagrams | 33 | | | 18 | | | 6 | | | |
| models | 4 | | | 3 | | | 3 | | | |
| statistic tables | 54 | | | 0 | | | 40 | | | |
| graphs | 22 | | | 0 | | | 69 | | | |
| total | 131 | | | 21 | | | 125 | | | |
| Extracts | | | | | | | | | | |
| newsp. & period. | 2 | | | 0 | | | 0 | | | |
| gov't publicat'n | 3 | | | 0 | | | 0 | | | |
| literature | 4 | | | 0 | | | 0 | | | |
| total | 9 | | | 0 | | | 0 | | | |
| Resource mat's | 304 | | | 191 | | | 429 | | | |
| Pages | 299 | | | 142 | | | 360 | | | |
| Ratio (Mat's/pg.) | 1.0 | | | 1.3 | | | 1.2 | | | |

Table VIII

Incidence of Resource Materials in Optional Textbooks: Grade X

| RESOURCE | Devereux, Mapwork with pictures | | | Forrester, Making steel in Hamilton | | | Robinson, Resources of the Canadian Shield | | | Mean per c'tgy |
|---|---|---|---|---|---|---|---|---|---|---|
| **Photographs** | | | | | | | | | | |
| explicit relat'n | 0) | | | 3) | | | 0) | | | |
| implicit relat'n | 0) | 15 | 88% | 4) | 11 | 44% | 0) | 15 | 88% | 77% |
| indef. relat'n | 15) | | | 4) | | | 15) | | | |
| specific feature | 2 | | 12% | 14 | | 56% | 2 | | 12% | 23% |
| total | 17 | | 100% | 25 | | 100% | 17 | | 100% | 100% |
| **Maps** | | | | | | | | | | |
| location | 2) | | | 0) | | | 0) | | | |
| simple distrib'n | 7) | 9 | 31% | 2) | 2 | 67% | 16) | 16 | 89% | 64% |
| quant. distrib'n | | | | | | | | | | |
| point symbol | 2) | | | 0) | | | 0) | | | |
| isopleth | 18) | 20 | 69% | 0) | 1 | 33% | 2) | 2 | 11% | 36% |
| choropleth | 0) | | | 1) | | | 0) | | | |
| total | 29 | | 100% | 3 | | 100% | 18 | | 100% | 100% |
| **Graphics** | | | | | | | | | | |
| sections | 0 | | | 1 | | | 0 | | | |
| diagrams | 4 | | | 4 | | | 0 | | | |
| models | 0 | | | 2 | | | 0 | | | |
| statistic tables | 0 | | | 0 | | | 7 | | | |
| graphs | 0 | | | 1 | | | 0 | | | |
| total | 4 | | | 8 | | | 7 | | | |
| **Extracts** | | | | | | | | | | |
| newsp. & period. | 0 | | | 0 | | | 0 | | | |
| gov't publicat'n | 0 | | | 0 | | | 3 | | | |
| literature | 0 | | | 0 | | | 0 | | | |
| total | 0 | | | 0 | | | 3 | | | |
| Resource Mat's | 50 | | | 36 | | | 45 | | | |
| Pages | 39 | | | 24 | | | 127 | | | |
| Ratio (Mat's/pg.) | 1.3 | | | 1.5 | | | 0.4 | | | |

VITA

Surname: DAYTON Given Names: JOHN GILMAN

Place of Birth: SAINT JOHN, N.B. Date of Birth: 12, December, 1931

Educational Institutions Attended, with Dates of Entering and Leaving:

| | | |
|---|---|---|
| McMASTER UNIVERSITY, HAMILTON | 1952 | to 1955 |
| UNIVERSITY OF BRITISH COLUMBIA | 1957 | to 1958 |
| UNIVERSITY OF VICTORIA | 1968 | to 1969 |
| | ____ | to ____ |

Degrees, Diplomas, Etc., Awarded, with Dates and Names of Institutions:

| | | |
|---|---|---|
| B.A. | 1955 | McMASTER UNIVERSITY, Hamilton |
| | ____ | |
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Honors and Awards:

University of Victoria Fellowship, 1968/69

Publications:

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