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Geographical serial literature: size, growth and characteristics

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GEOGRAPHICAL SERIAL LITERATURE :
SIZE, GROWTH AND CHARACTERISTICS

by

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A Master's Thesis

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requirements for the award of

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SUMMARY

The main purpose of this study was to examine quantitatively the size, growth and characteristics of geographical serial literature on a world-wide basis, together with some comparative data from the sciences and social sciences. Data on geographical serial literature was obtained by analysis of the titles listed in the International list of geographical serials (Harris and Fellmann, 1971).

Analysis of the data collected indicated that, (1) there were 1,189 geographical 'core' serial titles currently published in 1970, (2) geographical serial publications (current at different dates) have been growing exponentially approximately since 1950 at an annual growth rate of 4.4% with a doubling period of 16.1 years, (3) growth of geographical serial literature is related to socio-economic development and is promoted by the work of learned societies and professional associations, (4) geographical serial literature is characterised by high mortality rate and short life span, particularly in the years prior to 1950, (5) over 70% of the current titles are published in the form of scholarly and research journals, (6) more than 80% of the current titles are issued quarterly, annually and irregularly, (7) involvement of geographical societies and professional associations in serial publications is strong - more than half of the current titles are sponsored by them, (8) English is the most used language in current geographical serial publications, followed by German, Russian, French, Spanish, Portuguese and Italian, (9) many of the non-English language serial titles carry abstracts of articles in English, French, German or Russian, but few of the English-language titles published in the United Kingdom, the United

States, Australia and New Zealand provide abstracts of articles in languages other than English.

Production and growth characteristics in geographical 'core' secondary services and primary serials are compared. Results of analyses showed that secondary services developed fairly late in the history of geographical serial publications, that the ratio of secondary services to primary journals in 1970 was one to twenty-one or one to every thirty serial titles, and that the main improvement in bibliographical control of geographical literature has been through the expansion and improvement of existing secondary services rather than the creation of new services.

Findings of the present survey and a review of related literature showed that the growth rate and doubling period for geographical serial titles are more comparable to the social sciences than the sciences. It also indicated that geographical serial titles are more prone to mortality than other academic subjects but have a linguistic pattern similar to other subject literatures.

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ERRATUM

Throughout the main text, tables and figures,
the term 'monograph series' should be
'monographic series'.

1.0 INTRODUCTION

1.1 Aims

The main purpose of this study is to provide a quantitative and descriptive account of the size, growth and characteristics of geographical serial literature on a world-wide basis, together with some comparative data from the sciences and social sciences.

Without knowledge of the size and growth rate of the literature in a discipline, it would be difficult to understand the problems of information systems and services. This would undoubtedly affect the planning and design of new or improved information systems. Accurate data on the size and production of the literature is, therefore, valuable to information system designers, particularly when making proposals for new or improved services. For librarians, knowledge of the current growth rate and future size of the literature is of practical importance for budgeting and space requirements. Continued rapid growth, for instance, poses storage problems and may necessitate bringing forward the start of building programmes. In any case, estimates of the size and growth rate of the literature are of obvious interest to information officers and librarians. A number of such estimates have been made during the past few decades. Yet most of them were in the area of science and technology, but only recently in the social sciences and humanities. Little attention has been given to the literature of geography.

This study, concerned only with the serial literature, attempts to describe and analyse the size (i.e. number of titles), growth and characteristics of the literature of geography. Some

comparisons with other academic subjects or disciplines are made so as to give a full picture of the geographical serial literature. The present study also describes the size, growth and characteristics of the geographical secondary services, with particular emphasis on the relationship between size and growth trends for primary and secondary serials. The development of geographical learned societies is examined in relation to the growth of the serial literature. The language pattern of currently published geographical serials is described and the need to provide abstracts of articles in international languages is discussed.

1.2 Scope

1.2.1 Scope of geography

The term geography is derived from the Greek *γεωγραφία* which means description of the earth. Today the concept and scope of geography have undergone considerable changes and it is highly unlikely that any definition would satisfy everyone. Harvey (1969) in his Explanation in geography states that

geography is concerned with the description and explanation of the areal differentiation of the earth's surface (p. 1).

There are two parts to his statement: the how or method of geographical study, i.e. 'description and explanation', and what geographers should study, i.e. the substantive objectives of geographical study. As different geographers and groups of geographers tend to have different objectives, it is difficult to define precisely the subject scope of the present day geographical investigations. Haggett (1965) has suggested five major themes of

- 2 -

geographical research. The oldest of these themes is the landscape theme which concerns the study of the physical nature of the earth and its resources. Several of the branches of modern geography are derived directly from this tradition: geomorphology, hydrology, oceanography, climatology, meteorology and biogeography. The second traditional feature of geographical studies is that of the man-environment relationship. Almost any aspect of human activity may be related to the physical character and resources of the earth's surface, resulting in various sub-disciplines of geographical studies, e.g. economic geography, political geography, urban geography, social geography, population geography, historical geography, medical geography, etc. At present the most popular themes of geographical research are the areal differentiation theme (i.e. area study) and the spatial distribution theme. However, since 1950 there has been a renewed interest in the geometric theme (Haggett, 1965; Bunge, 1966) i.e. the use of mathematical languages for geographical research.

The subject scope of the present study follows that of the International list of geographical serials (Harris and Fellmann, 1971), a comprehensive list of geographical serials chosen as the main data base of literature references. In essence the International list of geographical serials is a listing of serials that are 'primarily geographic in contents' (Harris and Fellmann, 1971b). In other words, the subject scope of the present study is restricted to the 'core' literature of geography, excluding nearly all the fringe, related and specialized fields such as history, geology, hydrology, surveying, technical cartography, climatology, regional planning, etc.

1.2.2 Definition of serial literature

Only serials are analysed in this study. The chief reason is that serials are a major source of current geographical information, providing not only the most recent findings in the field but also the best summaries of important geographical works. Broadly speaking, 'a serial is simply a numbered publication. It may be published at regular intervals... or may be an irregular serial' (Harris, 1976). Within such a definition there is the whole range of different forms of serial, namely: monograph series, annual reports, periodicals, journals, newsletters, yearbooks, bibliographies, etc.

In the present study, the main data base against which the serial literature was analysed consisted of primary journals, abstract journals, indexes, contents lists, bibliographies, accession lists, yearbooks, fixed period reports, serially published conference proceedings, monograph series, newsletters, etc. A glossary of these bibliographical terms is given in Appendix 1.

2.0 BIBLIOMETRIC STUDIES

2.1 Background: the growth of literature

There is, at present, an increasing amount of attention being focused on the study of the trends in size and growth of various subject literatures, particularly that of the sciences and more recently that of the social sciences and humanities. The major reasons are the desire to formulate some optimal strategy for library stock-holding and the need to understand the implications of growth for bibliographical information services and systems. Today much of the debate on literature growth still revolves around whether or not the literature of a specific field is growing exponentially, and whether or not, if such a trend exists, it will continue.

Several quantitative studies of literature size and growth have demonstrated exponential growth of scientific literature during the past few decades (e.g. Price, 1961 and 1963; May, 1966; Barr, 1967). This led to anticipation and fear of tremendous growth in the next ten or twenty years. Yet many researchers in the field soon realised that continued growth according to the exponential model would lead to absurd conclusions about the amount of published literature likely to be in existence. They began to consider alternative patterns of growth: that of the exponential curve modifying into a S-shaped curve (i.e. exponential growth arriving at a saturation point) or into a levelling off model of growth (Figure 1a). Rose (1969), interested in scientific spending, saw that the saturation process in the growth of literature could be avoided by renewed growth or 'escalation' (Figure 1c). However, he cautioned against over-ready acceptance of the growth

model since adverse political, economic and social conditions may affect the growth of any subject literatures. He pointed out further that exponential growth does not necessarily by definition arrive at a saturation point largely because planners and policy makers may deliberately hasten or delay saturation process.

Interest in the growth of scientific literature dates back to the beginning of the present century. Cole and Eales (1917), by an analysis of the literature of comparative anatomy, provided evidence of non-linear growth. It was not until the 1950s that a more active interest in the exponential model of the growth of scientific literature had resulted from the work of Price (1951, 1956, 1961 and 1963).

Price (1961, 1963) studied the pattern of scientific growth, using numbers of scientists, scientific journals and abstract journals as indicators. He concluded that science has grown according to an exponential model, and that the constant of the exponential curve is such as to effect a doubling in annual production at intervals of the order of ten to fifteen years. May (1966) came to the same conclusion with respect to the growth of mathematical literature. This led to anticipation and prediction of an 'information explosion' in the near future. It is indeed correct to infer that the growth of scientific literature was exponential according the data of the 1950s and 1960s, particularly in terms of serial titles, abstracting services, periodical articles, etc. But with a longer time series now available and the likely effect of adverse political, economic and social conditions on literature growth, it is necessary as well as important to examine the validity of the exponential model of growth and to see whether there are signs of inflection occurring on the growth curve which

may be a prelude to saturation. This possibility of saturation in the growth of scientific literature has actually been considered by Price in his 1956 paper, but unfortunately largely forgotten by most authors in the field.

In the present study the data on the size and growth of geographical serial literature can be seen in the context of these previous theories about the growth of scientific literature. It can also be examined to see whether the exponential trend exists in geographical serial literature and if such a trend exists, whether it will continue, or whether new trends will become apparent.

2.2 Review of previous work

2.2.1 General

The importance of estimates of literature size and growth rate is reflected in the recent increase of research studies in the area. Broadly speaking, research into size, growth and characteristics of the literature can be identified into three main types. First are those what can be classified as a background to discussion of a more general kind, e.g. 'Outlook: the analysis of bibliographies in future' (Simon, 1973), 'Journals and the literature explosion' (Maddox, 1969) and 'Crisis in our university libraries' (Downs, 1961). Very often these studies are characterised by an analysis of a few research studies and an identification of the prevailing problems. Sometimes they can be very informative, especially when they make good use of the existing secondary statistics, e.g. The production and distribution of knowledge in the United States (Machlup, 1962).

The second category consists of studies dealing largely with pressing current issues and their likely future effects. Notable research works are 'The explosion in published information - myth or reality' (Bryan, 1968), Information in 1985: a forecasting study of information needs and resources (Anderla, 1973) and Scientific and technical communication: a pressing national problem and recommendation for its solution (Committee on Scientific and Technical Communication, 1969). It is clear from the examples quoted above that these studies usually make valuable recommendations for closer study of the size and growth of the literature.

Finally there are studies based on empirical evidence. Looking at most of the previous studies of size, growth and characteristics of the literature, it has been found that research in this area is relatively recent. Moreover, the scope, extent of data collection, and depth of analysis vary considerably. However, most of them are supplemented by a discussion or reanalysis of results reported in other research studies. Important representatives are those by Gottschalk (1963) and Barr (1967), dealing mainly with scientific and technological serial literature, the DISISS Report A2 (University of Bath, 1975) on social science literature, and Wootton (1977) on serial and monograph literature. Other studies confined to specific subject fields are those by Orr and Leeds (1964) in bio-medicine serial literature, Lengyel (1967) in social science, Berg (1971) and Fletcher (1972) in economics, Stoddart (1967), Steel (1961), Stalling (1971) and Clayton (1969) in geography, Anthony, East and Slater (1969) in physics, Menard (1971) in earth science, etc.

Despite all these studies carried out since the beginning of the 1960s, there is little agreement about growth trends between

different subjects or disciplines. This is hardly surprising since the study of literature size is affected by coverage and subject boundary criteria whereas the study of literature growth is dependent on the time series data available and the interpretation placed on different forms of growth trends.

2.2.2 Geography

'Geography is one of the subjects that have suffered comparative neglect as far as serious investigations into subject literatures are concerned' (Aiyepoku, 1973a). Although in recent years geographers have made notable contributions to a better understanding of the characteristics of the geographical literature, little attention has been given to world-wide survey of the serial literature of geography. The following section reviews briefly some of the few but notable works that have been published during the past thirty years.

Harris and Fellmann (1950, 1961 and 1971a) made a survey of world geographical serials. The 1950 paper described the geographical serials published since 1723 by region, country, language, size, major developments and holdings in American and European libraries. The 1961 and 1971 papers were brief descriptions of the current titles then included in their previous analysis. Features described include country of origin of newly published serials, language distribution, and progress in the adoption of international languages to supplement articles published in the local languages. Harris (1959) also gave a detailed account of the language pattern of geographical serials and pointed out the importance of supplementary use of one or more of the international languages (i.e. English, French, German and Russian) as a means of

making the contents of a periodical available to a world-wide audience.

Steel, in 1961, reviewed papers published in the Papers and Transactions of the Institute of British Geographers within the 1940-1960 period by subject field, date, region, authorship and use of maps and diagrams. His study, however, did not throw much light on the growth of geography as a whole since individual journals often show strong bias in subject coverage. Stoddart (1967), in view of this, made a more comprehensive study of the growth and structure of geography. He described the growth rate of world geographical serials, the numbers of professional geographers and their rate of productivity, and the structure of geographical works. He was particularly concerned in comparing these features with those in the scientific and social science literature.

Clayton (1969) carried out a survey of periodical literature in the fields of geography, geomorphology and geology. He reported an estimate of about 6000 titles covering both the core and main fringe literature relevant to geography, geomorphology and geology. In 1971 Stallings analysed the characteristics of research literature contained in five leading American geographical journals and discussed the major trends in geography as revealed by the analysis. In 1972 and 1973 Aiyepoku made several studies on the periodical literature of geography on a world-wide basis, with particular emphasis on the language pattern and format used.

3.0 METHOD

3.1 Characteristics measured

This study has involved the measurement of four parameters which are described and discussed below.

3.1.1 Size and production

Accurate measurement of the size of the literature in a specific field is affected by the forms of the literature included or excluded in the analysis as well as by subject boundary criteria. The present study has little control over the different forms of serial covered or the subject area involved. It has to recognize the limitations imposed by the main data base selected for the analysis.

Size of geographical serial literature is measured in terms of number of serial titles. Title counts are crude measures. They provide no information on the physical bulk of the literature (e.g. numbers of pages, thickness of volume, etc.) and its changes over time. However, they are the commonest as well as the easiest measures to obtain. Moreover they have some value as an indicator of the advancement of knowledge. The data on size of geographical serials is given both in terms of the number of titles currently published and the total number of titles ever published so that more useful and meaningful measures can be derived from it.

3.1.2 Growth

In this study, the term 'growth' is used to describe annual increases in the production of serial titles. The analysis of growth is based on time series derived from (a) titles current at different dates (i.e. simple growth rate adjusted for deaths) and (b) all titles

ever published (i.e. growth rate not adjusted for deaths) plotted on a semi-logarithmic scale. Emphasis is placed on the interpretation of growth rate but this is made more complicated as a result of variability in the distribution.

3.1.3 Forms of serial

The extent and range of the form field under investigation is determined by the data base chosen for the analysis. To identify and classify the different forms of serial is a difficult task. Ideally it is best to isolate every class of publication having some special feature or function. In practice this is impossible since it is difficult to produce mutually exclusive classes. The classification employed in the present study follows closely the scheme used in DISISS Report B4 (Nicholas, 1975). The major reason is to enable comparison with the social science serial literature. Appendix 1 provides a list of the different forms of serial identified and a glossary of the terms used.

3.1.4 Geographical distribution

In measuring the country-based geographical distribution of serial titles in geography, few problems were involved. This is largely because the International list of geographical serials (Harris and Fellmann, 1971) has its entries arranged alphabetically by country of origin.

3.2 Analysis techniques

3.2.1 Grouping the data

Different data grouping can have an effect on the measurement of size and growth of the literature. In the present study, the data

or record was first grouped according to its general characteristics. Two main groups were chosen:

- (a) All titles ever published, excluding those serials which have changed their titles, but still continue as essentially the same publications.
- (b) Current titles, i.e. serials current at different dates.

Within these overall groups, the data was grouped according to its particular characteristic features, e.g. by country of publication, by form of serial, by frequency of publication, by type of issuing body and by language of contents.

3.2.2 Time series

Generally speaking, the accuracy and validity of the growth rates calculated depend greatly on the length of time over which the data is available. It is also important to take into account the variability in the time series since quite different growth rates can be produced by using different starting points whenever the growth curve is not smooth.

4.0 DATA COLLECTION AND ANALYSIS

Before carrying out a quantitative study of the geographical serial literature, it was necessary to have a fairly complete file of data on geographical serials. Such a data base should ideally possess the following qualities:

- (1) The file should be comprehensive and exhaustive, covering both current titles and those no longer published.
- (2) A detailed bibliographical description should be provided of each title and the information thus contained should be up-to-date, accurate, and of value for bibliometric description.
- (3) The data base should be in a form suitable for computer manipulation.

4.1 The data base: ILGS

An examination of the existing lists of geographical serials showed that the second edition of the International list of geographical serials (Harris and Fellmann, 1971) met many, if not all of the above requirements for a data base. Its positive features include:

- (a) The list is said to be exhaustive, containing 2,415 current and dead titles from ninety countries.
- (b) It is not restricted to works in any single language or group of languages, nor is it confined to any region.

- (c) A fairly detailed bibliographical description of the serials listed is provided. This includes information on title, publication history, issuing pattern, sponsorship, country of publication, languages used in articles or in abstracts or in supplementary tables of contents, presence of abstracts with articles, availability of cumulative indexes, and references to listings in the existing union catalogues of the UK, US, Canada and, occasionally, France.
- (d) The list, though based on a variety of published bibliographies, is supplemented by 'a personal examination of library collection' (Harris and Fellmann, 1971b) as well as by information supplied by authorities within the country represented. The information thus presented is comparatively more accurate and reliable than other published sources.
- (e) Its subject scope is limited to 'serials which are primarily geographic in contents' and includes 'a very few periodicals on the borderline of geography' (Harris and Fellmann, 1971b). In other words, except for some of the most important work in geomorphology and cartography, the list does not include serials in which geography is subordinated to other subjects such as geology and history, nor does it contain specialised serials in closely related fields like surveying, technical cartography, climatology or regional planning. The list, therefore, is generally

regarded as 'the most comprehensive source for geographical core literature' (Clayton, 1969).

On the other hand, some weaknesses are apparent in the following areas:

- (a) Currency of information. 'This list is based on information available to the compilers on July 1, 1970 which was the closing date for new entries' (Harris and Fellmann, 1971b). Undoubtedly the list is deficient in serials published after July 1, 1970. Thought had been given to up-dating the list by the addition of the newly published titles but was soon abandoned since it would be difficult to decide which serials are purely geographical.

It is equally obvious that bibliographical information presented in the list is by no mean up-to-date. To achieve this, checking current bibliographies is essential.

- (b) Completeness of record. It has been found that not every serial title listed was provided with a full bibliographical description. As shown in Table 1, over 50% of the entries lacked information on frequency of publication whilst slightly more than 10% of the titles had no sponsorship statement.

- (c) Information on price, number of articles per volume, coverage by secondary services. Data in this area is not given. Although such data enables a deeper understanding of the growth and structure of the

serial literature, no attempts have been made to supplement the list with this information since the amount of work and time involved would be enormous.

4.2 Data elements

Based on the bibliographical information provided in the International list of geographical serials (Harris and Fellmann, 1971), the data collected for each serial title is:

- (1) Record number
- (2) Title
- (3) Subtitle
- (4) Alternative title
- (5) Previous title
- (6) Subsequent title
- (7) Beginning date
- (8) Ending date
- (9) Number of issues per annum
- (10) Issuing body
- (11) Type of issuing body
- (12) Country of publication
- (13) Main country group of publication
- (14) Type of serial
- (15) Description of serial
- (16) Abstracts with articles: occurrence and languages used
- (17) Language of contents
- (18) Separate language edition

These data elements were grouped into the data fields as shown in Appendix 2. Data fields 2 to 10 contain bibliographical information on the serial as well as its bibliographical history. Data fields 11 to 18 provide additional descriptive information relating to country of origin, content and function of the serial.

4.3 Editing and coding

As has been pointed out in section 4.1, less than 50% of the serial entries in ILGS contained all the bibliographical data listed in the previous section. Bibliographical checking is, therefore, essential not only in supplementing the list with missing data, but also in upgrading its bibliographical details.

4.3.1 Upgrading of ILGS listing

It has been pointed out in section 4.1 that the bibliographical details presented in ILGS was based on 'information available to the compilers on July 1, 1970'. It is, therefore, essential to update the bibliographical data on each serial listed. To achieve this, the data of each ILGS title was cross-checked with those given in current bibliographies as well as with information obtained by personal examination of the serial in its hard copy form whenever possible. During the upgrading process, no new titles (i.e. titles issued after July 1, 1970) were added to the computer data file. However, when a serial branched into two or more new titles or subseries after July 1, 1970, each new title or subseries was then added to the computer data file. Fortunately the number of these 'new' titles is small - only three titles were added to the file.

Two other amendments to the ILGS listing were also made during the upgrading process. The first amendment concerned the identification of serial titles having two or more subseries. Each subseries was treated and listed as an independent title in the computer data file. The second amendment involved the examination of those serials containing previous titles. If the previous title of the serial listed originated from a sponsor different from its continued title, e.g. BOLETIM paranaense de geociências. (Paraná. Universidade. Instituto de

Separate
entry

geociências). Curitiba. 1+ (1960+) Irregular. (N65-1:388b; N68-1:310c).
1-20 (1960-1966) as Boletim paranaense de geografia. (Associação dos geógrafos Brasileiros. Seção regional do Paraná; and Universidade do Paraná. Conselho de pesquisas),

a separate record was made for this previous title serial in the computer data file. Altogether seventy-nine 'amended' titles were added and a list of these titles is given in Appendix 7.

4.3.2 Data recording sheet

In order to assist field checking, a data recording sheet was designed and used. By placing everything on to one side and having various possibilities in certain data fields specified and coded (e.g. type of issuing body, description of serial, etc.), the sheet was made to serve as a field checking device, a coding form, a punching document, a hard copy record and a store for information not put on the computer file.

A sample of the data recording sheet is shown in Appendix 3.

4.3.3 Bibliographical editing and checking

This involved (a) cross-checking the data given in the list with those provided in current bibliographies, (b) identification of incomplete records, and (c) the searching for missing data. As shown in Table 1, the main fields of information sought at the editing stage were publication dates, frequency of publication and authorship details. Unfortunately this information was not usually readily available in published sources*. Personal examination of the serial in hard copy form is necessary before a complete file of records can be achieved. Library visits were made to the Royal Geographical Society Library, the British Library Reference Division, British Library of Political and Economic Science, and the Library of the University of London.

*A list of the sources used for bibliographical checking and tracing purposes is given in Appendix 8.

It is important to stress that the editing stage did not go as far as supplementing the list with additional new titles, nor with information on price, number of articles per volume, coverage by secondary services, etc. However, additional details such as different types of issuing body and various forms of serial were added so as to enable a more detailed analysis of the characteristics of the serial literature.

Despite the amount of effort spent in searches for missing data (altogether it took 32 working days), some 10% of the records remained incomplete in one way or another. This is not unexpected since the list contained many non-English language titles which are not readily accessible in the UK. Table 2 gives an idea of the 'completeness' of the data in each data field.

4.3.4 Coding

The main purpose of coding the serial data is to assist the handling of the data in a machine readable form. Various possibilities in certain fields such as types of issuing body and forms of serial were specified and coded. The codings used were numeric except country of publication which was given the standard BNB/MARC codes. Translation tables for coded data fields are given in Appendix 4.

4.4 Computer file creation

4.4.1 Input format

The main issue considered here was the choice of input format, i.e. organisation of data for input.

Owing to the variable nature of the data, it would be best to have the data fields arranged in free-field format, i.e. no

correspondence between the columns in the 80-column card occupied by the same data field on successive records as long as the sequence of the data fields remained constant. However, there were two strong reasons in favour of using fixed-column format instead:

(1) Unfamiliarity with using variable length data fields on the part of the researcher.

(2) Fixed length data fields, though extremely wasteful of space, enables easy manipulation of the individual fields.

4.4.2 Input medium

80-column punched cards were used as the input medium. Undoubtedly a file of 2,497 punched cards is bulkier when compared with that of a paper tape file. Nevertheless it has one important advantage: it is much easier to amend manually. Incorrectly punched cards can be repunched and inserted in the card pack without any difficulties.

4.4.3 Input information

Only numerical and alphabetical codes were included in the input records. Names of serial title, subtitle, alternative title, previous title, subsequent title and issuing body were excluded. This is because:

(1) SPSS (Statistical Package for the Social Sciences), an integrated system of computer programmes chosen for analysing the data collected, is incapable of handling alphabetical fields more than eight characters in length.

(2) A pilot study revealed that if names of serial title, subtitle, alternative title, previous title, subsequent title and issuing body were to be included in the input record, the average record length would be approximately 200 characters (i.e. equivalent to three 80-column punched cards). However some records exceed 350 characters in length. This would occupy a large amount of space, making the card file even more bulky. As SPSS fails to handle alphabetical fields exceeding eight characters in length, it was felt better not to have names of serial title and issuing body included in the input records, but to have each record carry a record number the same as the entry number in the International list of geographical serials (Harris and Fellmann, 1971) so that one can easily refer to the list for names of title or issuing body.

4.4.4 The data file

The computer based serial data file thus created serves as the base for the present descriptive survey of the serial literature of geography. Its coverage, as mentioned earlier, represents a comprehensive collection of works that are primarily geographical. The descriptive information collected for each title included in the file enables the calculation of size, growth and characteristic features of the serial literature of geography. The following section describes briefly the various programmes used in analysing the data collected.

4.5 Analysis programmes

Both application package and self-written programmes were used to analyse the serial data.

SPSS (Statistical Package for the Social Sciences), an integrated system of computer programmes available to users in Loughborough University, was employed to perform all the simple frequency counts of the data elements in each data field. In addition, it was also used to display relationships between various data fields as well as to compute the publication period for each record included in the analysis. However, it was found to be incapable of calculating the actual growth in the number of serials published over time. Hence a time-analysis programme suite was written to do the analysis.

The time-analysis programme suite consists of two programmes. The first programme analyses the beginning and ending dates for each serial title and builds up a table showing the number of serials commenced, ceased and continued publication in each year. At the end of the analysis, this table is printed out and the data thus derived is written to a workfile. The second programme then reads the data in the workfile and plots graphs showing the growth in number of titles published over time.

Another programme was written to read all the data elements in each record and copy them on to a paper tape file for storage.

When running the analysis programmes, it was possible to arrange the data or records in a number of different groupings. Generally speaking, the records were first grouped according to their general characteristics, e.g. serials that are currently published and serials that are both current and dead. Within these two main groups they were then grouped according to their particular

characteristics, e.g. by frequency of publication, by country of publication, by form of serial, by occurrence of abstracts with articles, by language of contents, etc. A list of all the analyses undertaken is given in Appendix 5.

5.0 SIZE, GROWTH AND CHARACTERISTICS OF GEOGRAPHICAL SERIAL LITERATURE

5.1 Size

5.1.1 Current production

To obtain an accurate estimation of the current production of geographical serials proved to be no easy task. The list of journals found in abstract periodicals often lists the ones that are cited in a particular volume and not all the titles acquired by the abstracting services. Geo Abstracts, for example, gives a listing of over 1,420 titles in its 1975 index volume. Yet Clayton (1969) in his Periodical literature survey in the fields of geography, geomorphology and geology reported some 6,524 titles relevant to geography, geomorphology and geology. The Bibliographie Géographique Internationale has a published list of about 900 titles. Unfortunately only 219 titles are purely geographical (Harris, 1968). Similarly the journal listing in Geo Abstracts consists of many 'fringe' journals, i.e. journals catering primarily to the interests of other subjects.

The Unesco Statistical Yearbook (1975) provides an estimate of about 1,076 titles current in the mid-1970s. This estimate, however, gives only a rough picture since it includes works both on geography and travel. Besides, some of the major producers such as the UK, US and the Federal Republic of Germany are omitted.

Another source of estimate of the current world geographical serials is the Ulrich's International Periodical Directory, 16th edition, 1975-1976 and its complimentary volume Irregular Serials and Annuals, 4th edition, 1976-1977. Altogether there are 535 titles listed under the heading 'geography'. A closer examination revealed that some of the titles are not strictly geographical but specialised

in cartography, surveying and photogrammetry. It is, therefore, obvious that the Ulrich data, like that of Unesco and Geo Abstracts, can only provide an estimation of the geography related serial titles current in 1975.

Clayton (1969), in his periodical survey in the fields of geography, geomorphology and geology, found that the core literature would be some 16% to 25% of the total significantly relevant. He thus estimated that a world wide total of geographical serials covering both the core and the main fringe literature would be about 6,000 titles with the core literature varying between 1,000 and 1,300 titles.

In the present study, an estimate of the current geographical core serials is obtained by analysis of the International list of geographical serials (ILGS for short), second edition, 1971. As has been mentioned in section 4.1, the ILGS is derived from a critical evaluation of the literature of geography, including only those works that are primarily geographical in contents and excluding nearly all the fringe, related and specialised titles. It thus can be regarded as a listing of geographical core serials. Harris (1971a) estimated that the world total current in 1970 was about 640 titles. A closer examination showed that he only took into account those titles which were 'thought to be actively current as of July 1, 1970'. In other words, he excluded titles that are 'temporarily inactive'. A recalculation gives a world total of about 1,189 titles currently published in 1970.

5.1.2 Total size

It is difficult to obtain a precise estimate of the total size of the geographical serial literature both current and dead. Holdings of geographical society libraries throw little light since they tend

to include fringe literature on their own countries or in specialised fields. ILGS, however, provides a reliable source of estimate. It recorded 2,415 current and dead serials from 90 countries over a period of 180 years. Estimates of the numbers of current and dead titles for different countries are summarized in Table 35.

5.2 Growth

5.2.1 Growth of world geographical serial literature

Growth rates of geographical serial titles have been obtained by analysis of the International list of geographical serials (Harris and Fellmann, 1971). The accuracy of the estimates thus derived depends on the extent to which ILGS forms a representative sample of the total literature. Generally speaking, when a subject grows, sub-groups break away to form new disciplines. An adequate measure of total growth trends should, therefore, include these sub-groups as well. Unfortunately some of these sub-groups may not be represented in ILGS and the growth rate may be underestimated to an undetermined extent.

As shown in Figure 2, the trend on a semi-logarithmic scale for world production of all geographical serials by date of foundation is very close to a straight line after 1790. This suggests that growth has been consistently exponential, with an annual rate of 2.6% and a doubling period of about 27.4 years. The curve, however, refers only to the cumulative total of all titles ever published. As pointed out by May (1969), the use of this smoothing device may mask important deviations from the theoretical curve. In order to test this, the number of serials current at different dates has been calculated and when the data was plotted on a semi-logarithmic scale,

there was no indication of a straight line between 1790 and 1970 (Figure 2). This suggests that the growth was not constant. In fact, it proceeded by a series of stops and starts, particularly in the years prior to 1830. To understand this, it is necessary to look briefly into the history of the development of geography.

Geography in its present development owes much to the work done in the past 150 years, especially that performed in Germany and France. Prior to 1800 geography was chiefly concerned with the exploration of unknown areas, the mapping of continental coastlines, and the compilation of informative descriptions of countries and regions. Its growth as an academic discipline was extremely slow and papers on geographical work often found their outlets in scientific periodicals. It was not until the early decades of the nineteenth century that the study of geography was greatly advanced. This was largely due to the influence of two important German geographers: Alexander von Humboldt, 'father of modern geography' (Taylor, 1951), and Karl Ritter, pioneer of human geography. Moreover, the years after the Napoleonic Wars were relatively tranquil. Energies that had been expended in wars and internal struggles were now released for widespread commercial and colonial ventures. The prevailing need to spread civilisation abroad and settlement possibilities in remote areas greatly stimulated people to investigate the geography and resources both of their own countries and foreign lands. Geography was widely taught in France and in Germany. Specialised geographical journals were established and its growth was promoted by the founding of numerous geographical societies, e.g. Société de Géographie de Paris (1821), Gesellschaft für Erdkunde of Berlin (1828), Royal Geographical Society of London (1830), Sociedad Mexicana de Geografía y Estadística (1833), Verein für Geographie und Statistik (1835), Imperial Russian Geographical

Society (1845), and the American Geographical Society (1852). In the latter decades of the nineteenth century, geographical studies were further promoted by the work of important geographers such as Oscar Peschel, Friedrich Ratzel, Paul Vidal de la Blache, Jean Brunhes, Emmanuel de Martonne, Pierre F.E. Cortambert, Sir Charles Lyell, Mary Somerville, Halford John Mackinder and W.M. Davis. The real modern growth of geography as an academic subject, however, came with its recognition by universities in the late nineteenth century. University departments of geography were first established in Germany in the 1870s and 1880s. In France, geography was taught in the University of Paris and the University of Nancy in 1870. In the United Kingdom, university geography began in 1887 when the Royal Geographical Society offered Oxford and Cambridge universities grants towards the stipends of lecturers. By the end of the nineteenth century the Oxford School of Geography was founded and geography became an academic discipline. In the United States the first Professor of Geography had been appointed at Princeton in 1854 and by the beginning of the twentieth century there were twelve universities offering courses in geography (Tatham, 1951). Thus from 1870 onwards, a considerable number of journals were founded by university departments of geography, causing a steep increase in the growth curve. The growth of geographical literature was not unaffected by the two World Wars which effected a significant decline in the production of geographical serial publications. However, once peace was restored, it started to grow again. It is interesting to note that growth was more rapid than in pre-war years. This was largely due to rapid expansion of geographical studies in universities in the UK, the US and other countries all over the world.

Growth curves based on titles current at different dates for different forms of geographical serials are shown in Figures 3A to 3D.

A more detailed discussion on the growth of secondary and primary geographical serials is given in section 6.

5.2.2 Growth of geographical serials in selected countries

A literature search showed that there is little published data on the growth of geographical serial literature in different countries. Although it is possible to produce short time series by countries from the Unesco Statistical Yearbooks, they are not at all satisfactory since the data given does not include countries such as the United Kingdom, the United States and the Federal Republic of Germany which are important producers. The data presented in ILGS provides a suitable source for the calculation of growth trends for different countries.

Based on ILGS data, growth curves for all geographical titles produced in selected countries are shown in Figures 5A to 5E. The post-1800 curve for the Federal Republic of Germany (including Pre-1945 Germany) gives a good fit to a straight line, indicating that growth has been consistently exponential with a doubling period of about forty-three years. For France and the United States, the post-1900 curves are nearly straight. Curves for the United Kingdom, USSR and Poland show rapid growth during the past twenty-five years, i.e. approximately since 1945.

Variations in growth are best seen in the annual production of current titles (Figures 6A to 6J). The curve for the Federal Republic of Germany (Figure 6B) is, therefore, not a straight line but shows considerable fluctuations, particularly in the years prior to 1830. An exceptionally long if not deep decrease occurred during World War II which had an obvious effect on the production of geographical serial literature. The curve for France (Figure 6B) is characterised by a steep rise in the 1870s during which French geography was raised

to a new level of accomplishment by the work of Paul Vidal de la Blache and his disciple Jean Brunhes. This was followed by a two-decade period of constant production, a steady drop throughout the World War years and then a slow rise from 1945 onwards. Curves for the UK (Figure 6A), US, Canada (Figure 6C), USSR, Poland (Figure 6D), Japan and China (Figure 6F) are all characterised by rapid growth after the World War II, with an annual rate of growth varying between 5.8% and 7.5% (Table 4).

5.2.3 Projections

It is difficult to produce an accurate prediction for geographical serials by using the ILGS time series. The curve based on titles current at different dates (i.e. growth rate adjusted for deaths) does not give a good fit to a straight line on a semi-logarithmic scale, but has noticeable variations. This suggests that geographical serials have been growing at different rates over different periods of time during the past 180 years. On the 1830-1890 series, the annual growth rate was about 4.0%. This was followed by a six-decade period of slow growth (1.7%) and then growth at a rate of 4.4% a year since 1950. Theoretically, according to the exponential model of growth and based on an annual growth rate of 4.4%, the number of world geographical serials would rise from 1,189 titles in 1970 to 1,828 titles in 1980 and then 2,268 titles by 1985. However, this exponential growth is much doubted since adverse political conditions would hinder geographical field works whilst unfavourable economic conditions would affect the production of geographical publications. Besides, variations in the growth trend in the past may suggest a change of the present growth rate in the next ten or twenty years. Probably the growth of geographical serial literature would be that of escalation (Figure 1c), but this

will await the accumulation of several decades of data on the size of the literature.

It is important to note that predictions from the exponential model of growth are not always precise nor reliable. This is best illustrated by an examination of the data gathered by Price (1956, 1963). By about 1960, it was estimated that some 100,000 scientific periodicals had been established and that the number was doubling roughly every fifteen years. This would result in about 300,000 titles by 1975. Yet the DISISS Report A2 (University of Bath, 1975) indicated that the number of serials in all subjects current at the beginning of the 1970s was about 125,000 titles.

5.3 Mortality and longevity

Some knowledge of the size of the total available literature is important when planning effective bibliographical control. Unfortunately, information about the serial population as a whole or in various subject disciplines is not readily available. By knowing the mortality rate for the serial literature of a discipline, it is possible to estimate the total number of serial titles ever published.

Before analysing the mortality of the serial literature of geography, it is necessary to distinguish the various types of mortality. Broadly speaking, mortality in the serial literature can be either 'apparent' or 'real'. The former occurs when (a) a journal changes its title but still continues as essentially the same publication, (b) it branches into two or more new titles, and (c) it amalgamates. For measurement purposes, all these events lead to no change in number. 'Real' death takes place when a title ceases to be published in any form whatever.

To identify these different types of mortality in statistics of serial titles proved to be difficult. Fortunately it is not of great importance in the present study because the number of titles affected by change of name, division or amalgamation is relatively small --- only 8.5% of all serials and 10.4% of current serials contained previous titles. The mortality discussed in the following section, therefore, refers only to 'real' death and not 'apparent' death.

5.3.1 Mortality rates of geographical serials

Based on data given in ILGS, mortality rates of geographical serials for selected years have been calculated and are summarised in Tables 5 and 6 and Figure 9. Note that the analysis was performed only on those records for which both beginning and ending dates were known. Of the 2,265 titles founded (Table 7), 1,055 titles have ceased publication. In other words, 46.5% of the total titles that have started publication since 1689 had died by 1970. In a comparable period, the mortality rate of geographical serials for the Federal Republic of Germany was 68.5%; France, 63.4%; USSR, 53%; US, 35.6% and for the UK, only 27.9%. As shown in Figure 9, mortality rate for world geographical serials began to increase after the mid-1910s and reached its peak during the World War years. The annual mortality rate for the past two decades (i.e. approximately since 1950) shows a steady decrease from about 3% to 0.5% a year (Table 6). This suggests that geographical serials nowadays are less prone to mortality than in the past but still more prone to mortality when compared with other subjects, e.g. the DISISS Report A2 (University of Bath, 1975) reported an annual mortality rate of about 0.5% for the social science literature.

It is important to stress that the above analysis did not take account of those records for which only an ending date or a beginning date was known. If the analysis is enlarged to include these records, a different set of mortality statistics will be derived.

5.3.2 Longevity of geographical serials

Longevity of current geographical serial titles is shown in Table 8, using the data given in ILGS with 1970 as a reference point. Nearly 80% of the current titles have been published for less than twenty-four years, i.e. approximately since 1945. Of these 80%, two-thirds have a publication period of less than fourteen years, indicating that a majority of the current geographical serials are recently published titles. Table 8 also shows that less than 10% of the current geographical titles have been published for more than fifty years. This suggests that most of the geographical serials do not have a long life span. In order to test this, longevity for defunct titles has been calculated and it was found that more than 64.2% of the discontinued titles had existed for less than ten years (Table 9). Such a short life span may be attributed to the fact that geography as an academic subject has undergone significant and constant changes in its concept, scope and methodology over the past 180 years. These changes in interest can cause a journal to merge, divide, or cease publication, and thus shortening the life span of a serial.

Tables 8 and 9 also show a breakdown of longevity of current geographical serials by major producing countries. It is clear from Table 8 that all the major producing countries are characterised by a high proportion of more recently published titles - over 60% of the current titles were founded after the World War II.

5.4 Characteristics

This section attempts to describe and analyse the main characteristic feature of geographical serial literature currently published in 1970. The main source of data is the International list of geographical serials (Harris and Fellmann, 1971) but personally upgraded (see section 4.3.1 for upgrading process). References to other related research works are made wherever they assist a better understanding of the serial literature characteristics.

Throughout this section as well as elsewhere in the other sections, analyses based on ILGS refer to serials in general. The term 'serial' is used when describing journals, secondary serials, yearbooks, fixed period reports, serially published conference proceedings and statistical publications collectively. In short, 'serial' includes all types of serially issued publications except monograph series. 'Journals', i.e. periodicals, in this study is used to refer what are generally considered as specialised research journals but also include those publications containing a wide range of news, commercial, general, statistical, recreational and educational material.

5.4.1 Current serial titles

(A) Type of serial publication

Based on personally upgraded ILGS data, there were 1,189 titles currently published in 1970. Over 80% (954) of the current titles were serials (Table 10). Monograph series accounted for only 19.8% of the serial population

(B) Form of serial publication

Table 11 shows a breakdown by form of serial for titles current

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in 1970. Journals, i.e. scholarly and research journals, occupied 70.6% of the total current titles, followed by monograph series, 19.8%; secondary serials (including abstracts, indexes, bibliographies, accession lists and research indexes), 3.2%; yearbooks, 2.2%; serially published conference proceedings, 1.5%; fixed period reports, 1.3%; and statistical and other miscellaneous publications, 1.3%.

About one-third of the current journal titles are published irregularly (Table 14) and 27.8% (200 titles) are issued annually. A breakdown of serial forms by issuing body (Table 16) indicates that 57.3% of the current journals originate from learned societies or specialist organisations whereas 33.1% are published by educational institutions of all types. Less than 5% of the journals current in 1970 are produced by commercial publishers. The number of current journals published in the UK, US, and the Federal Republic of Germany is more or less similar, varying between 51 to 57 titles (Table 19). The USSR, however, has a total production of 125 titles in 1970, Twice that of the UK, US and the Federal Republic of Germany.

Monograph series are chiefly published by educational institutions (60.4%), particularly by university departments of geography. Of the 233 current monograph series titles, 96.6% are issued irregularly. Germany and the US together account for 34.9% of the total number of monograph series current in 1970 (Table 19). They are followed closely by the UK (10.6%) and Italy (8.1%).

Secondary services are published chiefly by geographical associations (56.4%), educational institutions (12.8%) and private bodies (17.9%). The UK leads the world in total production of current secondary services (Table 19). However, the UK figure on current size of secondary serial literature should be interpreted with care since each subseries of Geo Abstracts is counted as a

single individual title. A more detailed analysis of the secondary services and their relationship with geographical primary journals is given in section 6.

Nearly half of the yearbooks listed in ILGS had ceased publication by 1970. Broadly speaking they are mostly published by learned societies (60%); the US is the leading producer, followed next by the Soviet Union.

Similar to yearbooks, almost 50% of all the serially published conference proceedings ever published were no longer active in 1970. A majority of the conference proceedings are issued by geographical societies (64.7%) while some are published by educational institutions (23.5%) and some by international organisations (17.6%). It is interesting to find that conference proceedings have the slowest growth when compared with the other forms of geographical serial literature (Table 47).

Fixed period reports accounted for only 1.3% of the current geographical serial titles. They are largely annual publications published by geographical associations (50%) and government bodies (31.3%).

(C) Frequency of publication

An analysis of frequency of publication was made from a group of 1,060 titles current in 1970. As shown in Table 12, three issue patterns predominate the scene - irregular, annual and quarterly; the percentage in each case being 47.3%, 22.6% and 11% respectively. Monthly publications accounted for a small proportion (3.6%). Slightly more than 4% of the current titles are issued six times a year; 6.6% are issued twice a year.

A breakdown of issue pattern by serial form is given in Table 14. The majority of annuals, semi-annuals and quarterly

publications are journals whereas irregularly published serial titles are characterised by an almost equal proportion of journals and monograph series.

The relationship between a serial's issue pattern and its issuing body is summarised in Table 15. It is interesting to find that each type of issuing body, with the exception of commercial firms and private bodies, has its greatest proportion consisting of irregularly published serial literature; the annuals and quarterly publications occupying the second and third position respectively. A closer examination shows that irregular issue pattern is most common in the publishing activity of educational institutions, government bodies and international organisations, particularly when issuing monograph series and conference proceedings (Tables 14 and 15).

(D) Type of issuing body

The term 'issuing body' is used for the organisation which is responsible for the existence and publication of the serial. It is different from 'publisher' which prints and distributes the serials. However, where there is no separate issuing body, publisher is regarded as having this function.

Table 13 shows a breakdown by type of issuing body for 1,184 titles current in 1970. Over half of the total current titles were produced by learned societies whereas educational institutions were responsible for 36.5% of the current serial population. This clearly indicates the importance of geographical societies in sponsoring and promoting geographical publication. A more detailed account of the role of geographical societies on the growth and development of serial literature in geography is given in section 7.

Generally speaking, geographical serials have not proved attractive to the commercial publishers who were responsible for only

3.8% of the total current titles in 1970, i.e. only one in every twenty-six of the current titles published was issued by commercial publishers. This may be partly because of the reluctance of many publishers to invest in an area of uncertain financial benefit, and partly due to the fact that many geographers prefer to publish their works in society journals which usually carry a higher status. However, as shown in Figure 4B, there is a steady increase in the number of serials published by commercial publishers in the post-war years. This is probably due to an expansion in numbers both of contributors and contributions as a direct result of post-war growth of geography as an academic discipline.

The form of serial publication chosen by an issuing body depends greatly on the interests of these bodies represent. As illustrated in Table 16, journal form is the most important as well as the most popular method of publishing adopted by geographical associations and societies which accounted for 77.8% of the current titles issued by them. Similarly, journal form is the main feature of commercial publishers (76.1%), government bodies (59%) and educational institutions (64%). Secondary serials, i.e. abstracts, journals, indexes, contents lists, bibliographies and accession lists are largely published by geographical associations (56.4%). Another important point of interest is that both learned societies and educational institutions produce a greater range of different forms of serial literature, covering journals, abstracts journals, indexing journals, contents lists, bibliographies, accession lists, yearbooks, reports, conference proceedings and monograph series. Commercial publishers, on the other hand, specialise in journals (76.1%) and monograph series (17.4%).

(E) Country of publication

The geographical distribution of current titles is shown in Table 17. The Soviet Union is the leading producing country, responsible for 11.7% of the world current production. This is followed by the United States which accounts for 10.3%. The Federal Republic of Germany occupies the third position (9.1%) and is followed next by the UK (7.7%), France (4.5%), Brazil (3.7%), Italy (3.4%), Poland (3.4%), Japan (2.9%) and Sweden (2.9%). The remaining 40% of the current titles consist of titles from seventy-one countries all over the world.

A more useful picture of geographical distribution of current serial titles can be obtained by grouping the producing countries into ten main country groups (Table 18). The main features that emerge are that 39.5% of the current titles originate in forty Western European countries and that 12.7% of the current titles originate in North America. The USSR and Eastern European countries, namely, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania and Yugoslavia, together account for 23.4% of the total number of titles current in 1970. Asia, Central and South America, Arab World, Africa and Australasia follow with 9.9%, 8.1%, 0.9%, 2.2% and 2.5% respectively.

Data on the types of issuing body, forms of serial publication and frequency of publication for current titles in the major producing countries is given in Tables 19, 20 and 21 respectively. In the UK, Italy and Canada, a significant proportion of geographical serial titles originate from educational institutions (52.2%, 61% and 60% respectively). On the other hand, the USA, USSR, France, the Federal Republic of Germany, Poland, Japan, Austria and Brazil are characterised by a larger percentage of titles published by learned

societies. Another important characteristic is that the Federal Republic of Germany has a greater number of serial titles issued by commercial publishers (11.2%) than the United Kingdom (7.6%), USA (4.9%), France (3.9%) and USSR (0.7%).

As shown in Figure 10 and Table 19, journals are the main form of serial publications in all the major producing countries. Comparatively, the United States and the Federal Republic of Germany have a greater number of monograph series than the other producers. Although the United Kingdom leads the world in the production of geographical secondary serial literature, it should be reminded that if the seven subseries of Geo Abstracts were treated as a single item, its position would rank after the US, France and the Federal Republic of Germany.

It is clear from Table 20 that irregular publication patterns predominate in all the major producing countries, with the exception of France which has a greater number of quarterly (40.4%) and annual publications (23.4%) than irregularly issued titles (19.1%). The Federal Republic of Germany has an unusually high proportion of her geographical serial publications issued irregularly (68%).

(F) Language of contents and abstracts

An analysis of 1,189 titles current in 1970 revealed that 87% of the geographical serial titles used only one language (Table 22) Bilingual publications accounted for only 7.9% of all current titles.

Based on a single language code, details of the main languages used in geographical serial literature are summarised in Table 23. The English language was by far the most used language, accounting for 32.4% of the single language code titles current in 1970. German ranked second with 15.1% and followed by Russian (10.6%), French (7.2%), Spanish (6.5%), Portuguese (4.9%), Italian (3.9%),

Polish (3.3%), Swedish (2.2%) and Japanese (2.1%). The remaining 11.8% consisted of twenty-eight other languages as shown in Table 23.

Some data on language of abstracts of articles is given in Table 26. Similar to language of contents, the English language is the most used language, followed next by French, German, Russian, Spanish, Italian and Portuguese.

A more detailed account of language pattern in geographical serial literature is given in section 8.

(G) Presence of abstracts with articles

As shown in Table 24, more than two-thirds of the current titles do not provide abstracts with their articles. This proportion is also true when only journals are considered (Table 26) - only 26% of the current journals provided abstracts with all their articles and 11% with some of their articles.

Of the 388 current titles with abstracts with articles, 73.2% provided abstracts in a language or languages different from the main text of the articles (Table 25).

As shown in Table 27, publications sponsored by associations and educational institutions often carry abstracts with articles. In fact, 50.3% of the titles with abstracts with articles originated from geographical associations and societies whereas educational institutions were responsible for 37.9%.

Table 28 shows a breakdown of abstracts with articles by country of publication. The Federal Republic of Germany has the largest number of abstract providing serial titles (8.5%) when compared with the USSR (7.5%), Poland (7%), USA (6.7%), France (6.4%), UK (4.6%), Japan (4.6%), Brazil (1.5%), Austria (1.8%), Canada (1.8%) and Italy (1%). However, when comparing the number of abstract providing serial titles with the total current serial population

in each country, Poland was found to be the leading country, having 67.5% of her current titles provided with abstracts with articles. Japan ranked second with a percentage of 52.9 and followed by France (47.2%), the Federal Republic of Germany (30.6%), Austria (24.1%), Canada (23.3%), US (21.3%), USSR (20%), UK (19.6%), Brazil (13.6%) and Italy (9.8%)

5.4.2 Current and dead geographical serial titles

Similar analyses of serial forms, issuing patterns, types of issuing body, geographical distribution, language(s) of contents and presence of abstracts with articles were performed on all titles (i.e. titles that are currently published and those that are no longer active) recorded on the upgraded ILGS file. It is interesting to find that although the number of current and dead titles analysed is twice that of the current titles, the results of the analyses based on current and dead titles (Tables 29 to 46) are very similar to those based on current titles only, e.g. Table 29 shows that the total number of journals ever published is twice that of the current total, yet their shares of the serial population are very similar: current and dead journals accounted for 73.9% of all serial titles whereas current journals occupied 70.6% of the total current titles. However, when examining geographical distribution of all serial titles (Table 35), it was found that the Soviet Union, which is the leading producer of current geographical serial literature, ranked after the Federal Republic of Germany (including Pre-1945 Germany). The United States occupied the third position and was followed by France, the United Kingdom, Italy, Brazil, Poland, Japan and China.

5.4.3 Changes over time in characteristics

This section attempts to describe briefly changes in

characteristics of geographical serial literature over a 170 year time period. The analysis is based on personally upgraded ILGS records for which both beginning and ending dates were known. The changes thus recorded reflect changes in the composition of the serial population but not changes in individual serials.

(A) Form of serial: 1800-1970

As illustrated in Table 47, the relative distribution of the various forms of serial literature has altered very little since 1800. Primary journals have never constituted less than 70% of the serial population. Although this share of the total has decreased from 85.7% in 1800 to 70.6% in 1970, the actual number of journal titles has increased seventyfold: from 12 titles in 1800 to 840 titles in 1970. Monograph series, however, showed a steady increase though their share of the serial literature has remained more or less constant since 1950: the percentage varying between 17.6% and 19.8%. The development of geographical secondary services, i.e. abstracts, indexes, contents lists, bibliographies and accession lists, clearly lagged behind the primary literature. The present ratio is about 1:30 (for all serials) or 1:21 (for primary journals). Greater details on the development of secondary services are given in section 6.

(B) Frequency of publication: 1800-1970

A look at the frequency pattern of the geographical serial literature over the past 170 years revealed a few interesting points. As illustrated in Table 48, between 1900 and 1970, the share of titles issued monthly and annually fell from 9.8% to 3.6%, and 26.5% to 22.6% respectively. Irregularly published titles had moderately increased their share from 35.8% to 47.3%. Similarly

semi-annuals had a net increase of 3.8% over the past seventy years. Quarterly issued serials, on the other hand, were characterised by a net increase of about 3.7% between 1900 and 1950 but then dropped from 15.8% in 1950 to 11% in 1970. Though the share of serials issued monthly, quarterly, and annually has decreased, the actual numbers of titles have increased. Nevertheless they do indicate that irregular and semi-annual publication patterns are at present the dominant patterns in geographical serial literature.

(C) Type of issuing body: 1800-1970

Table 49 illustrates the changing characteristics of sponsorship of geographical serials over a 170 year time period. The proportion of serial titles published by associations fell from 81.8% in 1900 to 52% in 1970 - that is, a decrease of 29.8% over a seven-decade period. The number of titles published by educational institutions of all types had increased over the same period, i.e. between 1900 and 1970, by more than 32%. In regard of serial literature issued by commercial publishers and government bodies, the proportions have fluctuated; yet the difference was not great, varying between 1% and 3%. Similarly the proportion produced by international organisations has also fluctuated but there was a general decrease in their share of the total serial population between 1950 and 1970.

5.5 Comparisons between geographical serial literature and other subjects

For comparative purposes, estimates of current production and size of serial literature in other subjects or disciplines have been obtained from results reported in the literature. Unfortunately this is not always satisfactory owing to the different sizes of literature

involved as well as due to the length of time series available and the criteria used to define subject boundaries. The comparisons reported here have used mainly serial titles and are selective, confined to notable research findings in the serial literature of science and technology, and of social sciences. No attempts have been made to compare with the humanities, largely because of the lack of bibliometric data.

5.5.1 Production and size

Based on data derived from the 1972 Unesco Statistical Yearbook and Check List of Social Science Serials, the DISISS Report A2 (University of Bath, 1975) gives an estimate of a world total of about 125,000 current serial titles of all types in all subjects at the beginning of the 1970s.

Gottschalk and Desmond (1963), in their study of the size of the scientific and technical journal literature, reported some 35,000 titles currently published in 1961. Price (1951, 1956, 1962 and 1963), using the World List of Scientific Periodicals, estimated the total number of current and dead scientific journals in 1960 was about 100,000, of which 70,000 titles were presumed ceased publication. Barr (1967), based on the number of titles currently received at the British Library Lending Division, provided an estimate of 26,000 scientific and technical periodicals current in 1965.

For social science serial literature, the DISISS Report A2 (University of Bath, 1975) cited an estimate of about 4,000 basic social science primary journals currently available in the early 1970s, and a total of 10,000 to 27,000 current social science related serial titles. It also suggested that the total number of social science serials ever published would be in the area of

70,000 to 170,000 titles.

It is clear from the estimates quoted above that geographical serial publications only occupy a small fraction of the current world serial literature: the ratio is approximately one geographical serial to every 105 serials in all subjects.

5.5.2 Growth

It has been pointed out in the DISISS Report A2 (University of Bath, 1975) that 'in the long run the difference (of growth rates) between the broad subject areas of the social sciences and the pure sciences and technology may not be great, the growth rate being in each case about 3% to 4% a year. The variation between individual subject areas, e.g. chemistry, physics, economics, psychology, etc., may be much greater'. This section attempts to illustrate these variations between geography and other academic disciplines. Data on growth of serial titles in other subjects are gathered from results reported in the literature.

The best known curve for the growth of scientific serials is the one put forward by Price (1951, 1956, 1962 and 1963). Using the World List of Scientific Periodicals, he has shown that the number of all titles current and dead has increased exponentially, doubling roughly every fifteen years after an initial period of growth from 1660 to 1760. In the serial literature of geography, the rate of growth for all titles (i.e. current and dead titles) is also exponential from about 1790 (Figure 7). The doubling period, however, is 27.4 years which is slightly less than half of that of science as a whole. Figure 7 also suggests that 'as a result of differential growth rates, geographical serial literature is occupying an increasingly small proportion of the total scientific effort' (Stoddart 1967). Note that the doubling periods quoted for scientific serials

(Price, 1963) and geographical serial literature (based on ILGS data) were based on the number of current and dead titles. They were not based on titles current at different dates. The doubling periods are, therefore, likely to vary in length when only current titles are used (Vickery, 1973).

The most current as well as the only available curve for the growth of social science serial titles is the one reported in the DISISS Report A2 (University of Bath, 1975). Based on data from the Check List of Social Science Serials (or CLOSSS for short), it showed that since about 1920, the number of current social science serial titles was doubling approximately every twenty years with an annual growth rate of 3%. CLOSSS also gives information on the doubling period for economics serial titles which have been doubling roughly every 20 years; for education c. 15 years and for political science c. 25 years. Geographical serial literature, when based on upgraded ILGS titles current at different dates, shows a 16.1 years doubling period and a growth rate of 4.4% a year since 1950. Figure 8 provides a comparison of the growth trends of (a) social science serials, (b) economics serials, (c) education serials, (d) political science serials, and (d) geographical serials, all based on current titles only.

Baker (1971) analysed the journal coverage in Chemical Abstracts and reported an annual growth rate of 8% - 9% for chemistry literature. Orr and Leeds (1964) have shown that the number of current biomedical serials was increasing at a rate of 7.3% a year from 1950 to 1960. Lovell (1973) calculated the growth rates for economics journals covered by the Index of Economics Journals: for journals given complete coverage the growth rate was 3.48% from 1950-1969 with a 19.9 years doubling period whereas for journals given partial coverage, the growth rate was 3.77% for 1850-1969 with a doubling period of 18.8 years. Ther

are several other data on growth of serial literature in other scientific and technological subjects. Gilbert and Woolgar (1974) give a good review of the literature from the perspective of the sociology of science, i.e. they assess the contribution of these studies towards the understanding of the social processes involved in the growth of science.

The examples quoted above suggest that the growth rate and doubling period for geographical serial titles are more comparable to those for education and economics, rather than those for the sciences. However, such direct comparison can be misleading owing to the very different sizes of literature involved as well as to the problems of defining subject boundaries.

5.5.3 Mortality and longevity of serial titles

Gottschalk and Desmond (1963), in their study of the size of scientific and technical journal literature, analysed a representative sample of journals in radioactivity, radiology and radiography held at the Library of Congress. They found that between 1900 and 1950, over a third of the total titles had ceased publication. They also analysed periodical titles listed in some of the major bibliographies and reported that the World List of Scientific Periodicals indicates a mortality rate of 33%; the Aeronautical and Space Serial Publications: a World List (1962) cites 4,551 titles, of which 2,998 are presumed dead, indicating 66% mortality in sixty years; the Biomedical Serials shows a rate of about 33% whereas the Library of Congress serial records for all subjects indicate a mortality rate of 40%.

Data on the mortality of social science serial titles is given in the DISISS Report A2 (University of Bath, 1975). Since 1820, 493 titles out of a total of 4,107 had ceased publication by 1971, i.e. a 12% mortality in 150 years. It pointed out that 'if the

analysis is performed on records for which only an ending date exists as well as for those with a beginning date', the mortality rate would be 25.6%.

Daniel and Louttit (1953) made a survey of the psychology literature; they found that between 1850 and 1950, 70% of the French psychological journals had ceased publication; yet the rates for the UK and US were far lower, being 21% and 50% respectively.

Using the first edition (1927) of the Union List of Serials, Kuhlmann (1940) reported that the average life span for defunct titles was 9.9 years but 25.1 years for continuing titles. A similar analysis of the titles in the second edition (1943) was carried out by the Library of Congress who found that defunct titles had existed for an average of 11.4 years whilst continuing titles averaging 27.2 years. All these estimates provide only a rough picture of the average life span of a serial since the dead one may not be typical of all and it cannot be predicted how long the current titles have still to 'live'. Nevertheless, they suggest that the life span for serials in general has increased since early 1900. Brigham (1947) and Mott (1968) came to the same conclusion with respect to their survey of American magazines: higher mortality rates and shorter life span for pre-1900 serials. This is also true in the geographical serial literature which is characterised by high mortality rates and short life span, particularly in the years prior to 1950.

5.5.4 Characteristics

The main purpose of this section is to see whether geographical and linguistic differences exist in serial literature production. Other characteristics such as issuing pattern, sponsorship, forms of serial, etc., are not discussed simply due to the general lack of

detailed bibliometric data.

The DISISS Report A2 (University of Bath, 1975), on the basis of the 1972 Unesco Statistical Yearbook, has shown that over 80% of all current serials of all types and in all subjects originate in the economically developed countries of Western Europe, North America and the Soviet Bloc. Similar patterns occur in the social science serial literature as well (University of Bath, 1975). This pattern of production is also valid in geographical serial literature: as shown in Table 18, over two-thirds of the current titles are published in West European countries, in the United States, USSR and Japan.

Although accurate data on language distribution of serial titles is not readily available, most studies of communication problems as well as surveys of journals covered by the main indexing and abstracting services have shown that English, Russian, German, French and Japanese are the most used languages in scientific literature (Bourne, 1962; Foo-Kune, 1970; Garvey, 1972; Meadows, 1974). In social science serial literature, the situation is very similar except with a slightly different ranking - English, French, German, Spanish, Italian, Russian and Portuguese (University of Bath, 1975). The present study also found a similar linguistic pattern but with a different ranking - English is by far the most used language, followed next by German, Russian, French, Spanish, Portuguese and Italian with Japanese and Chinese occupying the tenth and eleventh positions respectively. As pointed out by Clayton (1970) and authors in many fields, other national languages may in future become more important both internationally and politically, e.g. the Chinese language, but it is highly unlikely that they would break the monopoly of these most used languages, particularly that of English, French, German and Russian.

6.0 SIZE, GROWTH AND CHARACTERISTICS OF GEOGRAPHICAL SECONDARY SERIAL LITERATURE

With a current output of about 10,000 to 20,000 geographical periodical articles a year (Clayton, 1970), a knowledge of the size, growth and characteristics of the documentation services of geography would be of value to librarians and information scientists, particularly in understanding problems of bibliographical control as well as in improving information systems and services.

A literature search showed that it was only until comparatively recently that there were an increasing amount of bibliographical control studies, most of which deal with coverage and overlaps of journals and articles, depth of article coverage and time lag in entry. Relatively little attention has been given to world-wide investigations of secondary services in geography. The present study, therefore, attempts a description of the secondary literature (i.e. abstracts journals, indexes, bibliographies, contents lists, accession lists) of geography.

Originally it was intended to review the whole field of the secondary serial literature of geography, but it was soon discovered that the area was too vast to be studied in depth. This is because geography draws widely from many other academic disciplines and bibliographical information on geographical works can be obtained from services not only catering for geography, but also those catering primarily for the interests of other subjects. It was, therefore, decided to limit the study to the examination of 'core' secondary services, with an emphasis on size, growth and characteristic features such as types of services, frequency of publication, issuing body, geographical distribution, language pattern and time interval in reporting publications. The main data base of analysis is the

International list of geographical serials (Harris and Fellmann, 1971).

The bibliographical data of each ILGS secondary serial title, however, was upgraded to 1975 by cross-checking current bibliographies and personal examination of the title in hard copy form. Altogether there are fifty-three current and dead secondary serial titles in the file. As the sample analysed was small, the results are no more than indicative.

6.1 Size and production

A total of fifty-three current and dead titles of geographical secondary services were recorded in the upgraded ILGS file (Table 29), comprising 14 abstracts journals, 3 indexes, 36 bibliographies and 1 accessions list. Of these fifty-three secondary services, thirty-nine titles or 73.6% were found to be currently published in 1975. These estimates were calculated on the basis that each subseries of a secondary title was considered as a single title. Should the subseries be ignored, the number of current and dead secondary serial titles would be ~~forty-six~~ whilst there were thirty-two services currently available in 1975. Note also that these estimates refer only to the total size and current production of 'core' geographical secondary services and therefore exclude those 'fringe' services such as British Geological Literature, Excerpta Botanica, etc., which are more relevant to other academic subjects or disciplines.

6.2 Growth

In Figure 3B, the number of secondary serial titles current at different dates (Table 50) has been plotted on a semi-logarithmic scale. The curve does not give a good fit to a straight line.

Although rapid growth occurs after 1945, it is still not sufficient to show exponential growth. In other words, the growth of geographical secondary services was not smooth but characterised by a number of significant variations. The following paragraph reviews very briefly the history of development.

Secondary services covering geography on a world-wide basis did not occur until the late nineteenth century which saw two important developments: the establishment of Bibliographie Géographique Internationale in 1891 by l'Association de Geographes Français and Bibliographie der schweizerischen Landeskunde in 1892 by the Zentralkommission für schweizerische Landeskunde. Growth, however, was extremely slow. Only thirteen services were founded between 1900 and 1940 (Table 50). It was only after the World War II that growth in secondary services began to accelerate. The 1950s saw the establishment of fifteen bibliographies, two abstracts journals and two indexes. The 1960s witnessed another period of rapid growth. Probably this is due to the need for current awareness in bibliographical control of the production of geographical literature.

6.3 Characteristics

(A) Type of secondary services

Table 51 shows a breakdown by different types of current secondary services. Bibliographies occupied 61.5% of the total current services. Abstracting journals accounted for 30.8% and indexes constituted the remaining 7.7%

About 34% of the current services are issued irregularly (Table 52). Of these irregularly issued secondary services, bibliographies account for an overwhelming majority - 64.3% of the current bibliographies are published irregularly (Table 14).

Abstracting journals appear more frequently: two-thirds of the current abstracting journals are issued bimonthly or more frequently.

As shown in Table 53, over half of the current services are published by learned societies whereas educational institutions are responsible for 12.8%. A more detailed breakdown of the different types of secondary services by type of issuing body (Table 56) indicate that 70.8% of the current bibliographies are issued by learned societies. Although 58.3% of the current abstracting journals are published by private bodies (Table 56), it should be reminded that these abstracting journals issued by private bodies refer to the seven series of Geo Abstracts. Should they be treated as one single item, a majority of the abstracting journals would be sponsored by learned societies.

(B) Frequency of publication

As shown in Table 52, irregular issue pattern was the most common frequency pattern in the group (34.2%), followed by annual services (21%) and then bimonthly publications (18.4%). The remainders were semi-annually, quarterly and monthly, each accounting for 7.7% of the total current geographical secondary services. The relatively high proportion of less frequently published secondary services suggests that there is a time lag in reporting geographical works. A more detailed account of time lag is given in section 6.3(F).

A breakdown of issue pattern by type of services is given in Table 14. The majority of the current annuals, semi-annuals and irregularly issued secondary services are bibliographies. The more frequently published services, i.e. the monthlies and bimonthlies, are abstracting journals such as Referativnyi Zhurnal and Geo Abstracts.

The relationship between issuing pattern and issuing body for current secondary services is summarised in Table 55. Broadly speaking, irregular issue pattern is most common in associations and learned

societies. Table 57 also shows that the bi-monthlies are published exclusively by private bodies. However it should be borne in mind that these bi-monthlies refer to the seven series of Geo Abstracts.

(C) Types of issuing body

Table 53 shows a breakdown by types of issuing body for thirty-nine current secondary services. Over half of the titles were published by learned societies while 12.8% emanated from educational institutions. It is obvious that professional associations and learned societies are far more concerned with providing up-to-date information on geographical studies for their fellow members. Yet Roberts (1970) in his research on Information problems in geographical studies and the relevance of bibliographical organisation and control pointed out that most British geographers do not consider geographical associations as the most suitable bodies to initiate increased bibliographical activity, even though they have the advantage of being centres of current information of the organisational type. This is supported by the fact that Geo Abstracts, the most successful and popular abstracting service in the United Kingdom as well as in the world, is not sponsored by professional associations but depends largely on voluntary effort and a lot of goodwill, i.e. it is a commercial venture not supported by a professional association.

(D) Country of publication

Table 54 shows the geographical distribution of current geographical secondary services. The data should be read with caution since each series of a secondary service has been counted as a single individual title. Should these subseries be ignored, the ranking of the top eight producers of current secondary services would be the

US (12.1%), the Federal Republic of Germany (12.1%), France (12.1%), UK (9.1%), USSR (6.1%), Belgium (6.1%) and Spain (6.1%).

Table 54 also shows a detailed analysis of country of publication by type of services. It is interesting to note that no country produces more than one abstracting service (it is important to remember that the value for the UK refers to the subseries of Geo Abstracts). It is even more interesting to note that both the United States, the Federal Republic of Germany and France provide no abstracting journals. Probably this is due to the classification and grouping of the services employed in the present analysis. The annual French Bibliographie Géographique Internationale can be regarded as either an indexing journal or an abstracting service. In this study, it is grouped as bibliography largely because many of its entries carry brief notes mentioning other works on the same field but not informative abstracts like those contained in Geo Abstracts and Referativnyi Zhurnal. The United States, Germany (D.D.R.) and Iran each produces an indexing journal. A closer examination discloses that these indexes are comparatively limited in coverage, e.g. Hand key to your National Geographics is confined to publications in the National Geographic Magazine; the Fehrest-e maghâlât-e joghrafiyai is restricted to Persian periodicals. France leads the world in the production of current bibliographies, followed next by the US, the Federal Republic of Germany and Brazil (Table 54).

(E) Language(s) of secondary services

Table 57 shows that a majority of the current services were published in the English language (41%); followed next by the German Language (15.4%); French accounted for 10.3% while Spanish, Portuguese and Russian occupying 7.7%, 7.7% and 5.1% respectively.

A closer examination of the current services showed that most of

the geographical bibliographies, abstracting journals and indexes tend to be weighted more heavily with references in the same language as the service itself. Fehrest-e maghâlât-e joghrâfiyai, for example, is devoted entirely to publications in the Persian language. Geo Abstracts, Current Geographical Publications and New Geographical Literature and Maps all contain a high proportion of references in the English language: the percentages being in each case 72, 80 and 66 (Harris, 1976). Probably this is due to the fact that the compilers of the services are likely to have a greater knowledge of, or a more ready access to works in that language. Thus it is not surprising to find most of the services concentrated on works in the same language as the service itself.

(F) Time lag between original publication and appearance in secondary services

Perhaps the most important feature of a secondary service is the speed with which information can be placed in the hand of the user so as to keep him up-to-date with new developments in his subject field. To measure the time lag between the issuance of a publication and its report in a secondary service proved to be a difficult task. A number of factors have to take into consideration:

- (1) The primary and secondary journals may be published in different countries. Hence the issuing date on the title-page of the primary journal may not represent the date of receipt by the subscriber since delays often occur in posting, particularly during mail strikes.
- (2) The form of listing, e.g. abstracting, detailed subject indexing and classification, may cause delay in reporting publications.

(3) The frequency of publication of a secondary service.

As mentioned in section 6.3(B), 28.9% of the current geographical secondary services appear semi-annually or less frequently while 34.2% are issued irregularly. This implies that the bulk of references contained in these 63% of the geographical secondary services were at least six months out of date owing to infrequency of publication alone, not to mention actual delay in coverage.

Harris (1976) studies the time lag of six major current comprehensive services: Bibliographie Géographique Internationale, Current Geographical Publications, Documentatio Geographica, Geo Abstracts, New Geographical Literature and Maps, and Referativnyi Zhurnal: Geografiia. He pointed out that Current Geographical Publications reports most quickly on the appearance of an item, often within a month or two after its receipt at the Library of the American Geographical Society. On the other hand, Bibliographie Géographique Internationale is the slowest, having a typical time lag of twenty to thirty months (Harris, 1976). However, should its frequency of publication change from annual to quarterly or more frequently, its time lag in reporting publications would be reduced. The remaining four services generally report within a year (Harris, 1976). It, therefore, appears that with the exception of Current Geographical Publications most of the current geographical secondary services are characterised by a greater time lag in reporting geographical publications.

6.4 Comparison of production and growth of primary and secondary geographical serial literature

This section attempts to compare the production and growth of primary and secondary serials in the literature of geography.

The comparison was based on analysis of serial titles listed in the upgraded ILGS. Title counts, as pointed out earlier, are not the best or the only measures. It would be more useful to take account of the number of articles published in primary journals as well as the number of entries listed in secondary services. Unfortunately, owing to inaccessibility of most of the non-English language titles in the UK and the length of time involved in measurement, it was decided to limit the study to serial titles only.

The relative growth trends of primary and secondary geographical serial titles are shown in Figure 3B. Both curves refer to the number of titles current at different dates, i.e. growth rate adjusted for deaths of titles. It is obvious that the initial growth for primary journals and secondary services was characterised by spurts and pauses. Similar to primary journals, growth of secondary services was interrupted by the two World Wars which caused significant dips in the curve. The post-1945 trend of both curves is fairly similar, although the curve for secondary services is less smooth and shows slightly more rapid growth than that of the primary journals as well as that of all types of serial.

A comparison of the time series data for primary and secondary serials (Table 47) shows that secondary services developed fairly late in the history of geographical publications - nearly 120 years behind the development of a substantial geographical serial literature. As shown in Table 58, only two services existed in 1900. The ratio of secondary services to primary journals was 1:101.5 but one to every 126.5 serials of all types. Rapid development took place in the 1950s and 1960s. By the beginning of the present decade, there was one secondary service to every twenty-one geographical primary journals (or one to every thirty serial titles of all type). This ratio refers to the 'core' literature of

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geographical serials since the titles listed in ILGS are purely geographical, excluding all fringe and nearly most of the related literature.

6.5 Secondary services in other subject literatures

Some data on the ratio of primary journals to secondary services in science is given by Price (1956) who estimated that for every three hundred primary scientific journals there was one secondary service. Conrad (1965) quoted a ratio of one to eighteen for science serial literature in 1950. Wood and Bower (1971) estimated that there were some three thousand secondary services relevant to science and technology. The ratio, if calculated from Gottschalk and Desmond's estimate for primary scientific and technological journals (some 35,000 titles in 1961), would be one secondary service to every thirteen primary journals in the beginning of the 1970s. In social science serial literature, the DISISS Report A2 (University of Bath, 1975) reported that there was one social science secondary service to every fifteen primary social science journals in the early 1970s.

It can be seen from the above estimates that secondary services in geography are less well developed when compared with the sciences and social sciences. Such simple and direct quantitative comparison can be very misleading since the secondary serials listed in ILGS are mainly the 'core' services. Should those fringe services as well as fringe or geography related journals be included in the analysis, a different ratio would result, yet the ratio thus derived would be much worse. Besides the ratios quoted depend greatly on the definition of primary and secondary journals. Roberts (1970) in his

research on Information problems in geographical studies and the relevance of bibliographical organisation and control has suggested that it was only during the last two decades that there has been an increasing amount of professional interest in bibliographical control of geographical literature. This is best seen in the early and mid-1970s which saw important as well as significant transformations of the major existing international geographical secondary services: Geo Abstracts has greatly extended its scope of coverage in the peripheral fields and has its entries stored in computers so as to enable highly refined retrieval and processing; Bibliographie Géographique Internationale is going to shorten its time lag by appearing more frequently; Documentatio Geographica is to be renamed Dokumentation zur Raumentwicklung: Vierteljahreshefte zur Literaturdokumentation aus Raumforschung, Raumordnung, Regionalforschung, Landeskunde und Sozialgeographie and has its emphasis shifted to regional planning in the Federal Republic of Germany. It thus appears that the main improvement in bibliographical control of 'core' geographical literature has been through the expansion and improvement of existing services rather than in the creation of new services. Probably this is due to the wide dispersion of geographical literature among her allied disciplines, making it difficult for new services to cope comprehensively. Another possibility is due to the expense involved in the operation and maintenance of a service.

7.0 GEOGRAPHICAL SOCIETIES: THEIR ROLE IN THE GROWTH OF GEOGRAPHICAL SERIAL LITERATURE

The primary objective of this section is to examine the development of geographical societies in relation to the growth of geographical serial literature. A literature search showed that relatively little attention has been given to world-wide investigations of the work of geographical societies on the development of modern geography over time, particularly on the growth of serial literature. This section, therefore, attempts to describe and correlate the growth of geographical societies with socio-economic changes, to examine quantitatively the relationship between the growth of geographical societies and that of the serial publications, and to measure the influence of geographical societies on the advancement and dissemination of geographical ideas and information.

Strictly speaking, a 'geographical society' is an organisation or association devoted specifically to the cultivation of geography as such. The present study, therefore, excludes all those societies which are 'geographical' in a loose sense, e.g. mountaineering clubs, geological societies, etc. It takes into account only those societies whose primary aim is to promote the study and development of geography as an academic discipline and whose existence is to advance professional interest and research. A more detailed definition of geographical society and its differentiation from educational institution is given in Appendix 6.

The main source of data on geographical societies and professional associations has been the Orbis Geographicus (Meynen, 1968/72) which is regarded as the 'best world-wide source of comprehensive information on centres of geographical works' (Harris, 1976). The list, unfortunately, records only surviving societies.

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Thought had been given to supplementing the list with defunct societies but the idea was soon abandoned since this would demand extensive research before a fairly complete list could be achieved.

7.1 Growth of geographical societies

Figure 11 shows the world growth in number of existing geographical societies plotted cumulatively by date of foundation on a semi-logarithmic scale, based on data in Orbis Geographicus (Meynen, 1968/72). The post-1890 curve gives a fairly good fit to a straight line, suggesting exponential growth for the past eighty years but with a rather slow doubling period of forty-nine years and a low annual growth rate of 1.4%. The pre-1890 curve, however, is characterised by a steep rise in the 1870s and 1880s after a period of initial growth. As shown in Table 63, the number of geographical societies rose from twenty in 1870 to fifty-six in 1890. To understand this rapid increase in numbers of geographical societies, it is necessary to trace their development in relation to historical and socio-economic events.

The world's first specialist geographical society did not occur until the early 1820s which saw the establishment of the Société de Géographie de Paris (1821). Gradually other societies came into existence: the Gesellschaft für Erdkunde in 1828, the Royal Geographical Society in 1831, the Sociedad Mexicana de Geografia y Estadística in 1833, the Verein für Geographie und Statistik in 1835, the Brazilian Instituto Historico e Geografico in 1838, the Imperial Russian Geographical Society in 1845 and the American Geographical Society in 1851 (Figure 11).

The rapid growth of geographical societies after 1820 came in response to broader social changes and general public interest.

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In Europe the years after Waterloo were relatively tranquil. Energies that had previously been absorbed in wars and internal troubles were now released and expended in colonial ventures and settlement on remote frontiers. Geographical exploration became extremely popular largely because it led to the opening up of new trade routes, a better understanding of an area's natural resources, the founding of colonies, and the spread of civilization. Consequently many of the geographical societies founded in the early decades of the nineteenth century were organised with the aim of encouraging exploration and of advancing the study of geography by publications and lectures. In the latter half of the nineteenth century more and more geographical societies sprang into existence. In France geographical societies multiplied rapidly, particularly in the 1870s and 1880s when she was actively engaged in acquiring colonial lands and in spreading her civilization abroad. By the end of the nineteenth century geographical societies were founded in countries all over the world. Generally speaking, many of them were commercial in character, i.e. societies established to promote trade and exploration. Notable examples were the Société de Géographie Commerciale de Paris and the Manchester Geographical Society. The early decades of the present century, however, saw the development of geographical societies devoted specifically to the promotion of professional interest and the advancement of the study and teaching of geography in all categories of educational institutions, e.g. Association of American Geographers in 1904, Association de Géographes Français in 1920, International Geographical Union in 1922, and the Institute of British Geographers in 1933. As shown in Figure 11, growth of geographical societies in the twentieth century was slightly affected by the two World Wars which caused only a pause in growth.

7.2 Relationship between growth of geographical serial literature and learned societies

Figure 4A shows the general growth of geographical serial publications issued by learned societies and professional associations, based on counts of current titles listed in ILGS. The trend in growth is similar to that of geographical societies (Figure 11). The post-1890 trend for serial titles issued by geographical societies, however, is characterised by two stages of growth process. The first stage, spanning fifty-five years from 1890 until 1945, is one in which geographical serial publications increased slowly, at a rate of 1.6% per annum and a doubling period of 41.8 years. This is comparable to the growth of geographical societies which have been increasing at an annual growth rate of 1.4% and a forty-nine years doubling period since 1890. After 1945, serial titles issued by geographical societies began to increase much more rapidly: the annual growth rate being 3.5% for 1945-1970 with a doubling period of about 20.1 years. This suggests that post-war geographical serial literature published by learned societies and professional associations is expanding at approximately twice the rate that geographical societies are increasing. It is important to note that this comparison between the production of serial titles by geographical societies and the growth of geographical societies provides only a very rough picture. This is because Orbis Geographicus (Meynen, 1968/72), the main data base for geographical societies, does not include expired societies. Besides, the list is selective, recording only the leading associations. The result of the analysis is, therefore, no more than indicative.

Unlike the growth of geographical societies, the production of serial literature by geographical societies is affected by the two World Wars which caused two significant dips to occur in the

growth curve (Figure 4A). This is not surprising since during the war years activities of many of the geographical societies were curtailed, travel became difficult and publication was interrupted. As soon as peace was restored, serial literature published by geographical societies and professional associations began to increase rapidly, particularly in the UK, US, and USSR (Figure 12).

7.3 Influence of geographical societies on the development and growth of major forms of serial literature

As mentioned in section 7.1, many of the geographical societies founded in the early decades of the nineteenth century were organised with the aim of encouraging exploration. The Royal Geographical Society, for example, was very active in encouraging discovery and exploration by grants, advice, loans of instruments and preparation of maps. Consequently the periodicals they published were devoted to popular accounts of explorers' journeys. In the mid-nineteenth century interest in geographical exploration reached a peak. Geographical societies mushroomed all over Europe. Although many of the geographical societies established regarded educational advance as essential to their work, their main purpose was to promote voyages of discovery and to publish journals or bulletins giving detailed accounts of travel wonders. As shown in Tables 49 and 47, 77.3% of the serial titles current in 1850 originated from geographical societies and 84.8% were published in the form of primary journals. In 1892 a group of academically minded French geographers founded the Annales de Géographie, a scholarly journal edited by Paul Vidal de la Blache and Marcel Dubois with the purpose to advance geography as an academic discipline and to present discoveries systematically and scientifically and not simply as travel wonders. Similar

periodicals, i.e. periodicals independent of geographical societies and edited by professionally trained geographers, were founded in Germany, Italy, Russia and then all over the world. By the early 1970s the proportion of serials sponsored by geographical societies fell from 77.3% in 1850 to 57.3% in 1970 and the share of serial titles issued in the form of primary journals dropped to 70.6%. The decrease in numbers of titles sponsored by geographical societies is also due to an increase in numbers of scholarly journals and monograph series published by university departments of geography during the past few decades, e.g. Economic Geography published by Clark University in 1925 and the University of California Publications in Geography.

The closing decades of the nineteenth century saw a number of international geographical congresses organised by geographical societies, e.g. the Congrès International pour les Progrès des Sciences Géographiques in 1871, the Deutscher Geographentag in 1881 and the Congresso Geografico Italiano in 1892. This enabled geographer to have occasional opportunities to exchange views and to present and publish research findings in the form of irregular reports or conference proceedings. Table 47, based on data in ILGS, shows a steady growth of conference proceedings over the past hundred years. By the beginning of the 1970s, the number of currently published conference proceedings rose to seventeen, 64.7% of which were issued by geographical societies (Table 16).

As mentioned earlier, educational institutions, i.e. university departments of geography, colleges, etc., have played an increasingly important role in the advancement of modern geography. Many of them have sponsored, edited and published scholarly journals and monograph series. This affects not only the proportion of serial titles published by geographical societies but also the share of serial publications issued in the form of primary journals. Table 49 shows that the

proportion of serial titles published by geographical societies has decreased by 29.8% between 1900 and 1970 whereas the proportion published by educational institutions has increased over the same period by more than 30%. As shown in Table 16, geographical societies were responsible for 57.3% of the journals current in 1970 and 30.6% of the monograph series; educational institutions accounted for 33.1% of the primary journals and 60.4% of monograph series.

7.4 Comparisons between different subjects

7.4.1 Growth of learned societies

It is difficult to compare the world growth in numbers of geographical societies with other subjects or disciplines. This is largely because most studies are concerned with societies either in the seventeenth and eighteenth century or in a particular country. Much has to be investigated in this area so as to establish growth pattern of societies between different academic subjects.

7.4.2 Involvement of learned societies and professional associations in serial publications

As shown in Table 13, associations, societies, etc. are responsible for 52% of the geographical serial titles current in 1970. The DISISS Report B4 (Nicholas, 1975), however, showed that only 32.5% of the current social science serials were published by associations. It also pointed out that 'the involvement of associations is strongest in the applied and professional disciplines. Thus in librarianship, psychology, architecture, and social work associations have more than a 40% involvement'. It is suggested that the relatively large proportion of geographical serial literature published by learned societies and professional associations 'may be explained by the practice, common in many universities, of publishing geography journals via their own local geographical

associations'. Consequently this increases the relative importance of geographical societies in the publishing activity.

8.0 THE LANGUAGES OF GEOGRAPHICAL SERIAL LITERATURE

Knowledge of the languages in which the literature of a discipline is published is useful to researchers as well as of interest to information scientists and librarians. Several studies (Mann, 1966; Wood, 1967; Iawani, 1972; and Lengyel (in Chiva, 1974)) have demonstrated the importance of English as a medium of both scientific and social science publications whilst French, German and Russian are also major international languages with rich literatures covering most of the important academic fields. This section attempts to describe and analyse the language distribution of geographical serial literature based on a count of titles listed in ILGS. Particular emphasis is placed on regional distribution of languages of geographical serial publications and the use of English, French, German or Russian as languages of abstracts of periodical articles.

8.1 World pattern of language distribution of current geographical serial literature

The world pattern of language distribution of geographical serial titles current in 1970 is shown in Table 23. English is by far the most used language, occurring in 32.4% of all the current single-language code serial titles. German occupies the second position (15.1%) with Russian, French, Spanish, Portuguese and Italian contributing a lower percentage of 10.6%, 7.2%, 6.5%, 4.9% and 3.9% respectively. This implies that any researcher in geography must be familiar with at least English and German so as to be potentially able to access about half of the serial literature. Better still, he should be familiar with English, German, Russian and French - an admittedly serious language problem.

Table 23 also shows that English, German, French and Russian are widely used as 'joint' languages. Again English is in a leading role, appearing in 129 current multi-language code geographical serial titles. French ranks second, accounting for seventy-three current multi-language code titles and is followed closely by German (64 titles whilst Russian ranks a poor fourth, occurring in twenty-one current multi-language code titles. Of the 1,189 geographical serial titles current in 1970, 464 titles or 39% made either basic or joint use of English, 220 titles of German, 147 titles of French and 131 titles of Russian. Table 23 also indicates that Spanish, Portuguese, Italian, Polish, Swedish and Japanese are the other principal languages used in the serial literature of geography.

8.2 Regional pattern of languages used in current geographical serial literature

The world pattern shown in Table 23 provides only a rough picture of language distribution. It is of far greater value and interest to know the regional pattern of language distribution. To illustrate this, a breakdown of language of contents by major producing countries and main country groups for titles current in 1970 is shown in Table 59.

As shown in Table 59, the importance of English, French, German and Russian varies among country groups. In Western Europe German is the most used language in current single-language code geographical serial publications (135 titles) and is followed by the English language which appears in 106 current single-language code titles. French occupies the third position and Russian is not used in any of the current single-language code titles issued in West European countries. In Eastern Europe (i.e. Bulgaria,

Czechoslovakia, East Germany, Hungary, Poland, Romania and Yugoslavia) German ranks after Polish whereas English appears in six single-language code serial titles currently published in 1970. In the Soviet Union, of the 124 single-language code serial titles current in 1970, six are in Ukrainian, five in Lithuanian, two in Estonian and one in Georgian. It is interesting to find that English appears in one Russian-language title.

In North America, English is the principal language used in her current single-language code serial titles. French occurs in five (3.6%) of the current single-language code titles. A closer examination shows that these five French-language titles are issued in Canada which is officially a bilingual country.

In Asia, English accounts for nearly half of the current single-language code titles. This is not unexpected since English is used in education in India, Pakistan and the Philippines. Besides, it is taught as the principal foreign language in Sri Lanka, Burma, Indonesia, Hong Kong and Japan. In India, a land of great linguistic diversity, of her twenty-two multi-language geographical serial publications current in 1970, eighteen are basically in English and four carry occasional articles in English. In Japan, 25% of her current titles are entirely in English.

In Africa, English, French and Portuguese are the major languages used, accounting for 68.1%, 22.7% and 4.5% respectively of the total current single-language code titles. Similarly, most of the current single-language code serial titles in the Arab World are published either in French or in English.

In Central and South America, Spanish and Portuguese play the dominant role, accounting for 52.1% and 45.8% of the total current single-language code serial titles.

8.3 Use of international languages in geographical serial literature

The international languages discussed in this section are English, French, German and Russian, each of which rests on a solid base of a large number of native speakers, and each of which makes an important and significant contribution in enabling geographers to communicate with one another. The data base of literature references is the upgraded International list of geographical serials (Harris and Fellmann, 1971).

Generally speaking the higher the scholarly level, the greater the interest a journal will have for geographers in other countries, and consequently the more likely it is to make additional use of international languages in disseminating important geographical findings. Also, the less wellknown the national language, the greater is the need for some means of communication with geographers elsewhere. An examination of the current titles in the ILGS data file showed that few serials published their articles in full in the major international languages. It is more common for a serial to appear in the national language with a table of contents and abstracts of articles in one or more of the international languages. A breakdown of language of contents by language of abstracts for single-language code geographical serial titles current in 1970 is given in Table 60.

As shown in Table 60, English, German, French and Russian are being used as the principal languages of abstracts of articles in conjunction with twenty-eight different national languages. Note that this figure should be considered as a lower estimate since only single-language code titles current in 1970 are included in the analysis. It is interesting to find that these twenty-eight national languages include not only languages of limited territorial extent,

such as Bulgarian, Croatian, Czech, Danish, Dutch, Estonian, Finnish, Georgian, Hungarian, Korean, Lithuanian, Mongol, Serbian, Slovak, Slovene, Swedish, Turkish and Ukrainian, but also languages spoken by large number of people over wide areas, e.g. Spanish, Portuguese, Italian, Chinese and Japanese. Table 60 also indicates that English is the most extensively used language of abstracts in current geographical serial publications. However, it throws little light on the extent to which English, German, French and Russian are used as languages of abstracts of articles in various countries or regions. A brief account of the use of international languages as the language of abstracts of periodical articles in major country groups is given in the section below.

8.3.1 Regional pattern of the use of international languages as languages of abstracts of articles in current geographical serial literature

The use of international languages as the language of abstracts of articles in current single-language code geographical serial titles is shown in Table 61. In Eastern Europe, use is made of two or more of the principal international languages: English, French, German and Russian. In Western Europe, English plays the leading role, followed by French, German and Russian. In Asia, the pattern resembles that of Western Europe. It is interesting to find that English is the principal language used in Soviet Union's periodical articles abstracts.

(A) Eastern Europe

Harris (1959, 1961 and 1971a) pointed out that the use of English as language of abstracts in Eastern European countries is only a recent development. As shown in Table 62, in Poland, twenty-

three of her current single-language code geographical serial titles now reach an international community through the use of international languages in abstracts of articles. Of these twenty-three titles, seven make use of English, seven of English and Russian, three of English and French, two of English and German, and the remaining four titles supplement Polish text with a combination of English, French, German or Russian abstracts. In Czechoslovakia and Hungary, use is made of two or more of the principal international languages, yet German is comparatively more important than English, French and Russian (Table 62). In Bulgaria, Romania and Yugoslavia, many of their current single-language code geographical titles carry abstracts in English, French, German or Russian.

(B) Western Europe

In Western Europe, seventy current single-language code geographical serial titles provide abstracts of articles in the principal international languages (Table 61) so as to make their contents available to a world-wide audience. In Sweden (Table 62), every scholarly current single-language code serial title contain abstracts in English while some are in German or French. In Italy, two prominent geographical serial titles of international status carry English abstracts of Italian articles: they are Rivista Geografica Italiana and Bollettino della Societa Geografica Italiana. The Annali di Ricerche e Studi di Geografia and L'Universo provide abstracts in either English, French or German. In both Spain and Portugal, many of their important geographical serial titles carry abstracts in English and sometimes in French as well.

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In France it is interesting to find that English is the only language used for supplementing French text or abstracts in her current single-language code serial titles (Table 62). Similarly in the Federal Republic of Germany, of her sixteen single-language code current titles, fourteen carry English abstracts in addition to the German abstracts. The remaining two titles provide Russian, English or French abstracts to supplement the German text or abstracts. On the other hand, in the United Kingdom only two out of a total of eighteen abstract providing current single-language code title carry abstracts in French, German and Russian.

(C) USSR

In the Soviet Union a greater amount of her geographical literature is now becoming better known in other countries. This is largely because more and more of her periodicals have made use of other international languages. By the beginning of the 1970s English, French, German and Russian are used in her abstracts of articles. As shown in Table 61, English is the language which is most extensively used, occurring in fourteen current single-language code serial titles. Russian, however, is used for supplementary abstracts in twelve of her current titles which are published in Georgian, Ukrainian, Lithuanian or Estonian.

(D) North America

As shown in Table 61, only two current single-language code geographical serial titles make use of international languages in their abstracts of articles. A closer examination revealed that of these two titles, one provides German, French or Spanish abstracts to supplement the English text or abstracts, the other a French-language

journal carries English abstracts. Note that both titles originate in Canada which is a bilingual country. Thus strictly speaking none of the English-language geographical serial publications issued in North America (based on ILGS data) carry abstracts of articles given in other international languages. This is particularly interesting and further research into the socio-linguistic background of the countries concerned is required before one can account for this insularity.

(E) Asia

As shown in Table 61, thirty current single-language code geographical serial titles published in Asian countries make use of international languages in their abstracts of periodical articles: twenty-six of English, seven of French, three of German and two of Russian.

In East Asia, Japan plays the leading role in geographical serial publications for a world-wide audience. English abstracts appear in her fourteen single-language code serial titles current in 1970 and one title carries abstracts of articles in both English and German. Generally speaking, many of the Japanese titles provide an English table of contents whenever English abstracts are not supplied. In Nationalist China five of her geographical serial titles use English for abstracts of Chinese papers. In the People's Republic of China, Ti-li Hsüeh Pao (or Acta Geographica Sinica) contains abstracts in either the English or Russian language. A few of her current titles also carry an English table of contents.

In South Asia, twenty-five serial titles are now being published in English in India, Pakistan and Sri Lanka whilst six titles contain occasional articles published in the English language. However, these titles are not included in the present analysis since

in them English is not used as a supplementary language of abstracts of articles but rather as the language of contents of the publications.

(F) Central and South America

In the Spanish and Portuguese speaking countries of Central and South America, eight current single-language-code serial titles use English or French abstracts to supplement the Spanish or Portuguese text (Table 61).

In Brazil, five of her current single-language code serial titles use English or French for abstracts of articles published in the Portuguese language. The Revista Brasileira de Geógrafos has carried summaries in English and French since its founding in 1939. In Chile and Argentina, English is the principal language of abstracts of articles in their current serial publications.

(G) Africa and Arab World

In Africa, two current single-language code titles use English or German for abstracts of French articles. In the Arab World, English is increasingly used for abstracts of articles as well as for the basic text of geographical works in their current serial literature.

8.4 Conclusion

The above analysis reveals two important points of interest. Firstly, a majority of the non-English language geographical serial publications utilize international languages for abstracts of articles, particularly that of the English language, so as to make the contents of their publications accessible to a world audience.

On the other hand, few if any of the English-language geographical serials published in the United Kingdom, the United States, Australia and New Zealand carry articles or abstracts in languages other than English. Secondly, English is extensively used as a supplementary language for abstracts of articles not only in lands in which the national language is less well understood, but also in countries of the other great international languages, i.e. France, the Federal Republic of Germany and USSR. This indicates that English is by far the most widely used international language. Hence it is the most useful as well as the most popular medium of communication among geographers. To this extent, geographical serial literature is similar to that of the sciences and social sciences in which English assumes a higher international position than French, German or Russian.

9.0 CONCLUSION

The objective of the present study was to provide some information on the size, growth and characteristics of serial literature in geography. According to ILGS data on geographical serial titles of the 1950s and 1960s, geographical 'core' serial literature has been growing exponentially approximately since 1950 at an annual growth rate of 4.4% and a doubling period of 16.1 years. Such rapid growth, if continued, would certainly constitute some kind of a threat to those who attempt to control the documents and those who wish to use them. However, it is highly unlikely that this exponential model of growth would continue indefinitely. The major reasons are:

- (1) Geography is characterised by the branching off and the establishment of sub-groups as new academic disciplines. Consequently this is likely to slacken the growth of the 'core' literature.
- (2) Political, economic and social factors such as outbreaks of wars, onset of world inflation, paper shortage, energy crisis, the availability of research funds, the productivity of authors, the proportion of researchers who are authors and the extent of multi-authorship will have an effect on the production of published literature although more investigations have to be made in this area so as to have accurate measurement of the degree to which literature growth is affected by these factors.
- (3) Many researchers in the field of literature growth doubted the possibility of literature growth according to the

exponential trend. Many of them considered the S-curve or levelling off model of growth a better alternative.

The present study has also shown that growth of geographical serial titles by (a) country of publication, (b) form of serial literature, and (c) type of issuing body is characterised by considerable fluctuations over time, particularly during its early period of development. Such pattern of fluctuations, i.e. rapid rise, subsequent decline, etc., has been found in other literatures, e.g. the literature of anatomy (Cole and Eales, 1917), British patent and scientific publications (Hulme, 1923), and earth sciences (Menard, 1917). Although reasons for rapid growth and subsequent decline in literature production have been suggested, they are, nevertheless, only of generalised nature. It would, therefore, be interesting as well as profitable to explore further in this area to see:

- (a) to what extent a fluctuating pattern of gradual rise, rapid growth, decline, subsequent rise, etc., occurs in other subject literatures,
- (b) whether the period of rapid growth in literature production following the decline during the war years would have occurred even if there had not been a war,
- (c) to what extent literature growth is influenced by or related to a country's socio-economic activity. Menard (1971) has reported data on the relationship between a wide variety of scientific literature, research funding and manpower, Berg (1971) has analysed factors affecting the production of economics journals. Thus it would be interesting to investigate

whether there is a pattern of relationship between literature growth and socio-economic development in other subject literatures and in geography.

Results of the analysis of language distribution of geographical serial literature has indicated that most of the non-English language geographical serial titles provide abstracts of articles in English, French, German or Russian, yet few of the English-language titles published in the United States, the United Kingdom, Australia and New Zealand carry abstracts of articles in languages other than English. Probably 'in the UK and the US day to day use of foreign languages is not particularly common' (Clayton, 1970). However, further study in this area is needed so as to determine the extent to which the language pattern is attributed to socio-linguistic factors as well as to see whether this pattern of language distribution is valid in other subject literatures, particularly that of the sciences.

The overall effects of size and growth of literature in geography and other subjects on the users may not be very great since the most significant factor for them is the quality and availability of access facilities at their disposal. In other words, good access facilities such as bibliographical tools, reference services, retrieval techniques, classification schemes, etc., enable the users to overcome the problems arising from the sheer size, production and distribution of any subject literature. In geography, secondary bibliographical control of 'core' serial literature is concentrated in a few but large and comprehensive services, e.g. Geo Abstracts, Bibliographie Géographique Internationale, Referativnyi Zhurnal, Current Geographical Publications and

Documentatio Geographica. Access to the published literature is, therefore, relatively good and the problem users have in selecting which services to use is somewhat reduced. Yet a lot still remains in the need to monitor effectiveness of current bibliographical control, viz. coverage of geographical works and journal titles, time lag, indexing, etc.

Increased literature production, however, has imposed serious problems for libraries having limited acquisition budgets. Generally speaking, the greater the amount of literature available for acquisition, the more difficult it is to ensure that the best selection policies are followed. This is because it is difficult to foretell the likely required works to be acquired. Nevertheless, past use, interlibrary loan demands for titles not held, and citation studies can assist in the decision of the serial titles which should be acquired.

Another serious problem arising from continued literature growth is space requirements. Faced with reduced capital provision, many libraries with limited storage space find it less possible to construct new library premises. The only solution is to discard each year those titles that are relatively unused in order to make room for current intake. Another alternative is the use of microforms or expansion of the existing interlibrary loan services.

Lastly but not the least, increased literature production causes problems for information retrieval. It is indeed true that automation can readily and rapidly reduce the time and cost of information access, yet much still have to be done before more efficient handling of large files can be achieved and the machine file more accessible to a larger user population.

B I B L I O G R A P H I E S A N D
R E F E R E N C E S C I T E D
I N T H E T E X T

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A P P E N D I C E S

APPENDIX 1: GLOSSARY OF BIBLIOGRAPHICAL TERMS - SERIALS
(after DISISS Report B4 (University of Bath, 1975))

- Abstract journal:** A printed periodical containing abstracts and complete bibliographic citations of publications, usually appearing in a given subject field or fields.
- Accession list:** A printed record, usually serial, of the additions to the stock of a library.
- Almanac:** An annual publication usually containing a calender, frequently accompanied by astronomical data and general statistical data relating to the year for which it is issued.
- Annals:** A serial publication recording events of a year, transactions of an organisation or progress in a special field.
- Annual:** A serial which appears once a year, containing material particularly relevant to the year in which it is issued.
- Annual report:** An annual publication containing a brief account of the activities of an organisation during that year, much of the data often presented in a statistical form.
- Bibliography:** A printed list, often a serial publication, that lists publications related to a subject, period, author or some other unifying concept, containing normal descriptions of these publications.
- Book review list:** A serial publication which consists of critical, occasionally descriptive, appraisals of monographs, usually current and related to a subject field.
- Bulletin:** A publication, usually serial, containing 'official' or 'authoritative' topical information.
- Catalogue:** A publication, sometimes a serial, giving formal details of a list of documents, arranged according to some definitive plan. It records and describes the resources of a collection, library or group of libraries.
- Contents list
bulletin:** A periodical publication consisting of copies of the contents lists of selected periodicals, usually for a specific subject area.

- Directory: A list, often serial, of persons or organisations systematically or alphabetically arranged giving some information about the single units, usually at least addresses.
- Fixed period report: See Report (fixed period)
- Index to research/theses: An ordered reference list, often serial, providing summaries of research in progress or recently completed.
- Indexing journal: A periodical publication systematically indexing the contents of a number of serials or other documents relating to a particular subject field or locality.
- Journal: See Periodical
- Magazine: A periodical publication intended chiefly for the general reader. Magazines are usually published by commercial organisations, at frequent intervals and often include illustrative material.
- Monograph series: See Series
- Newsletter: A periodical usually published by an organisation containing current information of interest to its members. Much of the contents consist of numerous short news items. The publication usually appears at frequent intervals.
- Periodical: A type of serial in which the parts (called issues) usually appear more frequently than annually (there are some exceptions) and are generally characterised by two or more of the following features:
 - i) regularity of publication,
 - ii) consecutive and systematic numbering and dating,
 - iii) variety of contents and contributors, both within each issue and from one issue to another.
- Proceedings: A publication, often serial, containing the texts of papers communicated to a conference, society or institution and sometimes also reporting or transcribing discussions arising from the papers and business transacted in connection with them.
- Report (fixed period): A serial publication that appears at regular stated intervals (often annually), containing an account of the activities of an organisation during the time interval stated.

- Serial:** A publication of indefinite duration appearing in sequence (regularly or not), under a common title, the order of issues being ascertainable from numbers or dates appearing in each issue. The term embraces periodical and series, also generally, those types of publication such as yearbooks, almanacs and some directories in which the successive parts are essentially revised or updated editions of the preceding parts, published at relatively frequent or more or less regular intervals.
- Series:** A type of serial in which the parts are generally characterised by:
- i) distinctive part titles in addition to a series statement,
 - ii) the inclusion of only a single work, or a closely related group of works, in each part,
 - iii) the absence of predetermined intervals in the issue of successive parts.
- Statistical bulletin:** A publication, usually serial, containing 'official' or 'authoritative' topical information held in a statistical form.
- Yearbook:** A type of serial designed to present a body of reference material relating to specific years, intended to be revised at annual intervals.

APPENDIX 2: DATA FIELDS

Description of data field	Field code in computer file
1 Record number	
<u>Title information</u>	
2 Title	
3 Subtitle	SUBT
4 Alternative title(s)	ALTT
<u>Bibliographic history</u>	
5 Previous title(s)	PRET
6 Subsequent title(s)	SUBSEQ
7 Beginning date	BEGD
8 Ending date	ENDD
<u>Publication pattern</u>	
9 Frequency of publication (number of issues per year)	NOOFIS
<u>'Authorship'</u>	
10 Issuing body	
11 Type of issuing body	ISBODY
<u>Place of publication</u>	
12 Country of publication	COUNTRY
13 Main country group	MACOG
<u>Form of publication</u>	
14 Type of serial	PERIMONO
15 Description of serial	SERFORM
<u>Content description</u>	
16 Abstracts with articles	
(A) Occurrence	ABSTOC
(B) Language of abstracts	
i) Occurrence	ABSTOCL
ii) Language(s) used	ABSTLAN
17 Language(s) of contents	
(A) Occurrence	OCOFLAN
(B) Language(s) used	LANG
18 Separate language edition	SEPLANED

APPENDIX 3: ILGS - DATA RECORDING SHEET

Columns

1. Record No.

2. Title _____

3. Subtitle _____

4. Alternative
title _____

5. Previous title(s) _____

6. Subsequent title(s) _____

7. Beginning year

8. Ending year : 9999 = Continuous
0000 = Doubtful/Missing9. Frequency of publication : No. of issues per year
(77 = Every 2 years)
(88 = " 3 ")
(99 = Irregularly)

10. Issuing body _____

1 Soc., Assoc.	5 Int'l. Org.
2 Publ.	6 Com./Bus.
3 Gov't.	7 Priv./Indiv.
4 Educ. Inst.	8 Others

11. Country of publication

12. Main country groups

13. Type of serial : 1 = Serials except monographic series
2 = Monographic series

14. Description of serial

1 Jnl.	6 Bibliog.	11 Conf. proc.
2 Absts.	7 Access. lists	12 Stats.
3 Indexes	8 Ind/res/th	13 Mono. ser.
4 Cont. lists	9 Yearbooks	14 Others
5 Bk. reviews	10 Fixed period rpt.	

15. Abstracts with articles:

A) Occurrence : 1 = None; 2 = Some; 3 = All

B) Language(s) of abstracts:

i) Occurrence - 1 = Same as that of article
2 = In additional language(s)
3 = In other language(s)ii) Language(s) used - if not same as that of article
give the language(s)

16. Language(s) of contents:

A) Occurrence - 0 = Single language

1 = 2 languages
2 = 3 " etc.
(9 = 10+ ")

B) Language(s) used

17. Separate language editions

1	2	3	4
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☐ 5

☐ 6

☐ 7

☐ 8

9	10	11	12
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13	14	15	16
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☐ 17

☐ 19

20	21
22	23

☐ 24

☐ 25

☐ 27

☐ 28

29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44

☐ 41

45	46	47	48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63	64	65	66

☐ 66

APPENDIX 4: TRANSLATION TABLES FOR 'BOX-CODED' DATA FIELDS

A) Translation table for fields SUBT and ALTT

- | | |
|---|---|
| 0 | Absence of subtitle/alternative title(s) |
| 1 | Presence of subtitle/alternative title(s) |

B) Translation table for field PRET

- | | |
|---|---|
| 0 | Absence of previous title(s) |
| 1 | Presence of previous title(s) - serves to indicate 'apparent' birth of a title, i.e. the existing title is a continuation of the previous publication. |
| 2 | Presence of previous title(s) - serves to indicate 'real' birth of a title when the existing title is derived from the branching of the previous publication. |

C) Translation table for field SUBSEQ

- | | |
|---|--|
| 0 | Absence of subsequent title(s) |
| 1 | Presence of subsequent title(s) - serves to indicate 'apparent' death of a title, i.e. when a serial changes its name, branches into two or more new titles, or amalgamates. |
| 2 | Presence of subsequent title(s) - serves to indicate 'real' death of a title whenever it merges or combines with other title(s). |

D) Translation table for fields BEGD and ENDD

- A four digit date, or:
- | | |
|------|--------------------------|
| 0000 | Date unknown |
| 9999 | Continuing in publishing |

E) Translation table for field NOOFIS

- Number of issues per year, or:
- | | |
|----|----------------------|
| 77 | Issued every 2 years |
| 88 | Issued every 3 years |
| 99 | Issued irregularly |

F) Translation table for field ISBODY

1	Associations, societies, etc.
2	Commercial publishers
3	Government
4	Educational institutions
5	International organisations
6	Commercial or business firms
7	Private or individual body
8	Others

G) Translation table for field COUNTRY

AF	Afghanistan	GG	Germany - pre-1945
AE	Algeria	GW	Bundesrepublik Deutschland
AO	Angola	GE	Deutsche Demokratische Republik
AG	Argentina	GH	Ghana
AT	Australia	GR	Greece
AU	Austria	GT	Guatemala
BE	Belgium	HT	Haiti
BO	Bolivia	HO	Honduras
BL	Brazil	HK	Hong Kong
BU	Bulgaria	HU	Hungary
CN	Canada	IC	Iceland
CE	Sri Lanka	II	India
CL	Chile	IO	Indonesia
CC	China	IR	Iran
CK	Colombia	IQ	Iraq
CR	Costa Rica	IE	Irish Republic
CU	Cuba	IS	Israel
CO	Curaçao	IT	Italy
CS	Czechoslovakia	IV	Ivory Coast
DK	Denmark	JM	Jamaica
DR	Dominican Republic	JA	Japan
EC	Ecuador	KO	Korea
ET	Ethiopia	LE	Lebanon
FI	Finland	LY	Libya
FR	France	MG	Madagascar
FE	French Equatorial Africa		

G) Translation table for field COUNTRY - continued

MY	Malaysia	SL	Sierra Leone
MM	Malta	SI	Singapore
MX	Mexico	SA	South Africa, Republic of
MZ	Mozambique	SP	Spain
MP	Monogolian People's Republic	SJ	Sudan, Republic of the
MR	Morocco	SW	Sweden
NP	Nepal	SZ	Switzerland
NE	Netherlands	TZ	Tanzania, United Republic of
NZ	New Zealand	TI	Tunisia
NQ	Nicaragua	TU	Turkey
NR	Nigeria	UG	Uganda
NO	Norway	UN	Union of Soviet Socialist Republics
PK	Pakistan	UA	United Arab Republic
PN	Panama	UK	United Kingdom
PE	Peru	US	United States of America
PH	Philippines	UY	Uruguay
PL	Poland	VE	Venezuela
PO	Portugal	VN	Vietnam
PR	Puerto Rico	YU	Yugoslavia
RM	Romania	ZA	Zambia
SG	Senegal	(ZZ	International organisation)

H) Translation table for field MACOG

- 1 Eastern Europe: Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and Yugoslavia.
- 2 Southern Europe: Greece, Italy, Malta, Portugal, and Spain.
- 3 Western Europe: Austria, Belgium, France, Germany (Pre-1945 Germany and West Germany), Irish Republic, Netherlands, Switzerland, and the United Kingdom.
- 4 Northern Europe: Denmark, Finland, Iceland, Norway, and Sweden.
- 5 USSR
- 6 North America: United States of America and Canada.

H) Translation table for field MACOG - continued

- | | | |
|----|------------------------------|---|
| 7 | Central and South America: | Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Curacao, Dominican Republic, Ecuador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Peru, Puerto Rico, Uruguay, and Venezuela. |
| 8 | E. Asia: | China, Hong Kong, Japan, Korea, Monogolian People's Republic. |
| 9 | S.E. Asia: | Indonesia, Malaysia, Philippines, Singapore, and Vietnam. |
| 10 | S. Asia: | India, Nepal, Pakistan, and Sri Lanka. |
| 11 | S.W. Asia: | Afghanistan, Iran, Israel, and Turkey. |
| 12 | Arab World: | Algeria, Iraq, Lebanon, Libya, Morocco, Sudan, Tunisia, and the United Arab Republic. |
| 13 | Australasia: | Australia and New Zealand. |
| 14 | East Africa: | Ethiopia, Madagascar, Mozambique, Tanzania, and Uganda. |
| 15 | South Africa: | Republic of South Africa. |
| 16 | West Africa: | Ghana, Ivory Coast, Nigeria, Senegal, and Sierra Leone. |
| 17 | Central Africa: | Angola, French Equatorial Africa, and Zambia. |
| 99 | International organisations. | |

I) Translation table for field PERIMONO

- | | |
|---|------------------|
| 1 | Periodical |
| 2 | Monograph series |

J) Translation table for field SERFORM

- | | | | |
|---|------------------|----|--------------------------|
| 1 | Journals | 8 | Index to research/theses |
| 2 | Abstracts | 9 | Yearbooks |
| 3 | Indexes | 10 | Fixed period reports |
| 4 | Contents lists | 11 | Conference proceedings |
| 5 | Book reviews | 12 | Statistics |
| 6 | Bibliography | 13 | Monograph series |
| 7 | Accessions lists | 14 | Others |

K) Translation table for field ABSTOC

- 1 No abstracts with articles
- 2 Abstracts with some articles
- 3 Abstracts with all articles

L) Translation table for field ABSTOCL

- 1 Language of abstract same as the article
- 2 Language(s) of abstract different from the main text -
abstracts given in languages both same as well as
different from the main text.
- 3 Language(s) of abstract different from the main text -
abstracts given in other language(s) only.

M) Translation table for field OCOFLAN

- | | |
|---|-----------------|
| 0 | Single language |
| 1 | 2 languages |
| 2 | 3 " |
| 3 | 4 " |
| 4 | 5 " |
| 5 | 6 " |
| 6 | 7 " |
| 7 | 8 " |
| 8 | 9 " |
| 9 | 10+ " |

N) Translation table for fields ABSTLAN, LANG and SEPLANED

- | | | | |
|----|-------------|----|---------------|
| 42 | English | 13 | Croatian |
| 43 | German | 14 | Czech |
| 44 | French | 15 | Danish |
| 45 | Italian | 16 | Dutch/Flemish |
| 46 | Spanish | 17 | Finnish |
| 47 | Russian | 18 | Greek |
| 48 | Portuguese | 19 | Hungarian |
| 49 | Latin | 20 | Icelandic |
| | | 21 | Macedonian |
| 11 | Belorussian | 22 | Maltese |
| 12 | Bulgarian | 23 | Norwegian |

N) Translation table for fields ABSTLAN, LANG and SEPLANED - continued

24	Polish	55	Indonesian
25	Rumanian	56	Malay
26	Serbian	57	Vietnamese
27	Serbo-Croatian		
28	Slovak	61	Hindi
29	Slovene	62	Nepali
30	Swedish	63	Sinhala
31	Ukranian	64	Tamil
32	Armenian		
33	Azerbaijani	71	Arabic
34	Esperanto	72	Iranian
35	Estonian	73	Hebrew
36	Georgian	74	Persian/Farsi
37	Kirgiz	75	Pushto
38	Lettish	76	Turkish
39	Lithuanian		
		80	Afrikaans
51	Chinese	81	Amharic
52	Japanese	82	Swahili
53	Korean		
54	Mongol		

APPENDIX 5: LIST OF ILGS ANALYSES

Analyses	Statistics derived
(A) <u>SIZE</u>	
1. Code analysis for all titles with data field SUBSEQ coded 1 and field PERIMONO coded 1 and 2	Number of periodicals and monograph series having previous titles
2. Code analysis for all titles with data field ENDD coded 9999 and field PERIMONO coded 1 and 2	Number of current periodicals and monograph series
3. Code analysis for all titles with data field ENDD not coded 9999 (excluding those having field SUBSEQ coded 1) and field PERIMONO coded 1 and 2	Number of defunct periodicals and monograph series
(b) <u>GROWTH AND MORTALITY</u>	
1. Time analysis (i.e. fields BEGD and ENDD) for all current and dead titles	(a) Annual growth in number of serials (b) Annual mortality in number of serials (c) Measure of total stock at different dates (d) Measure of currently published stock at different dates
2. Time analysis for all current and dead titles with field NOOFIS for each issuing pattern	(a)-(d): frequency of publication
3. Time analysis for all current and dead titles with field ISBODY for each type of issuing body	(a)-(d): type of issuing body
4. Time analysis for all current and dead titles with field COUNTRY coded UK, US, UN, FR, GG+GW, IT, BL, NE, SZ, NO+SW*DK, AU, PO, SP, CN, II, JA, CC, BL, CS, PL.	(a)-(d): selected country of publication

APPENDIX 5: LIST OF ILGS ANALYSES - continued

Analyses	Statistics derived
5. Time analysis for all current and dead titles with field MACOG coded 1, 2+3+4, 5, 6, 7, 8+9+10+11, 12, 13, 14+16+17, 15.	(a)-(d): main country group of publication
6. Time analysis for all current and dead titles with field PERIMONO coded 1 and 2	(a)-(d): type of serials
7. Time analysis for all current and dead titles with field SERFORM coded 1, 2+3+4+5+6+7+8, 9, 10, 11, 12, 13, 14.	(a)-(d): form of serials
8. Analysis of the publication period (field ENDD minus field BEGD) for each serial current in 1971 in the world, in the USSR, USA, UK, Germany(Fed.), France, Brazil, Italy, Poland, Japan, Canada.	Longevity of current serials
9. Analysis of the publication period (field ENDD minus field BEGD) for each defunct title in the world, in the USSR, USA, UK, Germany (Fed.), France, Brazil, Italy, Poland, Japan, Canada.	Longevity of defunct serials
10. Based on statistics derived from (B) 1	Death rates of serials for selected years
(C) <u>CHARACTERISTICS</u>	
Code analysis for (a) all current and dead titles and (b) all titles current in 1971 with the following data fields:	
1. Field SUBT	Number of serials having subtitle
2. Field ALTT	Number of serials having alternative title(s)
3. Field PRET	Number of serials having previous title(s)

APPENDIX 5: LIST OF ILGS ANALYSES - continued

Analyses	Statistics derived
4. Field NOOFIS coded 01 to 99	Frequency of publication
5. Field ISBODY coded 1 to 8	Type of issuing body
6. Field COUNTRY	Geographical distribution of serials
7. Field MACOG	
8. Field PERIMONO coded 1 and 2	Type of serial
9. Field SERFORM coded 1 to 14	Form of serial
10. Field ABSTOC coded 1 to 3	Occurrence of abstracts with articles
11. Field ABSTOC coded 1 to 3 and field COUNTRY	Occurrence of abstracts with articles by country of publication
12.1 Field ABSTOC coded 2 and field ABSTOCL coded 1, 2, 3.	Language(s) of abstracts with articles
12.2 Field ABSTOC coded 3 and field ABSTOCL coded 1, 2, 3.	
12.3 Field ABSTOCL coded 1 and field LANG	
12.4 Field ABSTOCL coded 2 and field ABSTLAN and field LANG	
12.5 Field ABSTOCL coded 3 and field ABSTLAN and field LANG	
13.1 Field OCOFLAN coded 0 to 10+	Language(s) of contents
13.2 Field LANG coded 11 to 82	
14. Field SEPLANED	Separate language edition
15. Field NOOFIS coded 01 to 99 and field COUNTRY coded BL, CN, US, UK, UN, FR, GG+GW, IT, AU, PL, JA.	Frequency of publication for selected countries

APPENDIX 5: LIST OF ILGS ANALYSES - continued

Analyses	Statistics derived
16. Field ISBODY coded 1 to 8 and field COUNTRY coded AU, BL, CN, FR, GG+GW, IT, JA, PL, UK, US, UN.	Type of issuing body for selected countries
17. Field SERFORM coded 1 to 14 and field COUNTRY coded AU, BL, CN, FR, GG+GW, IT, JA, PL, UK, US, UN.	Form of serial for selected countries
18. Field ISBODY coded 1 to 8 and field NOOFIS coded 01 to 99	Issuing body by frequency of publication
19. Field ISBODY coded 1 to 8 and field SERFORM coded 1 to 14	Issuing body by form of serial
20. Field SERFORM coded 1 to 14 and field NOOFIS coded 01 to 99	Form of serial by frequency of publication
21. Code analysis for titles current in 1971 with field OCOFLAN coded 0 and the following field(s):	Language(s) of abstracts with articles
i) field MACOG coded 1, 2+3+4, 5, 6, 7, 8+9+10+11, 12, 13, 14+15+16+17.	
ii) field LANG and field ABSTLAN	
iii) field ABSTLAN and field MACOG coded 1, 2+3+4, 5, 6, 7, 8+9+10+11, 12, 13, 14+15+16+17.	
iv) field ABSTLAN and field COUNTRY coded FR, GG+GW, IT, PO, SP, SW, SZ, BU, CS, HU, RM, YU, CC, JA, AG, BL, CL.	

APPENDIX 5: LIST OF ILGS ANALYSES - continued

Analyses	Statistics derived
(D) <u>CHANGES OVER TIME IN CHARACTERISTICS</u>	
Code analysis for all titles current in 1800, 1850, 1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1935, 1940, 1945, 1950, 1955, 1960, 1965 with the following data fields:	Measure of currently published stock in a given year by:
1. Field SERFORM coded 1 to 14	Form of serial
2. Field NOOFIS coded 01 to 99	Frequency of publication
3. Field ISBODY coded 1 to 8	Type of issuing body
(E) <u>SECONDARY SERVICES</u>	
Code analysis for (a) all current and dead titles and (b) all current titles with field SERFORM coded 2+3+4+5+6+7+8 and the following field:	
1. Field NOOFIS coded 01 to 99	Frequency of publication
2. Field ISBODY coded 1 to 8	Type of issuing body
3. Field COUNTRY	Geographical distribution
4. Field LANG	Language distribution
5. Field ISBODY coded 1 to 8 and field NOOFIS coded 01 to 99	Type of issuing body by frequency of publication
6. Based on (D) 1	Ratio of secondary to primary geographical serials

APPENDIX 6: DEFINITION OF GEOGRAPHICAL SOCIETIES AND EDUCATIONAL INSTITUTIONS

1. Geographical society

A voluntary non-governmental, non-profit making organisation composed of personal and or institutional members, with or without support from government sources, formed specifically to advance the study of geography and the dissemination of geographical knowledge by publishing journals, reports and outstanding investigations, by holding meetings, encouraging or subsidising research, and maintaining a library and a collection of maps. The term 'society' embraces association, institute, federation, club and union. It includes not only the leading geographical societies such as the Royal Geographical Society, the American Geographical Society, Société de Géographie de Paris, the Gesellschaft für Erdkunde and the Imperial Russian Geographical Society, but also the various kinds of organisations that have grown up in the geography field:

- (A) Semiscientific-semisocial geographical societies. Composed of merchants, military personnel, government officials, teachers and laymen interested in geography and travel, e.g. the National Geographic Society, the Canadian Geographical Society, etc. Generally speaking they maintain libraries and map collections, sponsor lectures, scientific expeditions and publication of periodicals of mixed popular and professional interest.
- (B) Associations of professional geographers and teachers of geography. Formed to further professional investigations in geography and to improve the techniques and scope of geographical education, e.g. the Institute of British Geographers, the Association of American Geographers, the Association de Géographes Français, the National Council for Geographic Education, and the Geographical Association. Most of them are national in scope, organising meetings in different places and publish periodicals of a more specialised type.

- (C) International geographical organisation. Formed to promote and facilitate international cooperation in geographical research and to organise international geographical congresses or meetings, e.g. International Geographical Union.
- (D) Geographical institutes. Usually associated with university departments of geography or with specialised divisions of large associations and scientific bodies such as the Geography and Map Division of the Special Libraries Association, Section E of the British Association for the Advancement of Science, and the Institut Geografii Akademii Nauk. They are devoted to research in geography and issue serial publications of high scholarly value.

2. Educational institution

An organisation devoted to the learning and education of the higher branches of knowledge. In the present study, it refers to university and college departments of geography.

APPENDIX 7: LIST OF TITLES ADDED TO THE ILGS COMPUTER DATA FILE

Data on each serial is given in the following order:

- (1) Record number.
- (2) Title (if distinctive; if title is not distinctive it is given under (4) below).
- (3) Issuing body (in parentheses if title is given in (2) above).
- (4) Title (if not distinctive and hence listed under the issuing body in (3) above). Title begins a new line.
- (5) Volumes or numbers published.
- (6) Dates of publication.

- 2416 International Geographical Union.
IGU newsletter. vl-19, 1950-1968.
- 2417 Buenos Aires. Universidad Nacional. Instituto de Geografía "Romualdo Aridissone".
Publicaciones. sB: Documentos cartográficos, planimétricos e iconográficos. v2-4, 1949-1952.
- 2418 Buenos Aires. Universidad Nacional. Instituto de Geografía "Romualdo Aridissone".
Publicaciones. sC: Métodos de la geografía. vl-4, 1955-1966.
- 2419 Colección Nadir. (Sociedad Geográfica Americana).
sB: Miscelánea. vl+ 1946+
- 2420 Colección Nadir. (Sociedad Geográfica Americana).
sD. no.1-8, 1946.
- 2421 Geographical Society of Australasia. New South Wales and Victoria Branches.
Proceedings. vl-2, 1883-1884.
- 2422 Royal Geographical Society of Australasia. Victoria Branch.
Transactions and proceedings. 1885-1911.
- 2423 Österreichische Gesellschaft zur Förderung von Landesforschung und Landesplanung. Berichte zur Landesforschung und Landesplanung. (ÖGRR). vl-8, 1957-1964.
- 2424 Boletim paranaense de geografia. (Associação dos Geógrafos Brasileiros. Seção Regional do Paraná; and Universidade do Paraná. Conselho de Pesquisas). vl-20, 1960-1966.
- 2425 Minas Gerais (State). Comissão Geográfica e Geológica.
B report. vl+ 1889+

- 2426 Rio de Janeiro (City). Universidade do Brasil. Centro de Pesquisas de Geografia do Brasil.
Serie bibliográfica. Publicação. s2: Geografia: bibliografia geográfica Brasileira. vl+ 1951+
- 2427 Santa Catarina (State). Departamento Estadual de Geografia e Cartografia.
Publicação. s2. vl, 1955.
- 2428 Sao Paulo (City). Universidade. Instituto de Geografia.
Publicação: Biogeografia. vl+ 1969+
- 2429 Sao Paulo (City). Universidade. Instituto de Geografia.
Publicação: Cadernos de ciência da terra. vl+ 1969+
- 2430 Sao Paulo (City). Universidade. Instituto de Geografia.
Publicação: Geografia econômica. vl+ 1969+
- 2431 Sao Paulo (City). Universidade. Instituto de Geografia.
Publicação: Geografia urbana. vl+ 1969+
- 2432 Sao Paulo (City). Universidade. Instituto de Geografia.
Publicação: Geomorfologia. vl+ 1966+
- 2433 Brasil. Sao Paulo. Comissão Geographica e Geologica.
Boletim. no.1-21, 1889-1906.
- 2434 Sociedade de Geografia do Rio de Janeiro.
Revista. vl-52, 1885-1945.
- 2435 Association de Géographes du Québec.
Newsletter. vl-9, 1962-1965.
- 2436 Cartographer. (Ontario Institute of Chartered Cartographers).
vl-4, 1964-1967.
- 2437 Revue Canadienne de Géographie. (Société de Géographie de Montréal; and Montréal. Université. Institut de Géographie). vl-17, 1947-1963.
- 2438 Ceylon Geographical Society.
Bulletin. vl-10, 1945-1954.
- 2439 Nanking. Kuo Li Chung Yang Ta Hsüeh.
Ti li hsüeh pu chuan k'an. sB. vl-8, 1943-1945.
- 2440 Československá Společnost Zeměpisná. Odbor v Brně.
Spisy. sB: Čechy a Morava. vl-13, 1930-1948.
- 2441 Československá Společnost Zeměpisná. Odbor v Brně.
Spisy. sC: Oblasti mimo Československo. vl-10, 1931-1941.
- 2442 Denmark. Kommissionen for Ledelsen af de Geologiske og Geografiske undersøgelser i Grønland.
[Meddelelser]. 1879-1931.

- 114 -
- 2443 Nouvelles annales des voyages. vl-188, 1819-1865.
 - 2444 Bibliographie cartographique de la France. (Comité Nationale Français de Géographie). vl, 1936.
 - 2445 Bibliographie cartographique Français. v2-3, 1937-1938/45.
 - 2446 Études canadiennes. (Grenoble. Université. Institut de Géographie Alpine). s2. no.1-3, 1936-1938.
 - 2447 Études canadiennes. (Grenoble. Université. Institut de Géographie Alpine). s3. no.1+ 1939+
 - 2448 France. Service Géographique de l'Armée.
Rapport sur les travaux exécutés. vl-34, 1888-1921.
 - 2449 France. Service Géographique de l'Armée.
Cahiers; rapports sur les travaux exécutés. vl-24, 1922-1945.
 - 2450 France. Institut Géographique National.
Rapport sur l'activité. vl-6, 1946-1951.
 - 2451 France. Service de la Carte Phytogéographique.
Bulletin. sB: Carte des groupements végétaux au 20,000. vl-7, 1956-1962.
 - 2452 Société des Professeurs d'Histoire et de Géographie de l'Enseignement Public.
Bulletin. vl-55, 1910-1965.
 - 2453 Grenoble. Université. Institut de Géographie Alpine.
Recueil des travaux. vl-7, 1913-1919.
 - 2454 Société de Géographie et du Musée Commercial de St. Nazaire.
Bulletin. vl-10, 1885-1893.
 - 2455 Bremen. Übersee-Museum [and] Geographische Gesellschaft in Bremen.
Veröffentlichungen. sB: Völkerkunde. no.1+ 1950+
 - 2456 Göttingen. Universität. Niedersächsisches Institut für Landeskunde und Landesentwicklung.
Veröffentlichungen. sB: Landes-, Kreis- und Ortsbeschreibungen. vl-7, 1940-1957.
 - 2457 Göttingen. Universität. Niedersächsisches Institut für Landeskunde und Landesentwicklung.
Veröffentlichungen. sC. 1940-1962?
 - 2458 Geographische Gesellschaft zu Greifswald.
Jahresbericht. vl-(?), 1882-1926.
 - 2459 Stuttgart. Technische Hochschule. Geographisches Institut.
Veröffentlichungen. sC: Geographische Exkursionsführer für Wurttemberg. vl, 1925.

- 2460 Tübinger geographische und geologische Abhandlungen.
(Tübingen. Universität. Geologisches und Geographisches
Institut). s2: Ausser Deutschland. no.1-7, 1936-1941.
- 2461 Madras Geographical Association.
Journal. vl-(?), 1926-1940.
- 2462 National Geographical Society of India.
Bulletin. vl-(?), 1946-1956.
- 2463 Istituto di Geografia dell'Ateneo Genovese.
Annali. no.1-2, 1945-1946.
- 2464 Camerino. Università. Istituto di Mineralogia, Geologia,
e Geografia.
Pubblicazioni. sB: Sussidi didattici e metodologici.
no.1+ 1955+
- 2465 Italy. Consiglio Nazionale delle Ricerche. Comitato per
la Geografia.
Pubblicazioni. s2. no.1-9, 1934-1942.
- 2466 Italy. Consiglio Nazionale delle Ricerche. Comitato per
la Geografia.
Pubblicazioni. s3. no.1-9, 1934-1943.
- 2467 Italy. Consiglio Nazionale delle Ricerche. Comitato per
la Geografia.
Pubblicazioni. s4. no.1-3, 1934-1939.
- 2468 Italy. Consiglio Nazionale delle Ricerche. Comitato per
la Geografia.
Pubblicazioni. s5. no.1-5, 1934-1942.
- 2469 Italy. Consiglio Nazionale delle Ricerche. Comitato per
la Geografia.
Pubblicazioni. s6. no.1-5, 1936-1942.
- 2470 Italy. Consiglio Nazionale delle Ricerche. Comitato per
la Geografia.
Pubblicazioni. s7. no.1-8, 1932-1938.
- 2471 Italy. Consiglio Nazionale delle Ricerche. Comitato per
la Geografia.
Pubblicazioni. s8. no.1-4, 1938-1943.
- 2472 Italy. Consiglio Nazionale delle Ricerche. Comitato per
la Geografia.
Pubblicazioni. s9. no.1-3, 1941-1948.
- 2473 Istituto Geografico Polare.
Bollettino mensile d'informazione. no.1, 1945.
- 2474 Quaderni geografici d'attualità. (Società Geografica
Italiana). s2: I territori Italiani d'Africa. no.1/5-(?),
1948-?

- 2475 Roma (Rome). Università. Istituto di Geografia.
Pubblicazioni. SB: Scritti di storia della cartografia.
no.1-3, 1932-1955.
- 2476 Roma (Rome). Università. Istituto di Geografia.
Pubblicazioni. SC: Testi e sussidi per le università.
no.1, 1943.
- 2477 Punjab geographical review. (Lahore. University of the
Punjab. Department of geography). vl-3, 1942-1948.
- 2478 Kraków. Uniwersytet. Koło Geografów i Uczniów.
Zbiorowe prace naukowe. SB. no.1-3, 1933-1936.
- 2479 Sindicato Nacional dos Engenheiros geógrafos.
Publicações. s2. no.1-2, 1941-1955.
- 2480 Sindicato Nacional dos Engenheiros geógrafos.
Publicações. s3. no.1-6, 1942-1950.
- 2481 Institut Fondamental d'Afrique Noire.
Bulletin. SA: Sciences naturelles. no.16+ 1954+
- 2482 Institut Fondamental d'Afrique Noire.
Bulletin. SB: Sciences humaines. no.16+ 1954+
- 2483 Malayan journal of tropical geography. (University of
Malaya [and] University of Singapore. Departments of
Geography). vl-10, 1953-1957.
- 2484 Geografiska annaler. (Svenska Sällskapet för Antropologi
och Geografi). SA: Physical geography. no.47+ 1965+
- 2485 Geografiska annaler. (Svenska Sällskapet för Antropologi
och Geografi). SB: Human geography. no.47+ 1965+
- 2486 Lund. Universitet. Geografiska Institutionen.
Meddelanden. SB. vl-16, 1918-1924.
- 2487 Lund. Universitet. Geografiska Institutionen.
Meddelanden. SC. vl+ 1925+
- 2488 Stockholm. Universitet. Geografiska Institutet.
Meddelanden. SB: Human geography. vl+ 1966+
- 2489 Geo abstracts. (Geo Abstracts Ltd.).
A: Landform and the Quaternary. 1972+
- 2490 Geo abstracts. (Geo Abstracts Ltd.).
B: Climatology and hydrology. 1972+
- 2491 Geo abstracts. (Geo Abstracts Ltd.).
D: Social and historical geography. 1972+
- 2492 Geo abstracts. (Geo Abstracts Ltd.).
E: Sedimentology. 1972+

- 2493 Geo abstracts. (Geo Abstracts Ltd.).
F: Regional and community planning. 1972+
- 2494 Geo abstracts. (Geo Abstracts Ltd.).
G: Remote sensing and cartography. 1974+
- 2495 Durham. University. King's College, Newcastle-upon-Tyne.
Department of Geography.
Research series. vl-3, 1954-1964.
- 2496 Durham. University. King's College, Newcastle-upon-Tyne.
Geographical Society.
Geographical journal. vl-14, 1948-1963.
- 2497 Srpska Akademija nauka i Umetnosti, Beograd. Geografski
Institut.
Posebna izdanja, knjiga. vl-16, 1949-1960.
- 2498 Helsinki. University. Department of Geography.
Publications. sA. no.58+ 1968+
- 2499 Helsinki. University. Department of Geography.
Publications. sB. no.1+ 1968+
- 2500 Srpska Akademija nauka i Umetnosti. Geografski Institut.
Zbornik radova. vl-17, 1951-1960.

APPENDIX 8: BIBLIOGRAPHIES CONSULTED DURING EDITING OF ILGS DATA

Ayer directory of publications. 109th annual ed. Philadelphia, Ayer Press, 1977.

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T A B L E S

TABLE 1: AN APPRAISAL OF INTERNATIONAL LIST OF GEOGRAPHICAL SERIALS*

Bibliographic data	Records in which data incomplete		Records in which data not current		Records in which data incorrect	
	No.	%	No.	%	No.	%
Beginning date	52	2.2	1	0.04	-	-
Ending date	55	2.3	4	0.2	-	-
Frequency statement	1235	51.1	10	0.4	1	0.04
Issuing body	259	10.7	-	-	-	-

* 2nd edition, 1971.

TABLE 2: COMPLETENESS OF COMPUTER DATA RECORDS

Data	Of 2497 separate serials:		Of 1189 current serials:	
	No. filled in	%	No. filled in	%
Subtitle	97	3.9	50	4.2
Alternative title	230	9.2	143	12.0
Previous title	213	8.5	125	10.5
Subsequent title	220	8.8	-	-
Beginning date	2456	98.4	1188	99.9
Ending date	2445	97.9	-	-
Frequency of publication	2208	88.4	1060	89.2
Type of issuing body	2437	97.6	1184	99.6
Country of publication	2497	100	1189	100.0
Type of serial	2497	100	1189	100.0
Form of serial	2497	100	1189	100.0
Abstracts with articles	2497	100	1189	100.0
Language of contents	2497	100	1189	100.0

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 3: GROWTH RATE OF TYPES OF GEOGRAPHICAL SERIALS

Type of serial	Time period	Growth rate % p.a.
All serials	1945-1970	4.5
Journals	1945-1970	4.6
Secondary services	1945-1970	5.7
Yearbooks	1945-1970	3.0
Fixed period reports	1945-1970	1.0
Conference proceedings	1945-1970	3.5
Monograph series	1945-1970	5.1

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 4: GROWTH RATE OF GEOGRAPHICAL SERIALS IN SELECTED COUNTRIES

Country	Time period	Growth rate % p.a.
World	1950-1970	4.4
UK	1950-1970	7.5
China (People's Republic & Taiwan)	1950-1970	7.5
Canada	1950-1970	7.2
USSR	1950-1970	6.3
US	1950-1970	6.1
Australia	1950-1970	6.0
India	1950-1970	5.9
Poland	1950-1970	5.8
Brazil	1950-1970	3.6
Austria	1950-1970	3.4
Sweden	1950-1970	2.9
Japan	1950-1970	2.9
Germany (Fed. Rep.)	1950-1970	2.8
Italy	1950-1970	2.3
France	1950-1970	2.1
Switzerland	1950-1970	0.3

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 5: MORTALITY OF GEOGRAPHICAL SERIALS, 1781-1970

Period	No. of deaths
1781 - 1790	9
1791 - 1800	11
1801 - 1810	3
1811 - 1820	6
1821 - 1830	11
1831 - 1840	9
1841 - 1850	14
1851 - 1860	9
1861 - 1870	16
1871 - 1880	18
1881 - 1890	53
1891 - 1900	60
1901 - 1910	52
1911 - 1920	84
1921 - 1930	110
1931 - 1940	173
1941 - 1950	178
1951 - 1960	135
1961 - 1970	99
TOTAL	1050

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 6: MORTALITY RATES OF GEOGRAPHICAL SERIALS FOR
SELECTED YEARS

Year	Death rate (%)	Year	Death rate (%)
1900	2.78	1952	3.81
1905	1.50	1954	2.94
1910	2.52	1956	1.63
1915	2.23	1958	2.26
1920	1.44	1960	1.44
1923	2.56	1961	1.72
1926	2.98	1962	1.98
1929	3.32	1963	0.97
1932	3.14	1964	1.50
1935	3.89	1965	1.55
1938	6.12	1966	1.02
1941	5.26	1967	0.71
1944	5.51	1968	0.52
1947	3.89	1969	0.08
1950	1.73	1970	0.00

Source: International list of geographical serials (Harris and
Fellmann, 1971)

TABLE 7: SIZE OF SERIAL LITERATURE IN GEOGRAPHY (1781-1970)

Year	No. of new titles recorded	Mortalities recorded	Cumulative no. of titles (current & dead)	Cumulative no. of titles current	Year	No. of new titles recorded	Mortalities recorded	Cumulative no. of titles (current & dead)	Cumulative no. of titles current	Year	No. of new titles recorded	Mortalities recorded	Cumulative no. of titles (current & dead)	Cumulative no. of titles current	Year	No. of new titles recorded	Mortalities recorded	Cumulative no. of titles (current & dead)	Cumulative no. of titles current
1781	3	0	3	3	1829	1	2	60	21	1877	8	1	209	108	1925	29	7	748	347
1782	0	0	3	3	1830	1	4	61	18	1878	17	3	226	122	1926	22	11	770	358
1783	2	0	10	7	1831	2	4	63	16	1879	11	2	237	131	1927	21	11	791	368
1784	3	0	13	10	1832	1	0	64	17	1880	9	3	246	137	1928	16	13	807	371
1785	1	1	14	10	1833	1	0	65	18	1881	10	8	256	139	1929	20	13	827	378
1786	0	0	14	10	1834	1	0	66	19	1882	15	2	271	152	1930	27	19	854	386
1787	0	3	14	7	1835	1	0	67	20	1883	10	11	281	151	1931	18	10	872	394
1788	1	3	15	5	1836	3	1	70	22	1884	11	7	292	155	1932	20	13	892	401
1789	1	1	16	5	1837	4	2	74	24	1885	17	3	309	169	1933	19	12	911	408
1790	6	1	22	10	1838	1	1	75	24	1886	10	4	319	175	1934	19	14	930	413
1791	0	2	22	8	1839	6	0	81	30	1887	7	4	326	178	1935	24	17	954	420
1792	0	3	22	5	1840	2	1	83	31	1888	14	5	340	187	1936	26	22	980	424
1793	0	1	22	4	1841	1	3	84	29	1889	9	2	349	194	1937	15	20	995	419
1794	1	0	23	5	1842	2	1	86	30	1890	8	7	357	195	1938	22	27	1017	414
1795	0	1	23	4	1843	1	1	87	30	1891	19	5	376	209	1939	17	23	1034	408
1796	0	1	23	3	1844	2	1	89	31	1892	12	1	388	220	1940	9	15	1043	402
1797	0	1	23	2	1845	2	2	91	31	1893	6	7	394	219	1941	16	22	1059	396
1798	1	0	24	3	1846	2	0	93	33	1894	16	9	410	226	1942	24	21	1083	399
1799	0	0	24	3	1847	1	1	94	33	1895	11	8	421	229	1943	26	20	1109	405
1800	3	2	27	4	1848	3	2	97	34	1896	10	7	431	232	1944	12	23	1121	394
1801	1	0	28	5	1849	2	1	99	35	1897	8	6	439	234	1945	20	9	1141	405
1802	1	1	29	5	1850	3	2	102	36	1898	11	4	450	241	1946	30	18	1171	417
1803	0	0	29	5	1851	3	0	105	39	1899	10	6	460	245	1947	20	17	1191	420
1804	0	1	29	4	1852	4	1	109	42	1900	7	7	467	245	1948	46	20	1237	446
1805	0	0	29	4	1853	3	0	112	45	1901	11	8	478	248	1949	40	19	1277	467
1806	1	0	30	5	1854	0	0	112	45	1902	10	2	488	256	1950	53	9	1330	511
1807	0	0	30	5	1855	2	1	114	46	1903	9	9	497	256	1951	41	9	1371	543
1808	1	0	31	6	1856	3	2	117	47	1904	6	3	503	259	1952	35	22	1406	556
1809	2	0	33	8	1857	2	0	119	49	1905	8	4	511	263	1953	27	14	1433	569
1810	0	1	33	7	1858	1	2	120	48	1906	4	6	515	261	1954	44	18	1477	595
1811	3	0	36	10	1859	1	2	121	47	1907	7	4	522	264	1955	39	14	1516	620
1812	2	1	38	11	1860	5	1	126	51	1908	5	1	527	268	1956	51	11	1567	660
1813	0	3	38	8	1861	4	0	130	55	1909	7	8	534	267	1957	45	8	1612	697
1814	1	2	39	7	1862	3	0	133	58	1910	10	7	544	270	1958	54	17	1666	731
1815	0	0	39	7	1863	3	2	136	59	1911	10	7	554	273	1959	45	10	1711	769
1816	0	0	39	7	1864	2	4	138	57	1912	12	5	566	280	1960	64	12	1775	821
1817	1	0	40	8	1865	6	2	144	61	1913	11	4	577	287	1961	50	15	1825	856
1818	3	0	43	11	1866	3	2	147	62	1914	4	20	581	263	1962	51	18	1876	839
1819	0	0	43	11	1867	7	0	154	69	1915	6	6	587	263	1963	41	9	1917	921
1820	1	0	44	12	1868	2	2	156	69	1916	4	8	591	259	1964	70	15	1947	976
1821	1	0	45	13	1869	4	1	160	72	1917	9	7	600	261	1965	57	16	2044	1017
1822	1	0	46	14	1870	7	3	167	76	1918	9	6	609	264	1966	57	11	2101	1065
1823	1	0	47	15	1871	1	2	168	75	1919	11	9	620	266	1967	63	8	2164	1118
1824	5	1	52	19	1872	4	0	172	79	1920	11	4	631	273	1968	37	6	2201	1149
1825	3	0	55	22	1873	0	1	180	85	1921	10	4	649	287	1969	45	1	2246	1193
1826	2	4	57	20	1874	2	3	182	85	1922	24	13	673	298	1970	19	0	2265	1212
1827	0	0	57	20	1875	7	2	189	90	1923	15	8	688	305	1971	0	2	2265	1210
1828	2	0	59	22	1876	12	1	201	101	1924	31	11	719	325					

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 8: LONGEVITY OF GEOGRAPHICAL SERIALS FOR SELECTED COUNTRIES (TITLES CURRENT IN 1970)*

Period	World		USSR		USA		Germany (Fed)		UK		France		Brazil		Italy		Poland		Japan		Canada	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
Up to 4 years	221	18.7	27	19.4	35	28.7	10	9.3	23	26.7	4	7.5	8	17.8	4	9.8	7	17.5	3	8.8	13	44.8
5-9 "	246	20.8	40	28.8	32	26.2	13	12.0	20	23.3	12	22.6	7	15.6	8	19.6	9	22.5	5	14.7	6	20.7
10-14 "	204	17.3	32	23.0	15	12.3	13	12.0	22	25.6	5	9.4	8	17.8	3	7.3	11	27.5	6	17.6	6	20.7
15-19 "	134	11.3	11	7.9	9	7.4	21	19.4	7	8.1	7	13.2	5	11.1	8	19.6	3	7.5	3	8.8	1	3.4
20-24 "	118	9.9	13	9.4	7	5.7	19	17.6	5	5.8	10	18.7	7	15.6	3	7.3	7	17.5	6	17.6	2	6.9
25-29 "	40	3.4	1	0.7	3	2.5	3	2.8	-	-	1	1.9	4	8.9	3	7.3	-	-	5	14.7	-	-
30-39 "	53	4.5	7	5.0	4	3.3	7	6.5	3	3.5	2	3.6	1	2.2	5	12.2	1	2.5	1	2.9	-	-
40-49 "	55	4.7	1	0.7	5	4.1	7	6.5	2	2.3	5	9.4	1	2.2	1	2.4	1	2.5	3	8.8	1	3.4
50-59 "	19	1.6	-	-	10	8.2	-	-	-	-	1	1.9	1	2.2	1	2.4	1	2.5	-	-	-	-
60-69 "	15	1.3	2	1.4	1	0.8	4	3.7	1	1.2	-	-	-	-	1	2.4	-	-	-	-	-	-
70-79 "	20	1.7	1	0.7	-	-	3	2.8	1	1.2	2	3.6	1	2.2	2	4.9	-	-	1	2.9	-	-
80-89 "	18	1.5	1	0.7	1	0.8	3	2.8	1	1.2	1	1.9	1	2.2	-	-	-	-	1	2.9	-	-
90-99 "	17	1.4	-	-	-	-	2	1.9	-	-	3	5.7	-	-	1	2.4	-	-	-	-	-	-
100-109 "	8	0.7	3	2.2	-	-	-	-	-	-	-	-	-	-	1	2.4	-	-	-	-	-	-
110-119 "	5	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120-149 "	7	0.6	-	-	-	-	3	2.8	1	1.2	-	-	1	2.2	-	-	-	-	-	-	-	-
150+ "	1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	1181	(100)	139	(100)	122	(100)	100	(100)	86	(100)	53	(100)	45	(100)	41	(100)	40	(100)	34	(100)	29	(100)

* Allow previous titles in the year of analysis

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 9: LONGEVITY OF DEFUNCT GEOGRAPHICAL SERIALS* FOR SELECTED COUNTRIES

Period	World		USSR		USA		Germany(Fed)		UK		France		Brazil		Italy		Poland		Japan		Canada	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
Up to 4 years	538	47.0	105	56.5	51	62.9	117	42.9	18	36.7	42	37.8	15	44.1	31	50.0	11	35.4	12	54.5	9	50.0
5-9 "	214	17.2	27	14.5	13	16.0	48	17.6	10	20.4	12	10.8	5	14.7	16	25.8	3	9.7	3	13.6	1	5.6
10-14 "	121	9.8	15	8.1	5	6.2	35	12.8	9	18.4	11	9.9	1	2.9	5	8.1	3	9.7	4	18.2	1	5.6
15-19 "	78	6.3	9	4.8	3	3.7	17	6.2	3	6.1	7	6.3	1	2.9	4	6.5	5	16.1	3	13.6	5	27.8
20-24 "	47	3.8	5	2.7	3	3.7	10	3.7	2	4.1	5	4.5	1	2.9	2	3.2	3	9.7	-	-	-	-
25-29 "	38	3.1	3	1.6	1	1.2	11	4.0	-	-	6	5.4	2	5.9	-	-	2	6.5	-	-	-	-
30-39 "	53	4.3	5	2.7	-	-	13	4.8	1	2.0	11	9.9	3	8.8	-	-	1	3.2	-	-	1	5.6
40-49 "	47	3.8	9	4.8	4	4.9	10	3.7	2	4.1	5	4.5	2	5.9	4	6.5	1	3.2	-	-	-	-
50-59 "	27	2.2	3	1.6	1	1.2	4	1.5	1	2.0	8	7.2	1	2.9	-	-	1	3.2	-	-	1	5.6
60-69 "	18	1.5	3	1.6	-	-	3	1.1	1	2.0	2	1.8	2	5.9	-	-	-	-	-	-	-	-
70-79 "	3	0.2	-	-	-	-	-	-	-	-	1	0.9	-	-	-	-	1	3.2	-	-	-	-
80-89 "	7	0.6	1	0.5	-	-	4	1.5	-	-	1	0.9	1	2.9	-	-	-	-	-	-	-	-
90-99 "	3	0.2	-	-	-	-	1	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100-109 "	1	0.0	-	-	-	-	-	-	1	2.0	-	-	-	-	-	-	-	-	-	-	-	-
110-119 "	1	0.0	1	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120-149 "	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
150+ "	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	1241	(100)	186	(100)	81	(100)	273	(100)	49	(100)	111	(100)	34	(100)	62	(100)	31	(100)	22	(100)	18	(100)

* Allow previous titles in the year of analysis

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 10: PROPORTION OF GEOGRAPHICAL SERIALS TO MONOGRAPH SERIES

Category	Titles current in 1970		Current and dead titles	
	No.	%	No.	%
Serials*	954	80.2	1914	83.3
Monograph series	235	19.8	385	16.7
TOTAL	1189	(100)	2299	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

*It includes journals, secondary serials, yearbooks, fixed period reports, conference proceedings and statistical publications.

TABLE 11: FORMS OF GEOGRAPHICAL SERIALS
(TITLES CURRENT IN 1970)

Description of serial	No. of titles	Percentage
Journals	840	70.6
Abstracts	12	0.9
Indexes	3	0.3
Content lists	-	-
Book reviews	-	-
Bibliography	24	2.0
Accessions lists	-	-
Research index	-	-
Yearbooks	26	2.2
Fixed period reports	16	1.3
Conference proceedings	18	1.5
Statistics	2	0.2
Monograph series	235	19.8
Others	13	1.1
TOTAL	1189	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 12: FREQUENCY OF PUBLICATION OF GEOGRAPHICAL SERIALS
(TITLES CURRENT IN 1970)

Frequency	No. of titles	Percentage
1 issue per year	240	22.6
2 issues per year	70	6.6
3 " " "	15	1.4
4 " " "	117	11.0
5 " " "	4	0.4
6 " " "	45	4.2
7 " " "	-	-
8 " " "	4	0.4
9 " " "	-	-
10 " " "	8	0.8
11 " " "	-	-
12 " " "	39	3.6
13-23 " " "	-	-
24-26 " " "	1	0.1
27-51 " " "	-	-
52 " " "	2	0.2
53+ " " "	-	-
Issued every 2 years	10	0.9
Issued every 3 years	5	0.5
Irregular	501	47.3
TOTAL	1060	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 13: TYPES OF ISSUING BODY OF GEOGRAPHICAL SERIALS
(TITLES CURRENT IN 1970)

Category	No. of titles	Percentage
Associations, societies, etc.	616	52.0
Commercial publishers	46	3.8
Government	61	5.2
Educational institutions (Universities, colleges etc.)	433	36.5
International organization	9	0.8
Business and industry	2	0.2
Private or individual	8	0.7
Others	9	0.8
TOTAL	1184	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 14: GEOGRAPHICAL SERIALS - FORM OF SERIAL BY FREQUENCY OF PUBLICATION (TITLES CURRENT IN 1970)

Description of serial	1		2		3		4		5		6		8		10		12		24		52		Every 2yrs.		Every 3yrs.		Irregular		TOTAL (ROW)
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	
Journals	200	83.3 (27.8)	66	94.3 (9.2)	15	100.0 (2.1)	113	96.6 (15.7)	3	75.0 (0.4)	38	84.4 (5.3)	4	100.0 (0.6)	6	75.0 (0.8)	35	89.7 (4.9)	1	100.0 (0.1)	2	100.0 (0.3)	4	40.0 (0.6)	3	60.0 (0.4)	229	45.7 (31.8)	719 (100)
Abstracts	1	0.4 (8.3)	1	1.4 (8.3)	-	-	-	-	-	-	7	15.6 (58.3)	-	-	-	-	1	2.6 (8.3)	-	-	-	-	-	-	-	-	2	0.4 (16.7)	12 (100)
Indexes	-	-	-	-	-	-	-	-	-	-	3	0.6 (100.0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	0.6 (100.0)	3 (100)
Bibliography	6	2.5 (26.1)	2	2.9 (8.7)	-	-	3	2.6 (15.0)	-	-	-	-	-	-	1	12.5 (4.3)	2	5.1 (8.7)	-	-	-	-	-	-	-	-	9	1.8 (39.1)	23 (100)
Yearbooks	15	6.3 (57.7)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	30.0 (11.5)	-	-	8	1.6 (30.8)	26 (100)
Fixed period reports	10	4.2 (71.4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	0.8 (28.6)	14 (100)
Conference proceedings	2	0.8 (11.1)	1	1.4 (5.6)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	10.0 (5.6)	2	40.0 (11.1)	12	2.4 (66.7)	18 (100)
Statistics	1	0.4 (50.0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.2 (50.0)	2 (100)
Monograph series	5	2.1 (2.1)	-	-	-	-	-	-	1	25.0 (0.4)	-	-	-	-	1	12.5 (0.4)	-	-	-	-	-	-	1	10.0 (0.4)	-	-	225	44.9 (96.6)	233 (100)
Others	-	-	-	-	-	-	1	0.8 (9.1)	-	-	-	-	-	-	-	-	1	2.6 (9.1)	-	-	-	-	1	10.0 (9.1)	-	-	8	1.6 (72.7)	11 (100)
TOTAL	240	(100)	70	(100)	15	(100)	117	(100)	4	(100)	45	(100)	4	(100)	8	(100)	39	(100)	1	(100)	1	(100)	10	(100)	5	(100)	501	(100)	

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 15: GEOGRAPHICAL SERIALS - TYPE OF ISSUING BODY BY FREQUENCY OF PUBLICATION (TITLES CURRENT IN 1970)

Type of issuing body	No. of issues per year																				Irregular	TOTAL (ROW)							
	1 no.	%	2 no.	%	3 no.	%	4 no.	%	5 no.	%	6 no.	%	9 no.	%	10 no.	%	12 no.	%	24 no.	%			52 no.	%	Every 2 yrs. no.	%	Every 3 yrs. no.	%	
Associations	121	40.4 (23.0)	38	54.3 (7.2)	9	60.0 (1.7)	78	66.7 (14.8)	3	75.0 (0.6)	30	66.7 (5.7)	2	50.0 (0.4)	7	67.5 (1.3)	31	79.5 (5.9)	1	100.0 (0.2)	1	100.0 (0.2)	7	70.0 (1.3)	3	60.0 (0.6)	196	39.1 (37.2)	527 (100)
Commercial Publishers	7	2.3 (15.9)	1	1.4 (2.3)	2	13.3 (4.5)	7	6.0 (15.9)	1	25.0 (2.3)	2	4.4 (4.5)	2	50.0 (2.3)	-	-	8	20.5 (18.2)	-	-	-	-	1	10.0 (2.3)	-	-	23	2.6 (29.6)	44 (100)
Government	9	3.8 (16.7)	2	2.9 (3.7)	-	-	6	5.1 (11.1)	-	-	3	6.7 (5.6)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34	6.8 (63.0)	54 (100)
Educational institutions	97	40.0 (23.8)	27	38.6 (6.6)	4	26.7 (0.9)	25	21.3 (6.1)	-	-	2	4.4 (0.5)	-	-	1	12.5 (0.2)	-	-	-	-	-	-	2	20.0 (0.5)	2	40.0 (0.5)	247	49.3 (60.7)	497 (100)
International organizations	1	0.4 (11.1)	2	2.9 (22.2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	1.2 (66.7)	9 (100)
Business and industry	-	-	-	-	-	-	1	0.9 (50.0)	-	-	1	2.2 (50.0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2 (100)
Private individual	-	-	-	-	-	-	-	-	-	-	7	15.6 (87.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.2 (12.5)	8 (100)
Others	5	2.1 (55.6)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	0.8 (44.4)	9 (100)
TOTAL	240	(100)	70	(100)	15	(100)	117	(100)	4	(100)	45	(100)	4	(100)	8	(100)	39	(100)	1	(100)	1	(100)	10	(100)	5	(100)	501	(100)	

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 16: GEOGRAPHICAL SERIALS - FORM OF SERIAL BY TYPE OF ISSUING BODY (TITLES CURRENT IN 1970)

Description of serial	Type of issuing body										TOTAL (ROW)
	Associations, societies, etc. no. %	Commercial publishers no. %	Government no. %	Educational institutions no. %	International organizations no. %	Business & industry no. %	Private individual no. %	Others no. %			
Journals	479 77.8 (57.3)	35 76.1 (4.2)	36 59.0 (4.3)	277 64.0 (33.1)	3 33.3 (0.4)	2 100.0 (0.2)	- -	4 44.4 (0.5)			836 (100)
Secondary services	22 3.6 (56.4)	1 2.2 (2.6)	3 4.9 (7.7)	5 1.2 (12.8)	- -	- -	7 87.5 (17.9)	1 11.1 (2.6)			39 (100)
Yearbooks	15 2.4 (60.0)	1 2.2 (4.0)	4 6.6 (16.0)	2 0.5 (8.0)	2 22.2 (8.0)	- -	- -	1 11.1 (4.0)			25 (100)
Conference proceedings	11 1.8 (64.7)	- -	- -	4 0.9 (23.5)	3 33.3 (17.6)	- -	- -	- -			17 (100)
Fixed period reports	8 1.3 (50.0)	- -	5 8.2 (31.3)	2 0.5 (12.5)	- -	- -	- -	1 11.1 (6.2)			16 (100)
Statistics	- -	1 2.2 (50.0)	- -	1 0.2 (50.0)	- -	- -	- -	- -			2 (100)
Monograph series	72 11.7 (30.6)	8 17.4 (3.4)	9 14.8 (3.8)	142 32.8 (60.4)	1 11.1 (0.4)	- -	1 12.5 (0.4)	2 22.2 (0.9)			235 (100)
Others	9 1.5 (69.2)	- -	4 6.6 (30.8)	- -	- -	- -	- -	- -			13 (100)
TOTAL	616 (100)	46 (100)	61 (100)	433 (100)	9 (100)	2 (100)	8 (100)	9 (100)			

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 17: GEOGRAPHICAL DISTRIBUTION OF GEOGRAPHICAL SERIALS
(TITLES CURRENT IN 1970)

Country	Rank	No. of titles	%	Country	Rank	No. of titles	%
USSR	1	139	11.7	Australia	21	16	1.3
USA	2	122	10.3	Czechoslovakia	21=	16	1.3
Germany (Fed.)	3	108	9.1	China	23	15	1.3
UK	4	92	7.7	Belgium	24	14	1.2
France	5	53	4.5	New Zealand	24=	14	1.2
Brazil	6	44	3.7	Romania	26	12	1.0
Italy	7	41	3.4	Turkey	27	11	0.9
Poland	8	40	3.4	Denmark	28	9	0.8
Japan	9	34	2.9	Peru	28=	9	0.8
Sweden	9=	34	2.9	Argentina	30	8	0.7
Canada	11	30	2.5	Portugal	30=	8	0.7
Austria	12	29	2.4	(Int'l. Org.)	30=	8	0.7
Hungary	13	22	1.9	Bulgaria	33	7	0.6
India	13=	22	1.9	Hong Kong	33=	7	0.6
Yugoslavia	15	21	1.8	Mexico	33=	7	0.6
Germany (DDR)	16	20	1.7	Chile	36	6	0.5
Finland	17	18	1.5	Iran	36=	6	0.5
Netherlands	18	17	1.4	Norway	36=	6	0.5
Spain	18=	17	1.4	Pakistan	36=	6	0.5
Switzerland	18=	17	1.4	S. Africa	36=	6	0.5
T O T A L					--	1111/1189	93.7/100

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 18: PRODUCTION OF GEOGRAPHICAL SERIALS BY MAIN COUNTRY GROUPS*

Countries	All titles**		Current titles (1970)	
	No. of titles	%	No. of titles	%
Western Europe	1103	44.2	470	39.5
Eastern Europe	256	10.3	139	11.7
USSR	336	13.5	139	11.7
North America	253	10.1	151	12.7
Central and South America	223	8.9	96	8.1
Asia	202	8.1	118	9.9
Arab World	28	1.1	11	0.9
Black Africa	30	1.2	21	1.7
South Africa	6	0.2	6	0.5
Australasia	44	1.8	30	2.5
(International organisations)	16	0.6	8	0.7
TOTAL	2497	(100)	1189	(100)

*See Appendix 4H for list of countries

**Allow previous titles in the year of analysis

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 19: TYPES OF GEOGRAPHICAL SERIALS FOR SELECTED COUNTRIES (TITLES CURRENT IN 1970)

Description of serial	UK		USA		USSR		Germany (Fed)		France		Italy		Austria		Poland		Canada		Brazil		Japan	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
Journals	52	56.5	58	47.5	124	89.2	57	52.8	42	79.2	20	48.8	26	89.7	36	90.0	21	70.0	38	84.4	27	79.4
Secondary services	8	8.7	4	3.3	2	1.4	4	3.7	4	7.5	1	2.4	-	-	-	-	-	-	3	6.7	-	-
Yearbooks	1	1.1	6	4.9	5	3.6	3	2.8	-	-	-	-	1	3.4	-	-	1	3.3	1	2.2	1	2.9
Fixed period reports	2	2.2	4	3.3	1	0.7	1	0.9	1	1.9	-	-	-	-	1	2.5	-	-	1	2.2	3	8.8
Conference proceedings	-	-	2	1.6	2	1.4	1	0.9	-	-	1	2.4	-	-	-	-	1	3.3	-	-	-	-
Statistics	2	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monograph series	25	27.2	41	33.6	5	3.6	41	38.0	6	11.3	19	46.3	2	6.9	3	7.5	7	23.3	2	4.4	2	5.9
Others	2	2.2	7	5.7	-	-	1	0.9	-	-	-	-	-	-	-	-	-	-	-	-	1	2.9
TOTAL	92	(100)	122	(100)	139	(100)	108	(100)	53	(100)	41	(100)	29	(100)	40	(100)	30	(100)	45	(100)	34	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 20: FREQUENCY OF PUBLICATION OF GEOGRAPHICAL SERIALS FOR SELECTED COUNTRIES (TITLES CURRENT IN 1970)

No. of issues per year	UK		USA		USSR		Germany(Fed)		France		Italy		Austria		Poland		Canada		Brazil		Japan	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
1	32	34.8	19	16.5	23	31.9	13	12.6	11	23.4	8	19.5	6	20.7	7	20.6	4	14.3	9	23.1	9	31.0
2	4	4.3	6	5.2	-	-	1	1.0	1	2.1	1	2.4	-	-	-	-	2	7.1	4	10.3	2	6.9
3	6	6.5	2	1.7	-	-	-	-	-	-	1	2.4	2	6.9	-	-	1	3.6	1	2.6	-	-
4	2	2.2	12	10.4	2	2.8	8	7.8	19	40.4	4	9.8	4	13.8	3	8.8	3	10.7	5	12.8	4	13.8
5	1	1.1	-	-	-	-	-	-	2	4.3	-	-	-	-	-	-	-	-	-	-	-	-
6	7	7.6	1	0.9	10	13.9	2	1.9	4	8.5	2	4.9	-	-	2	5.9	-	-	2	5.1	2	6.9
8	-	-	-	-	-	-	1	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	1	1.1	2	1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	2	2.2	6	5.2	4	5.6	3	2.9	1	2.1	2	4.9	2	6.9	2	5.9	1	3.6	-	-	2	6.9
24	-	-	-	-	-	-	1	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	2	1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Every 2 years	1	1.1	-	-	2	2.8	1	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Every 3 years	1	1.1	1	0.9	1	1.4	3	2.9	-	-	-	-	1	3.4	-	-	-	-	-	-	-	-
Irregular	35	38.0	64	55.7	30	41.7	70	68.0	9	19.1	23	56.1	14	48.3	20	58.8	17	60.7	18	46.2	10	34.5
TOTAL	92	(100)	115	(100)	72	(100)	103	(100)	47	(100)	41	(100)	29	(100)	34	(100)	28	(100)	39	(100)	29	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 21: TYPE OF ISSUING BODY OF GEOGRAPHICAL SERIALS FOR SELECTED COUNTRIES (TITLES CURRENT IN 1970)

Type of issuing body	UK		USA		USSR		Germany (Fed)		France		Italy		Austria		Poland		Canada		Brazil		Japan	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
Associations, societies, etc.	28	30.4	68	55.7	104	75.4	46	43.0	27	52.9	10	24.4	23	79.3	26	65.0	9	30.0	25	55.6	21	61.8
Commercial publishers	7	7.6	6	4.9	1	0.7	12	11.2	2	3.9	-	-	-	-	-	-	-	-	-	-	-	-
Government	1	1.1	10	8.2	1	0.7	4	3.7	7	13.7	6	14.6	-	-	-	-	2	6.7	5	11.1	-	-
Educational institutions	48	52.2	36	29.5	32	23.2	41	38.3	15	29.4	25	61.0	5	17.2	13	32.5	18	60.0	15	33.3	13	38.2
International organizations	-	-	-	-	-	-	1	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Business and industry	-	-	1	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private individual	8	8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3.3	-	-	-	-
Others	-	-	1	0.8	-	-	3	2.8	-	-	-	-	1	3.4	1	2.5	-	-	-	-	-	-
TOTAL	92	(100)	122	(100)	138	(100)	108	(100)	51	(100)	41	(100)	29	(100)	40	(100)	30	(100)	45	(100)	34	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 22: NUMBER OF LANGUAGES USED IN GEOGRAPHICAL SERIALS
(TITLES CURRENT IN 1970)

Category	No. of titles	Percentage
Single language	1034	87.0
2 languages	94	7.9
3 "	33	2.8
4 "	20	1.7
5+ "	8	0.7
TOTAL	1189	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 23: LANGUAGE OF CONTENTS OF GEOGRAPHICAL SERIALS
(TITLES CURRENT IN 1970)

Language	Occurrence of language code					Percentage based on single occurrence
	(1)	(2)	(3)	(4)	(5+)	
English	335	70	30	20	9	32.4
German	156	15	24	16	9	15.1
Russian	110	12	1	2	6	10.6
French	74	27	21	16	9	7.2
Spanish	67	0	2	5	1	6.5
Portuguese	51	1	2	4	1	4.9
Italian	41	0	0	0	3	3.9
Polish	34	1	1	1	3	3.3
Swedish	23	7	3	7	0	2.2
Japanese	22	3	0	0	0	2.1
Chinese	16	5	0	0	0	1.5
Hungarian	14	0	0	1	1	1.4
Czech	11	1	1	0	1	1.1
Rumanian	10	0	0	1	0	1.0
Turkish	8	1	0	1	0	0.8
Ukranian	7	3	0	0	1	0.7
Serbian	7	2	0	0	2	0.7
Bulgarian	6	0	0	0	0	0.6
Others*	42	-	-	-	-	4.0
TOTAL	1034	-	-	-	-	(100)

* Other languages recorded for titles were:
Afrikaans, Arabic, Croatian, Danish, Dutch/Flemish, Estonian,
Finnish, Georgian, Hebrew, Indonesian, Iranian, Korean,
Lithuanian, Macedonian, Norwegian, Persian/Farsi, Serbian,
Serbo-Croatian, Slovak, Slovene.

Source: International list of geographical serials (Harris and
Fellmann, 1971)

TABLE 24: OCCURRENCE OF ABSTRACTS OF ARTICLES IN GEOGRAPHICAL SERIALS (TITLES CURRENT IN 1970)

Category	No. of titles	Percentage
Abstracts with all articles	249	20.9
Abstracts with some articles	139	11.7
No abstracts	801	67.4
TOTAL	1189	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 25: LANGUAGE OF ABSTRACTS CONTAINED IN GEOGRAPHICAL
SERIALS (TITLES CURRENT IN 1970)

Language	No. of occurrences
English	299
French	104
German	80
Russian	61
Spanish	7
Italian	3
Portuguese	3

Source: International list of geographical serials (Harris
and Fellmann, 1971)

TABLE 26: CURRENT GEOGRAPHICAL SERIALS - OCCURRENCE OF ABSTRACTS WITH ARTICLES BY FORM OF SERIAL

Occurrence of abstracts of articles	Description of serial											
	Journals		Yearbooks		Fixed period reports		Conference proceedings		Monograph series		Others	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
Abstracts with all articles	219	26.0	3	12.0	2	12.5	4	22.2	20	8.5	1	7.7
Abstracts with some articles	92	11.0	-	-	1	6.2	6	33.3	40	17.0	-	-
No abstracts	529	63.0	22	88.0	13	81.2	8	44.4	175	74.5	12	92.3
TOTAL	840	(100)	25	(100)	16	(100)	18	(100)	235	(100)	13	(100)

Source : International list of geographical serials (Harris and Fellmann, 1971)

TABLE 27: CURRENT GEOGRAPHICAL SERIALS - ABSTRACTS WITH ARTICLES BY
TYPE OF ISSUING BODY

Type of issuing body	Serials with abstracts with articles	
	No. of titles	Percentage
Associations, societies, etc.	195	50.3
Commercial publishers	18	4.6
Government	16	4.1
Educational institutions	147	37.9
International organizations	6	1.5
Business and industry	1	0.3
Others	5	1.3
TOTAL	388	(100)

Source: International list of geographical serials (Harris and
Fellmann, 1971)

TABLE 28: CURRENT GEOGRAPHICAL SERIALS - ABSTRACTS WITH ARTICLES BY COUNTRY OF PUBLICATION (FOR SELECTED COUNTRIES)

Country	Serials with abstracts with articles		
	no. of titles	% of 388*	% of current production
Germany (Fed.)	33	8.5	30.6
USSR	29	7.5	20.7
Poland	27	7.0	67.5
USA	26	6.7	21.3
France	25	6.4	47.2
UK	18	4.6	19.6
Japan	18	4.6	52.9
Austria	7	1.8	24.1
Canada	7	1.8	23.3
Brazil	6	1.5	13.6
Italy	4	1.0	9.8
Others	188	48.6	-
TOTAL	388	(100)	-

*388 is the number of current serials with abstracts with (a) all articles and (b) some articles. (See Table 24)

**Based on Table 17

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 29: FORMS OF GEOGRAPHICAL SERIALS (TOTAL NUMBER OF TITLES
CURRENT AND DEAD ON ILGS FILE)

Description of serial	No. of titles	Percentage
Journals	1699	73.9
Abstracts	14	0.6
Indexes	3	0.1
Content lists	-	-
Book reviews	-	-
Bibliography	36	1.6
Accessions lists	1	0.0
Research index	-	-
Yearbooks	56	2.4
Fixed period reports	44	1.9
Conference proceedings	32	1.4
Statistics	7	0.3
Monograph series	385	16.7
Others	22	1.0
TOTAL	2299	(100)

Source: International list of geographical serials (Harris and
Fellmann, 1971)

TABLE 30: FREQUENCY OF PUBLICATION OF GEOGRAPHICAL SERIALS
(TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

Frequency	No. of titles	Percentage
1 issue per year	539	26.6
2 issues per year	141	7.0
3 " " "	27	1.3
4 " " "	192	9.5
5 " " "	5	0.2
6 " " "	61	3.0
7 " " "	1	0.0
8 " " "	7	0.3
9 " " "	-	-
10 " " "	16	0.8
11 " " "	-	-
12 " " "	125	6.2
13-23 " " "	-	-
24-26 " " "	5	0.2
27-51 " " "	-	-
52 " " "	17	0.8
53+ " " "	-	-
Issued every 2 years	24	1.2
Issued every 3 years	9	0.4
Irregular	856	42.3
TOTAL	2025	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 31: TYPE OF ISSUING BODY OF GEOGRAPHICAL SERIALS
(TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

Category	No. of titles	Percentage
Associations, societies, etc.	1200	53.6
Commercial publishers	177	7.9
Government	139	6.2
Educational institutions (Universities, colleges, etc.)	654	29.2
International organizations	18	0.8
Business and industry	2	0.1
Private or individual	33	1.4
Others	17	0.8
TOTAL	2240	(100)

Source: International list of geographical serials (Harris and
Fellmann, 1971)

TABLE 32: GEOGRAPHICAL SERIALS - FORM OF SERIAL BY FREQUENCY OF PUBLICATION (TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILCS FILE)

Description of serial	No. of issues per year																												TOTAL (ROW)
	1 no.	%	2 no.	%	3 no.	%	4 no.	%	5 no.	%	6 no.	%	8 no.	%	10 no.	%	12 no.	%	24 no.	%	52 no.	%	Every 2 yrs. no.	%	Every 3 yrs. no.	%	Irregular no.	%	
Journals	429	79.6 (29.8)	131	92.9 (9.1)	25	92.6 (1.7)	188	97.9 (13.0)	4	80.0 (0.3)	54	88.5 (3.7)	7	103.0 (0.5)	13	81.3 (0.9)	118	94.4 (8.2)	5	100.0 (0.3)	16	94.1 (1.1)	16	66.7 (1.1)	6	66.7 (0.5)	429	50.1 (29.8)	1442 (100)
Abstracts	2	0.4 (14.3)	1	0.7 (7.1)	-	-	1	0.5 (7.1)	-	-	7	11.5 (50.0)	-	-	-	-	1	0.8 (7.1)	-	-	-	-	-	-	-	-	2	0.2 (14.3)	14 (100)
Indexes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	0.4 (20.0)	3 (100)
Bibliography	10	1.9 (28.6)	3	3.1 (8.6)	-	-	3	1.6 (8.6)	-	-	-	-	-	-	2	12.5 (5.7)	2	1.6 (5.7)	-	-	-	-	-	-	-	-	15	1.6 (42.9)	35 (100)
Accessions lists	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.8 (100.0)	-	-	-	-	-	-	-	-	-	-	1 (100)
Yearbooks	40	7.4 (72.7)	1	0.7 (1.8)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	12.5 (5.5)	1	11.1 (1.8)	10	1.2 (18.1)	55 (100)
Fixed period reports	25	4.6 (59.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4.2 (2.4)	-	-	16	1.9 (38.1)	42 (100)
Conference proceedings	7	1.3 (27.6)	2	1.4 (6.5)	-	-	-	-	-	-	-	-	-	-	-	-	1	0.8 (3.2)	-	-	-	-	1	4.2 (3.2)	2	22.2 (6.5)	17	2.0 (54.8)	30 (100)
Statistics	5	0.9 (83.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.1 (16.7)	6 (100)
Monograph series	20	3.7 (5.3)	3	2.1 (0.8)	1	3.7 (0.3)	-	-	1	20.0 (0.3)	-	-	-	-	1	6.3 (0.3)	-	-	-	-	-	-	2	8.3 (0.5)	-	-	350	40.9 (92.6)	378 (100)
Others	1	0.2 (5.3)	-	-	1	3.7 (5.3)	-	-	-	-	-	-	-	-	-	-	2	1.6 (10.5)	-	-	1	5.9 (5.3)	1	4.2 (5.3)	-	-	13	1.5 (68.4)	19 (100)
TOTAL	539	(100)	141	(100)	27	(100)	197	(100)	5	(100)	61	(100)	7	(100)	16	(100)	125	(100)	5	(100)	17	(100)	24	(100)	9	(100)	856	(100)	

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 33: GEOGRAPHICAL SERIALS - TYPE OF ISSUING BODY BY FREQUENCY OF PUBLICATION (TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILCS FILE)

Type of issuing body	No. of issues per year																														TOTAL (ROW)
	1 no.	%	2 no.	%	3 no.	%	4 no.	%	5 no.	%	6 no.	%	8 no.	%	10 no.	%	12 no.	%	24 no.	%	52 no.	%	Every 2 yrs. no.	%	Every 3 yrs. no.	%	Irregular no.	%			
Associations	287	53.2 (27.6)	71	50.4 (6.8)	12	44.4 (1.2)	128	66.7 (12.3)	4	80.0 (0.4)	40	55.6 (3.8)	4	57.1 (0.4)	11	68.8 (1.1)	73	58.4 (7.0)	2	40.0 (0.2)	8	47.1 (0.8)	18	75.0 (1.7)	7	77.8 (0.7)	374	34.7 (36.0)	1039 (100)		
Commercial publishers	40	7.4 (23.1)	14	9.9 (8.1)	6	22.2 (3.5)	13	6.8 (7.5)	1	20.0 (0.6)	5	8.2 (2.9)	3	42.9 (1.7)	2	12.5 (1.2)	32	25.6 (16.5)	3	60.0 (1.7)	6	35.3 (3.5)	1	4.2 (0.6)	-	-	47	5.5 (27.2)	173 (100)		
Government	28	5.2 (22.8)	12	8.5 (9.8)	-	-	9	4.7 (7.3)	-	-	3	4.9 (2.4)	-	-	1	6.3 (0.8)	5	4.0 (4.1)	-	-	-	-	-	-	-	-	65	7.6 (52.8)	123 (100)		
Educational institutions	163	30.2 (26.3)	39	27.7 (6.3)	9	33.3 (1.5)	36	18.0 (5.8)	-	-	4	6.6 (0.6)	-	-	2	12.5 (0.3)	8	6.4 (1.3)	-	-	1	5.9 (0.2)	5	20.8 (0.8)	2	22.2 (0.3)	351	41.0 (56.6)	620 (100)		
International organizations	6	1.1 (33.3)	3	2.1 (16.7)	-	-	1	0.5 (5.6)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	0.9 (44.4)	18 (100)			
Business and industry	-	-	-	-	-	-	1	0.5 (50.0)	-	-	1	1.6 (50.0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2 (100)		
Private individual	9	1.7 (27.3)	1	0.7 (3.0)	-	-	2	1.0 (6.1)	-	-	8	13.1 (24.2)	-	-	-	-	7	5.6 (21.2)	-	-	2	11.8 (6.1)	-	-	-	-	4	0.5 (12.1)	33 (100)		
Others	6	1.1 (37.5)	1	0.7 (6.3)	-	-	2	1.0 (12.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	0.8 (43.8)	16 (100)			
TOTAL	539	(100)	141	(100)	27	(100)	192	(100)	5	(100)	61	(100)	7	(100)	16	(100)	125	(100)	5	(100)	17	(100)	24	(100)	9	(100)	856	(100)			

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 34: GEOGRAPHICAL SERIALS - FORM OF SERIAL BY TYPE OF ISSUING BODY (TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

Description of serial	Associations, societies, etc.		Commercial publishers		Government		Educational institutions		International organizations		Business & industry		Private individual		Others		TOTAL (ROW)
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	
Journals	951	79.3 (57.8)	146	82.5 (8.9)	86	61.9 (5.2)	426	65.1 (25.9)	7	38.9 (0.4)	2	100.0 (0.1)	17	51.5 (1.0)	11	64.7 (0.7)	1646 (100)
Secondary services	31	2.6 (57.4)	2	1.1 (3.7)	6	4.3 (11.1)	6	0.9 (11.1)	1	5.6 (1.9)	-	-	7	21.2 (13.0)	1	5.9 (1.9)	54 (100)
Yearbooks	34	2.8 (63.0)	3	1.7 (5.6)	6	4.3 (11.1)	3	0.5 (5.6)	2	11.1 (3.7)	-	-	5	15.2 (9.3)	1	5.9 (1.9)	54 (100)
Fixed period reports	24	2.0 (54.5)	-	-	11	7.9 (25.9)	7	1.1 (15.9)	-	-	-	-	1	3.0 (2.3)	1	5.9 (2.3)	44 (100)
Conference proceedings	21	1.8 (65.6)	-	-	-	-	4	0.6 (12.5)	7	38.9 (21.9)	-	-	-	-	-	-	32 (100)
Statistics	3	0.3 (50.0)	1	0.6 (16.7)	-	-	1	0.2 (16.7)	-	-	-	-	1	3.0	-	-	6 (100)
Monograph series	125	10.4 (32.6)	24	13.6 (6.3)	22	15.8 (5.7)	206	31.5 (53.8)	1	5.6 (0.3)	-	-	2	6.1 (0.5)	3	17.6 (0.8)	383 (100)
Others	11	0.9 (52.4)	1	0.6 (4.8)	8	5.8 (38.1)	1	0.2 (4.8)	-	-	-	-	-	-	-	-	21 (100)
TOTAL	1200	(100)	177	(100)	139	(100)	654	(100)	18	(100)	2	(100)	33	(100)	17	(100)	

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 35: GEOGRAPHICAL DISTRIBUTION OF GEOGRAPHICAL SERIALS
(TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

Country	Rank	No. of titles	%	Country	Rank	No. of titles	%
Germany (Fed.)	1	349	15.2	Portugal	24=	22	1.0
USSR	2	315	13.7	Germany (DDR)	26	21	0.9
USA	3	191	8.3	Finland	27	19	0.8
France	4	144	6.3	Peru	28	18	0.8
UK	5	129	5.6	New Zealand	29	16	0.7
Italy	6	95	4.1	Mexico	30	15	0.7
Brazil	7	85	3.7	(Int'l. Org.)	30=	15	0.7
Poland	8	66	2.9	Denmark	32	13	0.6
Japan	9	55	2.4	Greece	33	12	0.5
China	10	46	2.0	Bulgaria	34	11	0.5
Austria	11	43	1.9	Chile	34=	11	0.5
Canada	12	42	1.8	Turkey	34=	11	0.5
Czechoslovakia	13	39	1.7	Iran	37	9	0.4
Sweden	14	38	1.7	United Arab Rep.	37=	9	0.4
Switzerland	14=	38	1.7	Colombia	39	8	0.3
Hungary	16	37	1.6	Norway	39=	8	0.3
Spain	16=	37	1.6	Pakistan	39=	8	0.3
India	18	33	1.4	Bolivia	42	7	0.3
Romania	18=	33	1.4	Hong Kong	42=	7	0.3
Netherlands	20	29	1.3	Uruguay	42=	7	0.3
Argentina	21	28	1.2	Indonesia	45	6	0.3
Yugoslavia	21=	28	1.2	S. Africa, Rep. of	45=	6	0.3
Australia	23	23	1.0	Venezuela	45=	6	0.3
Belgium	24	22	1.0				
T O T A L				-- 2210/2299 96.4/100			

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 36: PRODUCTION OF GEOGRAPHICAL SERIALS BY MAIN COUNTRY GROUPS
(TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

Countries	No. of titles	Percentage
Western Europe	994	43.2
Eastern Europe	236	10.3
USSR	315	13.7
North America	232	10.1
Central and South America	217	9.4
Asia	192	8.4
Arab World	25	1.1
Black Africa	28	1.2
Southern Africa	6	0.3
Australasia	39	1.7
(International organizations)	15	0.7
TOTAL	2299	(100)

Source: International list of geographical serials (Harris and
Fellmann, 1971)

TABLE 37: TYPES OF GEOGRAPHICAL SERIALS FOR SELECTED COUNTRIES (TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

Description of serial	UK		USA		USSR		Germany (Fed)		France		Italy		Austria		Poland		Canada		Brazil		Japan	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
Journals	74	57.4	103	53.9	276	87.6	231	66.2	122	84.7	60	63.2	38	88.4	52	78.8	26	61.9	71	83.5	44	80.0
Secondary services	9	7.0	5	2.6	5	1.6	5	1.4	4	2.8	1	1.1	-	-	2	3.0	2	4.8	3	3.5	-	-
Yearbooks	3	2.3	7	3.7	7	2.2	11	3.2	6	4.2	-	-	1	2.3	-	-	1	2.4	1	1.2	2	3.6
Fixed period reports	5	3.9	9	4.7	3	1.0	10	2.9	2	1.4	-	-	-	-	3	4.5	1	2.4	1	1.2	4	7.3
Conference proceedings	-	-	2	1.0	5	1.6	2	0.6	2	1.4	1	1.1	-	-	-	-	1	2.4	2	2.4	-	-
Statistics	2	1.6	-	-	2	0.6	1	0.3	1	0.7	-	-	-	-	-	-	-	-	-	-	-	-
Monograph series	30	23.3	54	28.3	17	5.4	88	25.2	7	4.9	32	33.7	4	9.3	9	13.6	11	26.2	7	8.2	4	7.3
Others	6	4.7	11	5.8	-	-	1	0.3	-	-	-	-	-	-	-	-	-	-	-	-	1	1.8
TOTAL	129	(100)	191	(100)	315	(100)	349	(100)	144	(100)	95	(100)	43	(100)	66	(100)	42	(100)	85	(100)	55	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 38: FREQUENCY OF PUBLICATION OF GEOGRAPHICAL SERIALS FOR SELECTED COUNTRIES (TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

No. of issues per year	UK		USA		USSR		Germany (Fed.)		France		Italy		Austria		Poland		Canada		Brazil		Japan	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
1	51	39.5	30	16.6	73	23.2	88	26.6	36	29.5	15	17.9	9	20.9	13	21.7	6	15.8	17	23.3	13	27.1
2	4	3.1	11	6.1	13	4.1	17	5.1	6	4.9	4	4.8	2	4.7	1	1.7	4	10.5	6	8.2	5	10.4
3	8	6.2	3	1.7	-	-	2	0.6	2	1.6	2	2.4	2	4.7	-	-	1	2.6	2	2.7	-	-
4	4	3.1	22	12.2	4	1.3	17	5.1	28	23.0	8	9.5	5	11.6	7	11.7	4	10.5	7	9.6	8	16.7
5	1	0.8	-	-	1	0.3	-	-	2	1.6	-	-	-	-	-	-	-	-	-	-	-	-
6	7	5.4	2	1.1	11	3.5	5	1.5	7	5.7	6	7.1	-	-	2	3.3	-	-	2	2.7	2	4.2
8	-	-	-	-	-	-	3	0.9	-	-	-	-	-	-	-	-	-	-	1	1.4	-	-
10	1	0.8	2	1.1	-	-	3	0.9	-	-	1	1.2	1	2.3	-	-	-	-	3	4.1	1	2.1
12	3	2.3	17	9.4	9	2.9	21	6.3	12	9.8	6	7.1	4	9.3	2	3.3	2	5.3	-	-	5	10.4
24	-	-	-	-	-	-	3	0.9	-	-	1	1.2	-	-	-	-	-	-	-	-	-	-
52	-	-	3	1.7	-	-	7	2.1	4	3.3	-	-	-	-	-	-	-	-	-	-	-	-
Every 2 years	1	0.8	1	0.6	6	1.9	7	2.1	-	-	1	1.2	1	2.3	-	-	-	-	-	-	-	-
Every 3 years	1	0.8	-	-	3	1.0	2	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Irregular	48	37.2	90	49.7	80	25.4	156	47.1	25	20.5	40	47.6	19	44.2	35	58.3	21	55.3	35	47.9	14	29.2
TOTAL	129	(100)	181	(100)	200	(100)	331	(100)	122	(100)	84	(100)	43	(100)	60	(100)	38	(100)	73	(100)	48	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 39: TYPE OF ISSUING BODY OF GEOGRAPHICAL SERIALS FOR SELECTED COUNTRIES (TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

Type of issuing body	UK		USA		USSR		Germany (Fed)		France		Italy		Austria		Poland		Canada		Brazil		Japan	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
Associations, societies, etc.	38	29.7	102	53.7	253	80.3	142	41.8	80	60.2	26	29.5	27	62.8	39	59.1	10	23.8	49	57.6	36	65.5
Commercial publishers	12	9.4	9	4.7	3	1.0	90	26.5	19	14.3	8	8.4	5	11.6	1	1.5	-	-	-	-	-	-
Government	5	3.9	20	10.5	4	1.3	8	2.4	11	8.3	15	15.8	-	-	-	-	11	26.2	14	16.5	-	-
Educational institutions	60	46.9	52	27.4	49	15.6	81	23.8	22	16.5	39	41.1	8	18.6	25	37.9	20	47.6	22	25.9	19	34.5
International organizations	1	0.8	-	-	-	-	1	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Business and industry	-	-	1	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private individual	12	9.4	4	2.1	1	0.3	10	2.9	1	0.8	-	-	1	2.3	-	-	-	-	-	-	-	-
Others	-	-	2	1.1	-	-	8	2.4	-	-	-	-	1	2.3	1	1.5	1	2.4	-	-	-	-
TOTAL	128	(100)	190	(100)	310	(100)	340	(100)	133	(100)	88	(100)	42	(100)	66	(100)	42	(100)	85	(100)	55	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 40: NUMBER OF LANGUAGES USED IN GEOGRAPHICAL SERIALS
(TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

Category	No. of titles	Percentage
Single language	2109	91.7
2 languages	116	5.0
3 "	42	1.8
4 "	24	1.0
5+ "	8	0.3
TOTAL	2299	(100)

Source: International list of geographical serials (Harris and
and Fellmann, 1971)

TABLE 41: LANGUAGE OF CONTENTS OF GEOGRAPHICAL SERIALS
(TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

Language	Occurrence of language code					Percentage based on single occurrence
	(1)	(2)	(3)	(4)	(5+)	
English	471	83	38	21	8	22.3
German	440	18	28	16	8	20.9
Russian	271	15	1	3	6	12.8
French	202	33	26	19	8	9.6
Spanish	163	2	3	6	1	7.7
Portuguese	106	3	6	5	1	5.0
Italian	97	0	1	0	1	4.6
Polish	59	2	1	1	3	2.8
Chinese	41	7	0	0	0	1.9
Japanese	40	5	0	0	0	1.9
Czech	28	1	2	0	1	1.3
Swedish	27	7	4	4	0	1.3
Hungarian	26	1	1	1	0	1.2
Rumanian	26	1	0	1	0	1.2
Dutch/Flemish	17	9	4	2	2	0.8
Ukranian	13	3	0	0	1	0.6
Serbian	10	2	0	0	1	0.5
Bulgarian	10	0	0	0	0	0.5
Turkish	8	1	0	1	0	0.4
Danish	6	3	2	1	0	0.3
Others*	48	-	-	-	-	2.3
TOTAL	2109	-	-	-	-	(100)

*Other languages recorded for titles were:

Afrikaans, Arabic, Croatian, Estonian, Finnish, Georgian,
Hebrew, Hindi, Indonesian, Korean, Lettish, Lithuanian,
Macedonian, Norwegian, Persian/Farsi, Serbo-Croatian,
Slovak, Slovene.

Source: International list of geographical serials (Harris and
Fellmann, 1971)

TABLE 42: OCCURRENCE OF ABSTRACTS OF ARTICLES IN GEOGRAPHICAL SERIALS (TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

Category	No. of titles	Percentage
Abstracts with all articles	285	12.4
Abstracts with some articles	159	6.9
No abstracts	1855	80.7
TOTAL	2299	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 43: LANGUAGE OF ABSTRACTS CONTAINED IN GEOGRAPHICAL
SERIALS (TOTAL NUMBER OF TITLES CURRENT AND DEAD
ON ILGS FILE)

Language	No. of occurrence
English	333
French	137
German	100
Russian	68
Spanish	7
Italian	3
Portuguese	3

Source: International list of geographical serials (Harris and
Fellmann, 1971)

TABLE 44: GEOGRAPHICAL SERIALS - OCCURRENCE OF ABSTRACTS WITH ARTICLES BY FORM OF SERIAL (TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

Occurrence of abstracts with articles	Description of serial													
	Journals		Yearbooks		Fixed period reports		Conference proceedings		Statistics		Monograph series		Others	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
Abstracts with all articles	247	14.6	3	5.5	2	4.5	4	12.5	-	-	27	7.0	1	4.5
Abstracts with some articles	106	6.3	-	-	4	9.1	7	21.9	-	-	42	10.9	-	-
No abstracts	1339	79.1	52	94.5	38	86.4	21	65.6	7	100.0	316	82.1	21	95.5
TOTAL	1692	(100)	55	(100)	44	(100)	32	(100)	7	(100)	385	(100)	22	(100)

Source: International list of geographical serials (Harris and Felllmann, 1971)

TABLE 45: GEOGRAPHICAL SERIALS - ABSTRACTS WITH ARTICLES BY TYPE OF ISSUING BODY (TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

Type of issuing body	Serials with abstracts with articles	
	No. of titles	Percentage
Associations, societies, etc.	219	49.4
Commercial publishers	19	4.3
Government	18	4.1
Educational institutions	172	38.8
International organizations	8	1.8
Business and industry	1	0.2
Others	6	1.4
TOTAL	443	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 46: GEOGRAPHICAL SERIALS - ABSTRACTS WITH ARTICLES BY COUNTRY OF PUBLICATION (TOTAL NUMBER OF TITLES CURRENT AND DEAD ON ILGS FILE)

Country	Serials with abstracts with articles		% of current and dead titles**
	No. of titles	% of 443*	
Poland	40	9.0	60.6
Germany (Fed.)	34	7.7	9.7
USSR	32	7.2	10.2
USA	28	6.3	14.7
France	25	5.6	17.4
Japan	22	5.0	52.9
UK	18	4.1	14.0
Austria	7	1.6	16.3
Brazil	7	1.6	8.2
Canada	7	1.6	16.7
Italy	4	0.9	4.2

*443 is the number of current and dead serials with abstracts with articles.

**Based on Table 32

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 47: GEOGRAPHICAL SERIALS (1800-1970): FORM OF SERIAL

Year	Description of serial																TOTAL	
	Journals		Secondary services		Yearbooks		Fixed period reports		Conference proceedings		Statistics		Monograph series		Others			
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%		
1800	12	85.7	-	-	1	7.1	-	-	-	-	-	-	1	7.1	-	-	14	(100)
1850	39	84.8	-	-	2	4.3	2	4.3	1	2.2	-	-	2	4.3	-	-	46	(100)
1860	51	83.6	-	-	1	1.6	3	4.9	1	1.6	1	1.6	4	6.6	-	-	61	(100)
1870	75	84.2	-	-	2	2.2	7	7.9	1	1.1	1	1.1	3	3.4	-	-	89	(100)
1880	126	85.1	-	-	1	0.7	12	8.1	3	2.0	1	0.7	5	3.4	-	-	148	(100)
1890	172	83.1	-	-	6	2.9	16	7.7	4	1.9	1	0.5	8	3.9	-	-	207	(100)
1900	203	80.2	2	0.8	6	2.4	19	7.5	7	2.8	1	0.4	15	5.9	-	-	253	(100)
1910	216	78.3	3	1.1	9	3.3	17	6.2	6	2.2	2	0.7	23	8.3	-	-	276	(100)
1920	204	74.5	4	1.5	8	2.9	18	6.6	5	1.8	2	0.7	31	11.3	2	0.7	274	(100)
1930	293	73.2	6	1.5	9	2.2	17	4.2	7	1.7	1	0.3	62	15.5	5	1.2	400	(100)
1935	310	72.1	7	1.6	10	2.3	11	2.6	8	1.9	1	0.2	77	17.9	6	1.4	430	(100)
1940	295	72.3	12	2.9	10	2.5	10	2.5	9	2.2	-	-	65	15.9	7	1.7	408	(100)
1945	281	71.1	11	2.8	11	2.8	10	2.5	9	2.3	-	-	66	16.7	7	1.8	395	(100)
1950	361	72.2	14	2.8	10	2.0	11	2.2	8	1.6	-	-	88	17.6	8	1.6	500	(100)
1955	434	70.6	24	4.0	16	2.6	10	1.6	12	2.0	-	-	111	18.0	8	1.3	615	(100)
1960	574	70.8	28	3.4	20	2.5	12	1.5	15	1.8	-	-	152	18.7	10	1.2	811	(100)
1965	711	70.2	34	3.4	22	2.2	14	1.4	19	1.9	2	0.2	199	19.6	12	1.2	1013	(100)
1970	840	70.6	39	3.2	26	2.2	16	1.3	18	1.5	2	0.2	235	19.8	13	1.1	1139	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 48: GEOGRAPHICAL SERIALS (1800-1970): FREQUENCY OF PUBLICATION

Year	No. of issues per year																								Every 2 yrs. no.	Every 2 yrs. %	Irregular no.	TOTAL no.				
	1 no.	%	2 no.	%	3 no.	%	4 no.	%	5 no.	%	6 no.	%	8 no.	%	10 no.	%	12 no.	%	24-26 no.	%	27-51 no.	%	52 no.	%								
1800	2	20.0	-	-	-	-	-	-	-	1	10.0	-	-	-	-	3	30.0	-	-	-	-	-	-	-	-	-	-	4	40.0	10	(100)	
1850	6	21.6	1	2.7	1	2.7	2	5.4	-	-	2	5.4	-	-	-	-	6	16.2	-	-	-	-	2	5.4	-	-	-	-	15	40.5	37	(100)
1860	12	25.0	1	2.1	2	4.2	3	6.2	-	-	2	4.2	-	-	1	2.1	6	12.5	-	-	-	-	2	4.2	1	2.1	-	-	18	37.5	48	(100)
1870	25	34.2	2	2.7	1	1.4	5	6.8	-	-	4	5.5	-	-	1	1.4	9	12.3	-	-	1	1.4	2	2.7	-	-	1	1.4	22	30.1	73	(100)
1880	39	30.2	4	3.1	2	1.6	16	12.4	-	-	4	3.1	-	-	1	0.8	13	10.1	-	-	1	0.8	4	3.1	3	2.3	1	0.8	41	31.8	129	(100)
1890	42	27.7	5	2.9	3	1.7	17	9.8	-	-	6	3.5	-	-	2	1.2	17	9.8	-	-	1	0.6	4	2.3	5	2.9	-	-	65	37.6	173	(100)
1890	57	26.5	6	2.8	6	2.8	26	12.1	-	-	8	3.7	-	-	2	0.9	21	9.8	-	-	1	0.5	3	1.4	7	3.3	1	0.5	77	35.8	215	(100)
1910	61	25.5	4	1.7	6	2.5	27	11.3	-	-	9	3.8	1	0.4	3	1.3	22	9.2	-	-	1	0.4	3	1.3	7	2.9	1	0.4	94	39.3	239	(100)
1920	56	23.7	6	2.4	5	2.0	31	12.4	-	-	12	4.8	-	-	4	1.6	16	6.4	-	-	-	-	3	1.2	5	2.0	1	0.4	109	43.4	249	(100)
1930	79	21.6	10	2.7	5	1.4	53	14.5	1	0.3	12	3.3	-	-	5	1.4	28	7.7	-	-	-	-	1	0.3	8	2.2	1	0.3	163	44.5	366	(100)
1935	85	21.1	14	3.5	6	1.5	51	12.7	1	0.2	12	3.0	1	0.2	5	1.2	29	7.2	2	0.5	-	-	1	0.2	6	1.5	1	0.2	133	45.8	402	(100)
1940	74	19.4	11	2.9	7	1.8	53	13.9	2	0.5	12	3.1	-	-	4	1.0	28	7.3	1	0.3	-	-	1	0.3	6	1.6	1	0.3	181	47.5	381	(100)
1945	74	20.0	15	4.1	7	1.9	57	15.4	2	0.5	14	3.8	-	-	3	0.8	25	6.8	-	-	-	-	1	0.3	5	1.4	1	0.3	165	44.6	370	(100)
1950	66	18.6	16	3.5	8	1.7	73	15.8	3	0.6	21	4.5	-	-	6	1.3	29	6.3	1	0.2	-	-	1	0.2	8	1.7	2	0.4	209	45.2	463	(100)
1955	108	18.9	31	5.4	9	1.6	84	14.7	3	0.5	26	4.5	-	-	7	1.2	35	6.1	1	0.2	-	-	1	0.2	9	1.6	2	0.3	256	44.8	572	(100)
1960	153	22.8	40	5.4	12	1.6	97	13.2	3	0.4	32	4.4	1	0.1	7	1.0	39	5.3	1	0.1	-	-	1	0.1	10	1.4	3	0.4	336	45.7	735	(100)
1965	202	22.2	57	6.3	13	1.4	106	11.6	3	0.3	37	4.1	3	0.3	8	0.9	39	3.8	1	0.1	-	-	1	0.2	9	0.9	5	0.5	425	46.7	910	(100)
1970	240	22.6	70	6.6	15	1.4	117	11.0	4	0.4	45	4.2	4	0.4	8	0.8	39	3.6	1	0.1	-	-	2	0.2	10	0.9	5	0.5	501	47.3	1060	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 49: GEOGRAPHICAL SERIALS (1800-1970): TYPE OF ISSUING BODY

Year	Type of issuing body																TOTAL	
	Associations, societies, etc.		Commercial publishers		Government		Educational institutions		International organizations		Business & industry		Private individual		Others			
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%		
1800	5	38.5	4	30.8	1	7.7	1	7.7	-	-	-	-	2	15.4	-	-	13	(100)
1850	34	77.3	4	13.6	1	2.3	1	2.3	-	-	-	-	1	2.3	1	2.3	44	(100)
1860	46	80.7	7	12.3	1	1.8	1	1.8	-	-	-	-	1	1.8	1	1.8	57	(100)
1870	63	73.3	12	14.0	5	5.8	1	1.2	-	-	-	-	4	4.7	1	1.2	86	(100)
1880	114	79.7	13	9.1	10	7.0	2	1.4	1	0.7	-	-	1	0.7	2	1.4	143	(100)
1890	167	82.7	12	5.9	12	5.9	6	3.0	1	0.5	-	-	1	0.5	3	1.5	202	(100)
1900	202	81.8	17	6.9	12	4.9	9	3.6	2	0.8	-	-	2	0.8	3	1.2	247	(100)
1910	222	82.2	16	5.9	12	4.4	12	4.4	2	0.7	-	-	3	1.1	3	1.1	270	(100)
1920	218	80.1	11	4.0	14	5.1	25	9.2	1	0.4	-	-	2	0.7	1	0.4	272	(100)
1930	279	70.5	17	4.3	15	3.8	74	18.7	5	1.3	-	-	4	1.0	2	0.5	396	(100)
1935	285	66.7	22	5.1	26	6.1	84	19.6	5	1.2	-	-	2	0.5	4	0.9	428	(100)
1940	269	66.7	21	5.2	28	6.9	76	18.8	4	1.0	-	-	3	0.7	3	0.7	404	(100)
1945	267	67.9	13	3.3	25	6.4	79	20.4	6	1.5	-	-	1	0.3	2	0.5	393	(100)
1950	310	62.2	21	4.2	37	7.4	116	23.3	6	1.2	-	-	1	0.2	7	1.4	498	(100)
1955	358	58.5	23	3.8	57	9.3	158	25.8	8	1.3	-	-	-	-	8	1.3	612	(100)
1960	466	57.7	30	3.7	57	7.1	236	29.2	8	1.0	-	-	2	0.2	9	1.1	808	(100)
1965	560	55.6	35	3.5	61	6.1	331	32.8	8	0.8	2	0.2	2	0.2	9	0.9	1008	(100)
1970	616	52.0	46	3.8	61	5.2	433	36.5	9	0.8	2	0.2	8	0.7	9	0.8	1184	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 50: SIZE OF SECONDARY SERIAL LITERATURE IN GEOGRAPHY (1891-1974)

Year	No. of new titles recorded	Mortalities recorded	Cumulative no. of titles (current & dead)	Cumulative no. of titles current	Year	No. of new titles recorded	Mortalities recorded	Cumulative no. of titles (current & dead)	Cumulative no. of titles current	Year	No. of new titles recorded	Mortalities recorded	Cumulative no. of titles (current & dead)	Cumulative no. of titles current
1891	1	0	1	1	1919	1	0	5	4	1947	1	0	15	10
1892	1	0	2	2	1920	0	0	5	4	1948	1	0	16	11
1893	0	0	2	2	1921	0	0	5	4	1949	1	0	17	12
1894	0	0	2	2	1922	0	0	5	4	1950	2	0	19	14
1895	0	0	2	2	1923	0	0	5	4	1951	3	0	22	17
1896	0	0	2	2	1924	0	0	5	4	1952	0	1	22	16
1897	0	0	2	2	1925	2	0	7	6	1953	0	0	22	16
1898	0	0	2	2	1926	0	0	7	6	1954	5	1	27	20
1899	0	0	2	2	1927	0	0	7	6	1955	2	2	29	20
1900	0	0	2	2	1928	1	0	8	7	1956	2	0	31	22
1901	0	0	2	2	1929	0	1	8	6	1957	3	0	34	25
1902	1	0	3	3	1930	0	0	8	6	1958	1	1	35	25
1903	0	0	3	3	1931	1	0	9	7	1959	0	0	35	25
1904	0	0	3	3	1932	0	0	9	7	1960	2	1	37	26
1905	0	0	3	3	1933	0	0	9	7	1961	1	0	38	27
1906	0	0	3	3	1934	0	0	9	7	1962	1	0	39	28
1907	0	0	3	3	1935	0	0	9	7	1963	2	0	41	30
1908	0	0	3	3	1936	1	0	10	8	1964	2	0	43	32
1909	0	0	3	3	1937	0	0	10	8	1965	1	1	44	32
1910	0	0	3	3	1938	2	0	12	10	1966	4	0	48	36
1911	0	0	3	3	1939	0	0	12	10	1967	1	2	49	35
1912	0	0	3	3	1940	1	1	13	10	1968	0	0	49	35
1913	0	0	3	3	1941	0	0	13	10	1969	1	0	50	36
1914	0	0	3	3	1942	0	0	13	10	1970	0	0	50	36
1915	0	0	3	3	1943	1	0	14	11	1971	0	0	50	36
1916	0	1	3	2	1944	0	0	14	11	1972	2	0	52	38
1917	0	0	3	2	1945	0	2	14	9	1973	0	0	52	38
1918	1	0	4	3	1946	0	0	14	9	1974	1	0	53	39

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 51 : TYPES OF GEOGRAPHICAL SECONDARY SERVICES
(TITLES CURRENT IN 1970)

Category	No. of titles	Percentage
Abstracts	12	30.8
Indexes	3	7.7
Content lists	-	-
Book reviews	-	-
Bibliography	24	61.5
Accessions lists	-	-
Research index	-	-
TOTAL	39	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 52: FREQUENCY OF PUBLICATION OF GEOGRAPHICAL SECONDARY SERVICES (TITLES CURRENT IN 1970)

Frequency	No. of titles	Percentage
1 issue per year	8	21.0
2 issues per year	3	7.9
4 " " "	3	7.9
6 " " "	7	18.4
10 " " "	1	2.6
12 " " "	3	7.9
24 " " "	-	-
52 " " "	-	-
Irregular	13	34.2
TOTAL	39	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 53: TYPES OF ISSUING BODY OF GEOGRAPHICAL SECONDARY SERVICES (TITLES CURRENT IN 1970)

Category	No. of titles	Percentage
Associations, societies, etc.	23	58.9
Commercial publishers	1	2.7
Government	3	7.7
Educational institutions	5	12.8
International organization	-	-
Business and industry	-	-
Private or individual	7	17.9
Others	-	-
TOTAL	39	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 54: GEOGRAPHICAL DISTRIBUTION OF TYPES OF GEOGRAPHICAL
SECONDARY SERVICES (TITLES CURRENT IN 1970)

Country	Types of secondary services			TOTAL	%
	Abstracts no. of titles	Indexes no. of titles	Bibliography no. of titles		
UK	7	-	1	8	20.5
US	-	1	3	4	10.3
Germany (Fed.)	-	1	3	4	10.3
France	-	-	4	4	10.3
Brazil	-	-	3	3	7.7
USSR	1	-	1	2	5.1
Belgium	1	-	1	2	5.1
Spain	-	-	2	2	5.1
Bulgaria	1	-	-	1	2.6
China	1	-	-	1	2.6
Czechoslovakia	-	-	1	1	2.6
Germany (DDR)	-	-	1	1	2.6
Hungary	1	-	-	1	2.6
Iran	-	1	-	1	2.6
Italy	-	-	1	1	2.6
Romania	-	-	1	1	2.6
Switzerland	-	-	1	1	2.6
Yugoslavia	-	-	1	1	2.6
TOTAL	12	3	24	39	(100)

Source: International list of geographical serials (Harris and
Fellmann, 1971)

TABLE 55: GEOGRAPHICAL SECONDARY SERVICES - TYPE OF ISSUING BODY BY FREQUENCY OF PUBLICATION (TITLES CURRENT IN 1970)

Type of issuing body	No. of issues per year														TOTAL (ROW)
	1 no.	%	2 no.	%	4 no.	%	6 no.	%	10 no.	%	12 no.	%	Irregular no.	%	
Associations, societies, etc.	4	57.1 (17.4)	3	100.0 (13.0)	2	66.7 (8.7)	-	-	1	100.0 (4.3)	3	100.0 (13.0)	10	76.9 (43.5)	23 (100) (100)
Commercial publishers	1	14.3 (100.0)	-	-	-	-	-	-	-	-	-	-	-	-	1 (100)
Government	-	-	-	-	-	-	-	-	-	-	-	-	1	7.7 (100.0)	1 (100)
Educational institutions	2	28.6 (40.0)	-	-	1	33.3 (20.0)	-	-	-	-	-	-	2	15.4 (40.0)	5 (100)
Private individual	-	-	-	-	-	-	7	100.0 (100.0)	-	-	-	-	-	-	7 (100)
TOTAL	7	(100)	3	(100)	3	(100)	7	(100)	1	(100)	3	(100)	13	(100)	

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 56: GEOGRAPHICAL SECONDARY SERVICES - TYPE OF ISSUING BODY BY
TYPE OF SECONDARY SERVICES (TITLES CURRENT IN 1970)

Type of issuing body	Type of secondary services						TOTAL (RC
	Abstracts		Indexes		Bibliography		
	no.	%	no.	%	no.	%	
Associations, societies, etc.	4	33.3 (17.4)	2	66.7 (8.7)	17	70.8 (73.9)	23 (100)
Commercial publishers	-	-	-	-	1	4.2 (100.0)	1 (100)
Government	-	-	-	-	3	12.5 (100.0)	3 (100)
Educational institutions	1	8.3 (20.0)	1	33.3 (20.0)	3	12.5 (60.0)	5 (100)
Private individual	7	58.3 (100.0)	-	-	-	-	7 (100)
TOTAL	12	(100)	3	(100)	24	(100)	

Source: International list of geographical serials (Harris and
Fellmann, 1971)

TABLE 57: LANGUAGE DISTRIBUTION OF GEOGRAPHICAL SECONDARY SERVICES (TITLES CURRENT IN 1970)

Language	No. of titles	Percentage
English	16	41.0
German	6	15.4
French	4	10.3
Spanish	3	7.7
Portuguese	3	7.7
Russian	2	5.1
Italian	1	2.6
Romanian	1	2.6
Serbian	1	2.6
Chinese	1	2.6
Iranian	1	2.6
TOTAL	39	(100)

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 58: RATIO OF SECONDARY SERVICES TO PRIMARY SERIALS IN GEOGRAPHY, 1890-1970*

Year	No. of secondary services (1)	No. of all serials (2)	No. of primary serials (3)	Ratios	
				(1):(2)	(1):(3)
1890	0	207	172	-	-
1900	2	253	203	126.5	101.5
1910	3	276	216	92.0	72.0
1920	4	274	204	68.5	51.0
1930	6	400	293	66.7	48.8
1935	7	430	310	61.4	44.3
1940	12	408	295	34.0	24.6
1945	11	395	281	35.9	25.5
1950	14	500	361	35.7	25.8
1955	24	615	434	25.6	18.1
1960	28	811	574	29.0	20.5
1965	34	1013	711	29.8	20.9
197	39	1189	840	30.5	21.5

*Based on Table 47

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 59: LANGUAGE OF CONTENTS OF GEOGRAPHICAL SERIALS BY MAIN COUNTRY GROUPS
(SINGLE LANGUAGE CODE SERIALS CURRENT IN 1970)

Countries	Language (n. of titles) English	French	German	Russian	Polish	Hungarian	Czech	Rumanian	Italian	Spanish	Portuguese	Japanese	Chinese	Others*
Western Europe	106	57	135	-	-	-	-	-	41	17	6	-	-	34
Eastern Europe	6	1	21	-	34	14	11	10	-	-	-	-	-	26
USSR	1	-	-	109	-	-	-	-	-	-	-	-	-	14
North America	135	5	-	-	-	-	-	-	-	-	-	-	-	-
Central and South America	1	1	-	-	-	-	-	-	-	50	44	-	-	-
Asia	39	1	-	-	-	-	-	-	-	-	-	22	16	13
Arab World	2	4	-	1	-	-	-	-	-	-	-	-	-	5
Africa	15	5	-	-	-	-	-	-	-	-	1	-	-	1
Australasia	30	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	335	74	156	110	34	14	11	10	41	67	51	22	16	93

*See Table 23 for list of other languages recorded

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 60: GEOGRAPHICAL SERIALS - LANGUAGE OF CONTENTS BY LANGUAGE OF ABSTRACTS OF ARTICLES
(SINGLE LANGUAGE CODE SERIALS CURRENT IN 1970)

Language of contents	Language of abstracts of articles (Principal international languages) no. of titles														
	E	F	G	R	E/F	E/G	E/R	F/G	F/R	G/R	E/F/G	E/G/R	E/F/R	F/G/R	E/F/G/R
Bulgarian	-	1	-	-	-	-	-	1	-	-	1	-	-	-	-
Chinese	6	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Croatian	-	-	-	-	4	-	-	-	-	-	-	-	-	-	1
Czech	2	-	-	-	-	-	2	-	-	2	1	2	-	-	1
Danish	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dutch/ Flemish	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
English	-	-	-	-	-	-	-	2	-	-	-	-	-	1	-
Estonian	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Finnish	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-
French	20	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Georgian	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
German	24	1	-	2	4	-	3	-	-	-	-	-	1	1	-
Hebrew	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hungarian	-	-	-	-	-	-	-	2	-	-	-	1	-	-	1
Italian	2	-	-	-	-	-	-	-	-	-	2	-	-	-	-
Japanese	13	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Korean	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithuanian	-	-	-	-	-	-	3	-	-	-	-	-	-	2	1
Macedonian	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Mongol.	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Norwegian	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polish	7	-	-	-	2	2	7	-	-	-	-	-	1	-	3
Portuguese	6	-	-	-	3	-	-	-	-	-	-	-	-	-	-
Rumanian	-	-	-	-	-	-	1	-	1	-	1	-	1	-	1
Russian	4	1	-	-	1	-	-	-	-	-	1	-	-	-	-
Serbian	-	3	-	-	1	-	-	-	-	-	1	-	-	-	-
Slovak	-	-	-	-	-	2	-	-	-	1	-	-	-	-	-
Slovene	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-
Spanish	3	-	-	-	2	-	-	-	-	-	1	-	-	-	-
Swedish	9	-	-	-	-	-	-	-	-	-	3	-	-	-	-
Turkish	1	2	-	-	3	-	-	-	-	-	1	-	-	-	-
Ukrainian	-	-	-	2	-	-	1	-	-	-	-	-	-	-	-

E=English

F=French

G=German

R=Russian

Source: International list of geographical serials (Harris and Zellmann, 1971)

TABLE 61: NUMBER OF CURRENT GEOGRAPHICAL SERIALS* WITH ABSTRACTS
OF ARTICLES IN INTERNATIONAL LANGUAGES FOR MAIN COUNTRY
GROUP

Country	English	French	German	Russian	Total no. of serials under analysis
Western Europe	70	15	8	2	70
Eastern Europe	49	34	26	32	69
USSR	14	4	5	12	19
North America	1	1	1	-	2
Central and South America	8	2	-	-	8
Asia	26	7	3	2	30
Arab World	3	-	-	-	3
Africa	2	-	2	-	2

*Single language code serials current in 1970, using English, French, German, or Russian as supplementary language(s) in abstracts of articles.

Source: International list of geographical serials (Harris and Fellmann, 1971)

TABLE 62: NUMBER OF CURRENT GEOGRAPHICAL SERIALS* WITH ABSTRACTS
OF ARTICLES IN INTERNATIONAL LANGUAGES FOR SELECTED
COUNTRIES

Country	English	French	German	Russian	Total no. of serials under analysis
France	17	-	-	-	17
Germany	16	2	-	1	16
Italy	4	2	2	1	4
Portugual	2	2	-	-	2
Spain	4	2	1	-	4
Sweden	11	2	3	-	12
Switzerland	2	2	-	-	3
Bulgaria	1	4	2	1	4
Czechoslovakia	7	2	8	6	10
Hungary	3	3	5	3	5
Poland	22	7	5	10	23
Romania	4	5	2	4	6
Yugoslavia	10	13	4	4	13
China	6	-	-	1	6
Japan	14	-	1	-	14
Argentina	1	-	-	-	1
Brazil	5	1	-	-	5
Chile	1	-	-	-	1

*Single language code serials current in 1970, using English, French, German, or Russian as supplementary language(s) in abstracts of articles.

Source: International list of geographical serials (Harris and Fellmann, 1971)

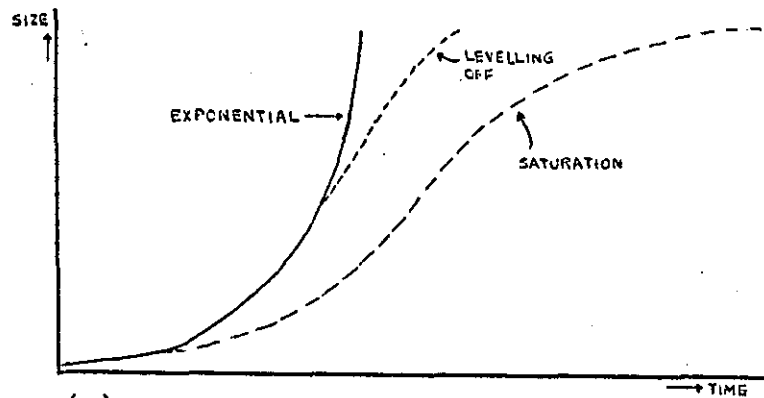
TABLE 63: NUMBER OF EXISTING GEOGRAPHICAL
SOCIETIES, 1820-1970

Year	No. of societies
1820	0
1830	5
1840	5
1850	7
1860	11
1870	20
1880	37
1890	56
1900	62
1905	63
1910	69
1915	77
1920	85
1925	97
1930	105
1935	110
1940	115
1945	134
1950	149
1955	158
1960	167
1965	172
1970	172

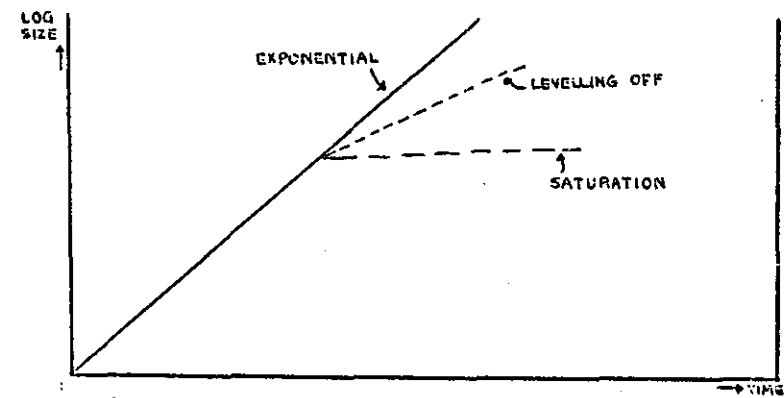
Source: Orbis Geographicus, pt 1, 1968/72, 67-94.

FIGURES

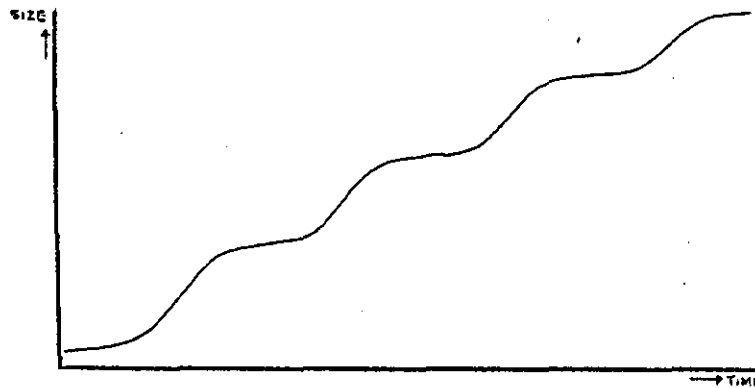
FIGURE 1: DIFFERENT TYPES OF GROWTH CURVE



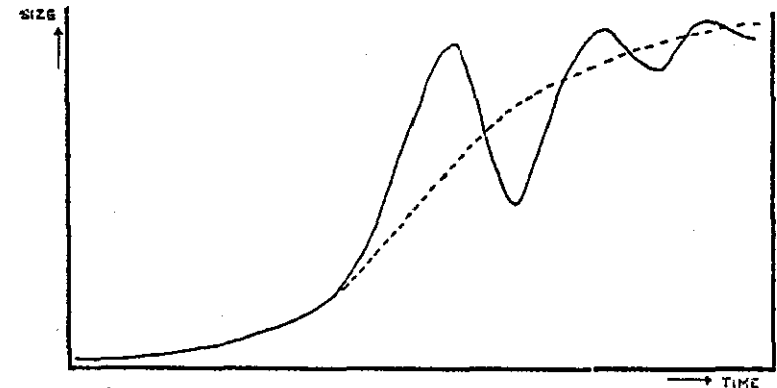
(a) Non-linear trends : each curve shows a period of accelerating growth



(b) Situation in curve (a) plotted on a semi-logarithmic scale



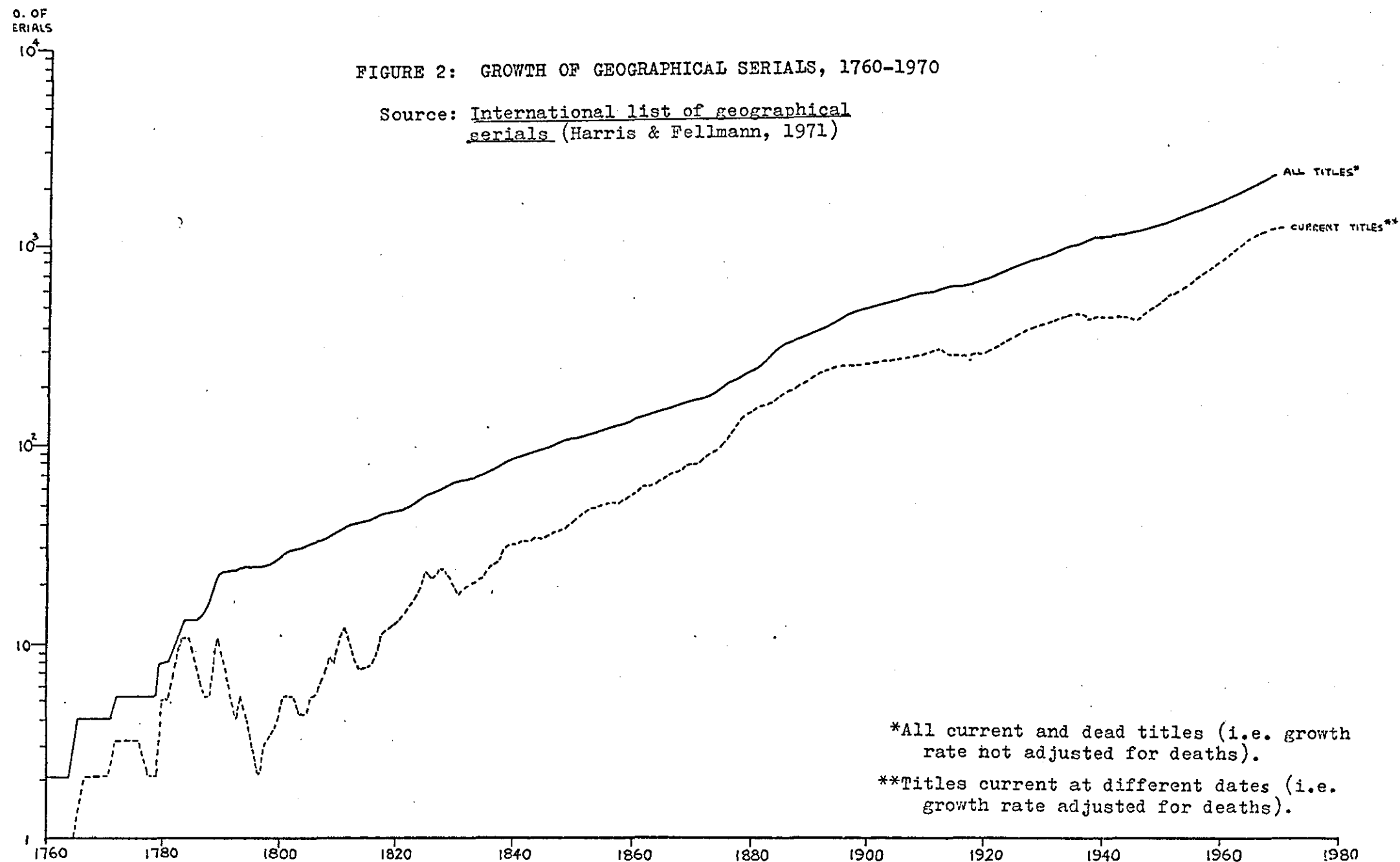
(c) Escalation



(d) Convergent oscillation

FIGURE 2: GROWTH OF GEOGRAPHICAL SERIALS, 1760-1970

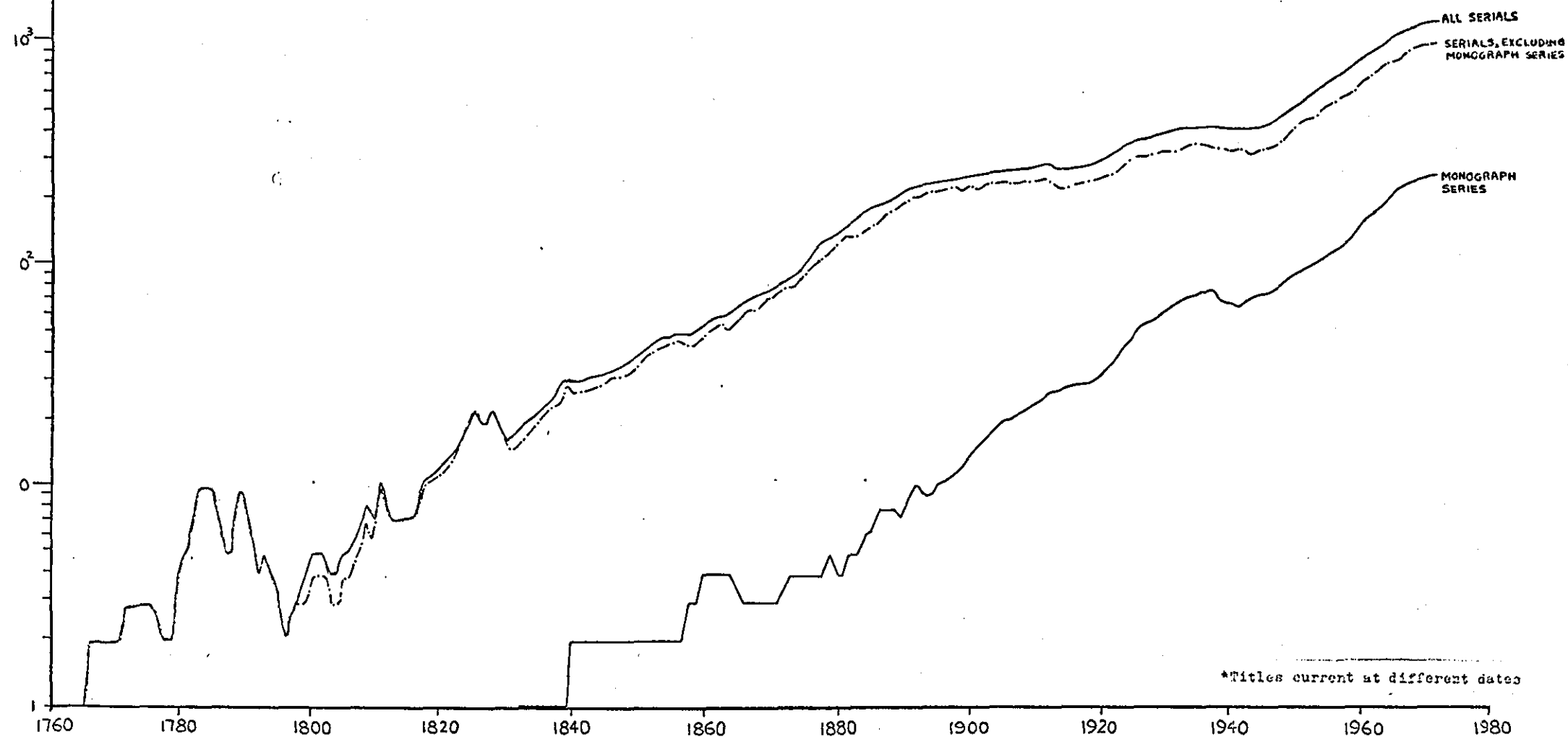
Source: International list of geographical
serials (Harris & Fellmann, 1971)



D. OF
SERIALS

FIGURE 3A: GROWTH OF GEOGRAPHICAL SERIALS* & MONOGRAPH SERIES*

Source: International list of geographical
serials (Harris & Fellmann, 1971)

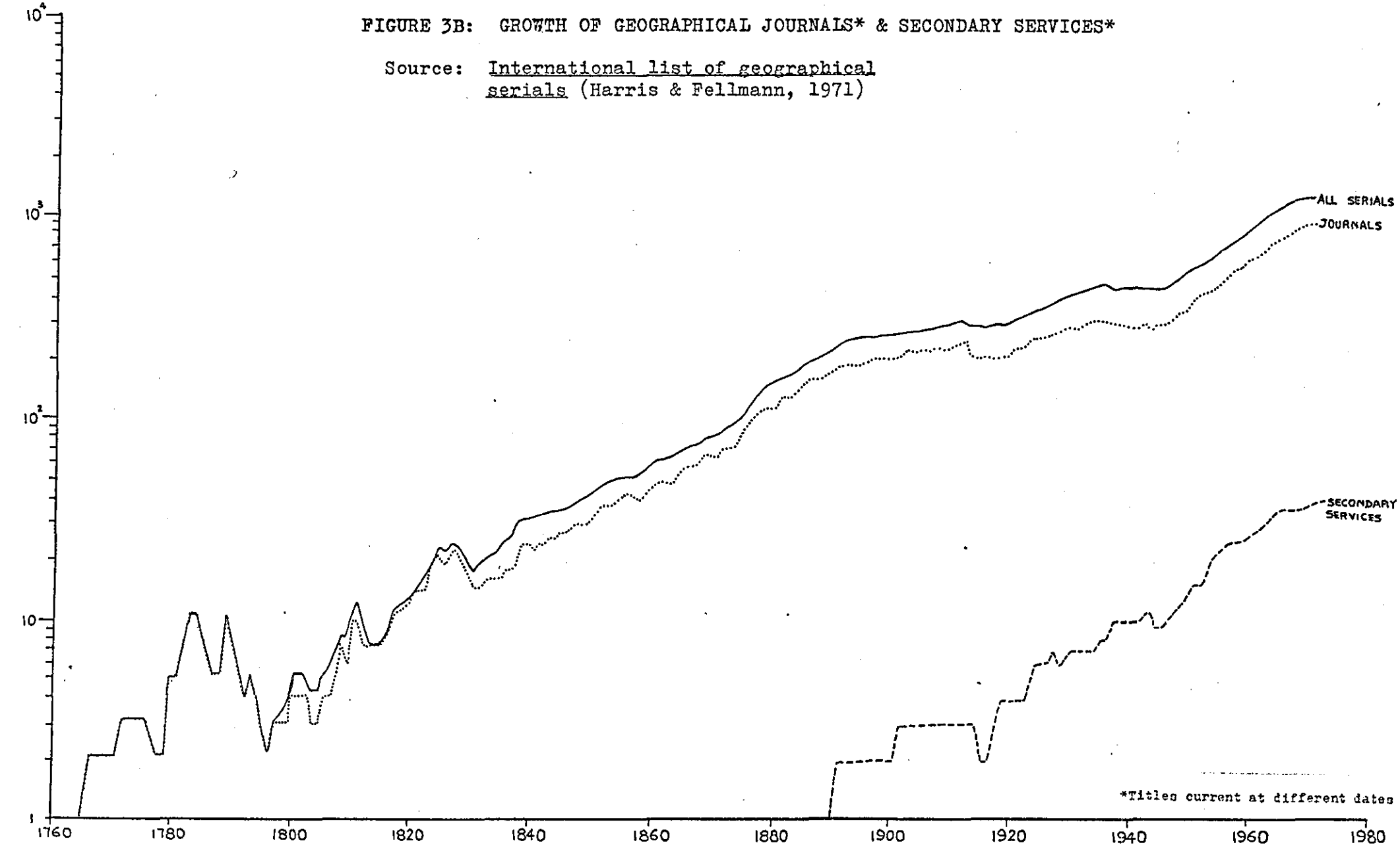


*Titles current at different dates

NO. OF
SERIALS

FIGURE 3B: GROWTH OF GEOGRAPHICAL JOURNALS* & SECONDARY SERVICES*

Source: International list of geographical
serials (Harris & Fellmann, 1971)

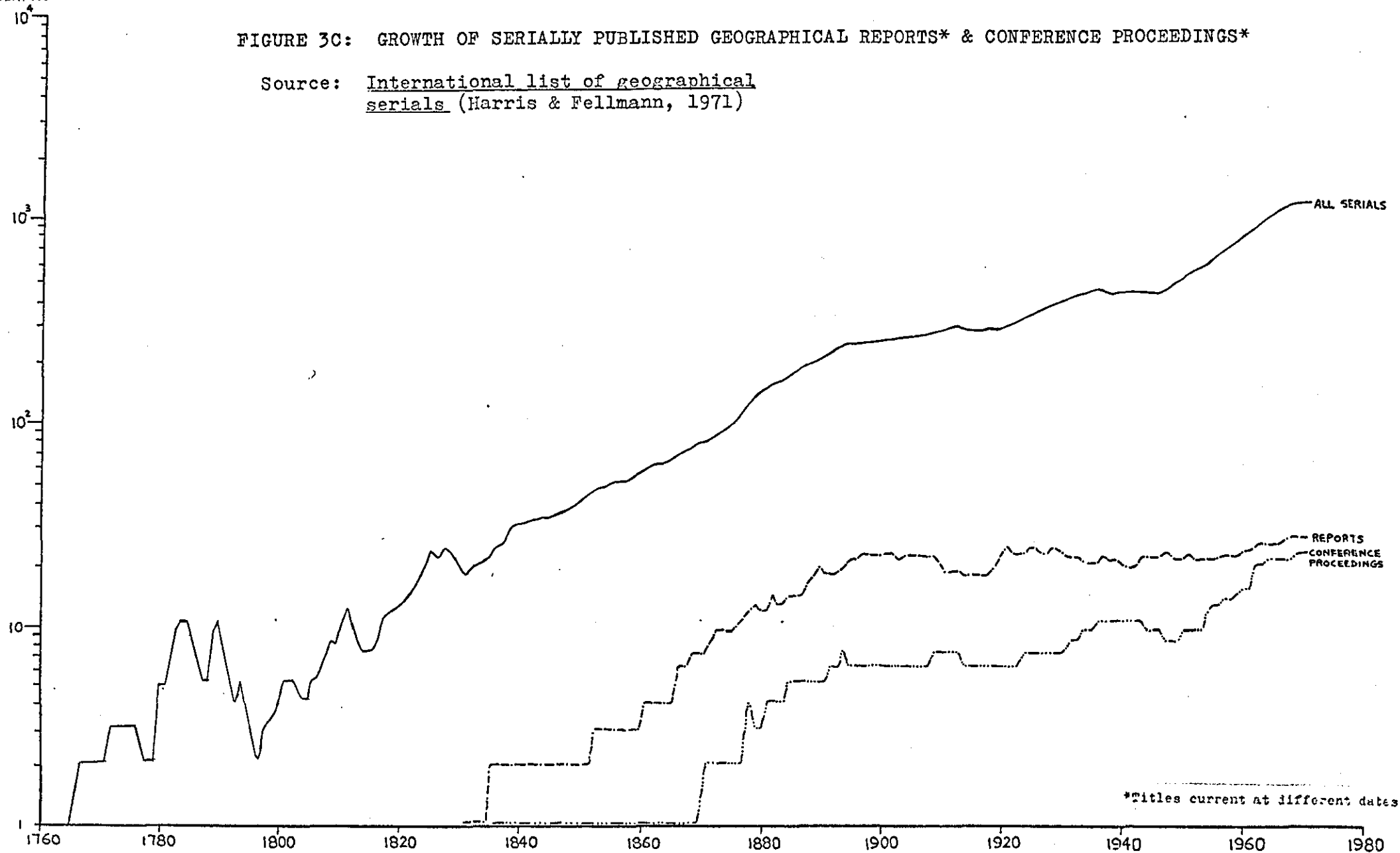


*Titles current at different dates

NO. OF
SERIALS

FIGURE 3C: GROWTH OF SERIALLY PUBLISHED GEOGRAPHICAL REPORTS* & CONFERENCE PROCEEDINGS*

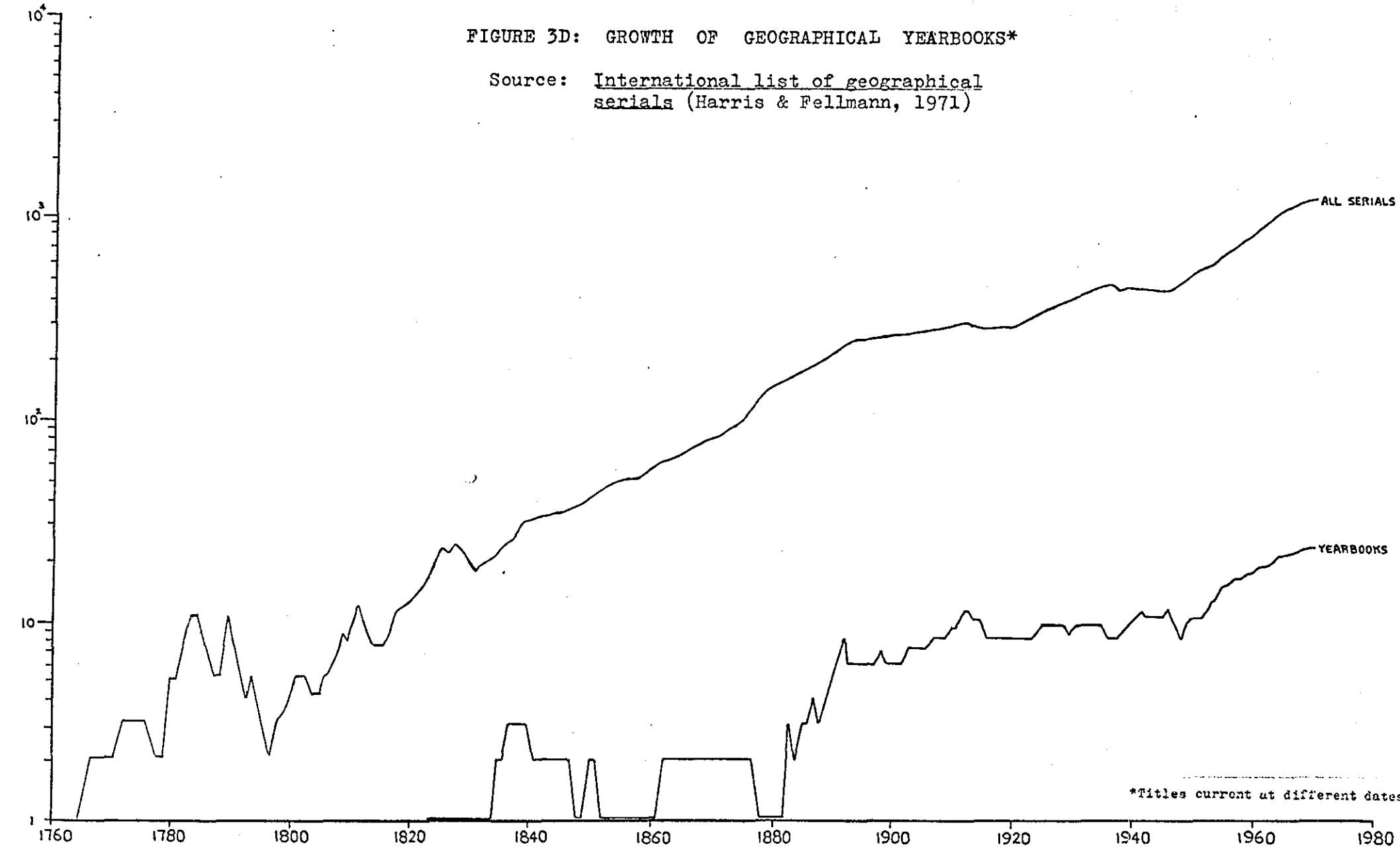
Source: International list of geographical
serials (Harris & Fellmann, 1971)



NO. OF
SERIALS

FIGURE 3D: GROWTH OF GEOGRAPHICAL YEARBOOKS*

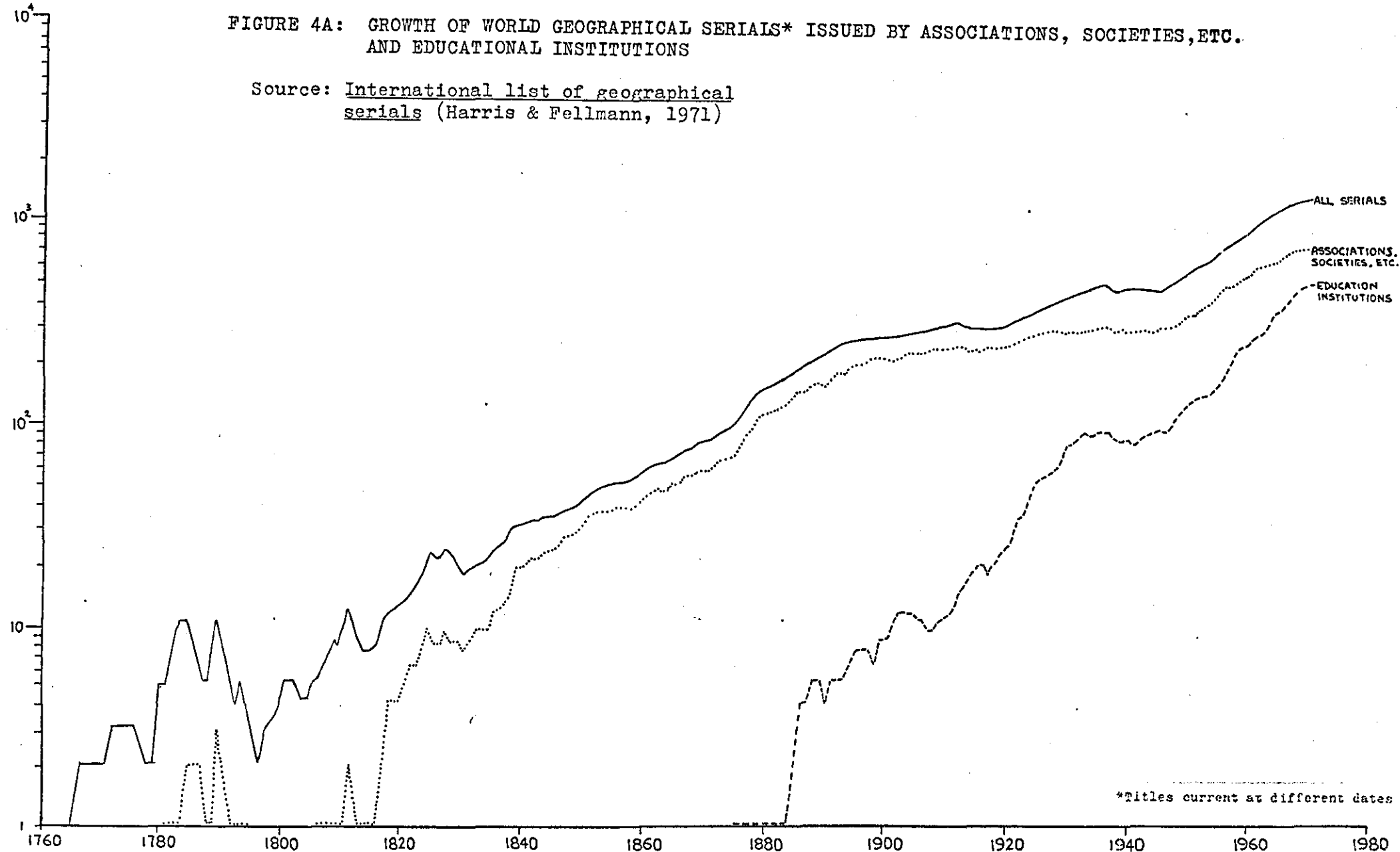
Source: International list of geographical
serials (Harris & Fellmann, 1971)



NO. OF
SERIALS

FIGURE 4A: GROWTH OF WORLD GEOGRAPHICAL SERIALS* ISSUED BY ASSOCIATIONS, SOCIETIES, ETC.
AND EDUCATIONAL INSTITUTIONS

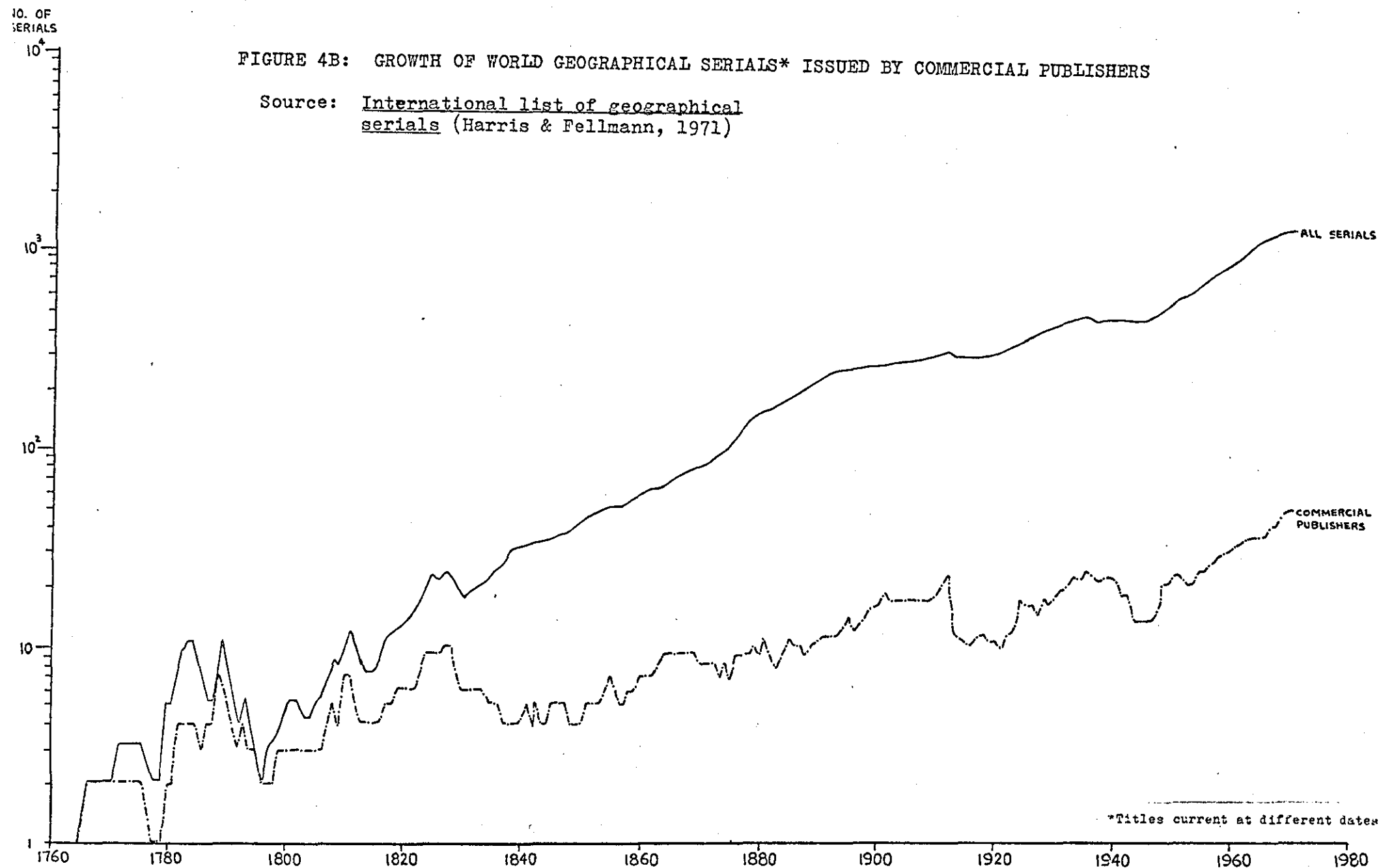
Source: International list of geographical
serials (Harris & Fellmann, 1971)



*Titles current at different dates

FIGURE 4B: GROWTH OF WORLD GEOGRAPHICAL SERIALS* ISSUED BY COMMERCIAL PUBLISHERS

Source: International list of geographical
serials (Harris & Fellmann, 1971)



NO. OF
SERIALS

FIGURE 4C: GROWTH OF WORLD GEOGRAPHICAL SERIALS* ISSUED BY GOVERNMENT

Source: International list of geographical
serials (Harris & Fellmann, 1971)

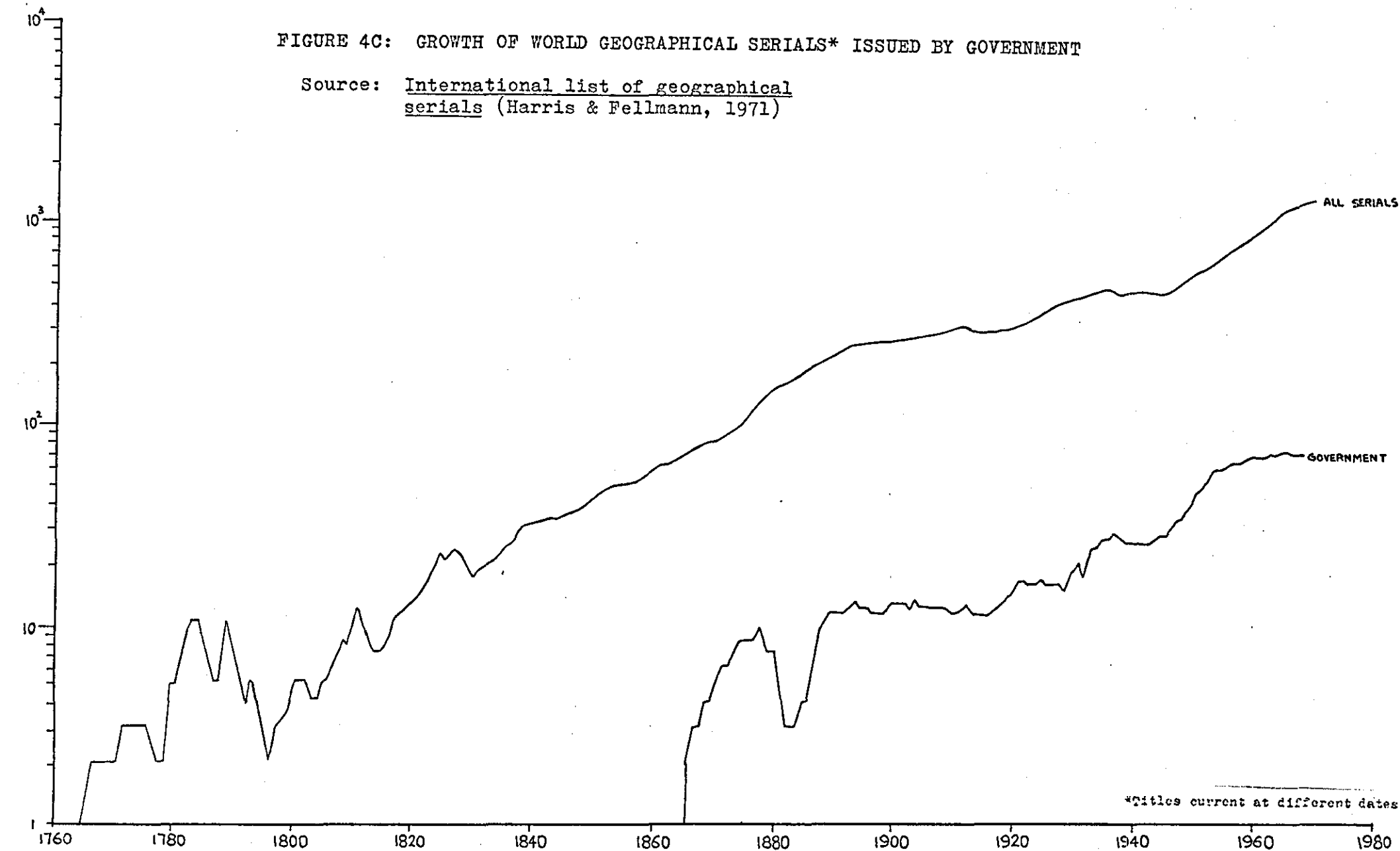


FIGURE 4D: GROWTH OF WORLD GEOGRAPHICAL SERIALS* ISSUED BY MISCELLANEOUS BODY

Source: International list of geographical
serials (Harris & Fellmann, 1971)

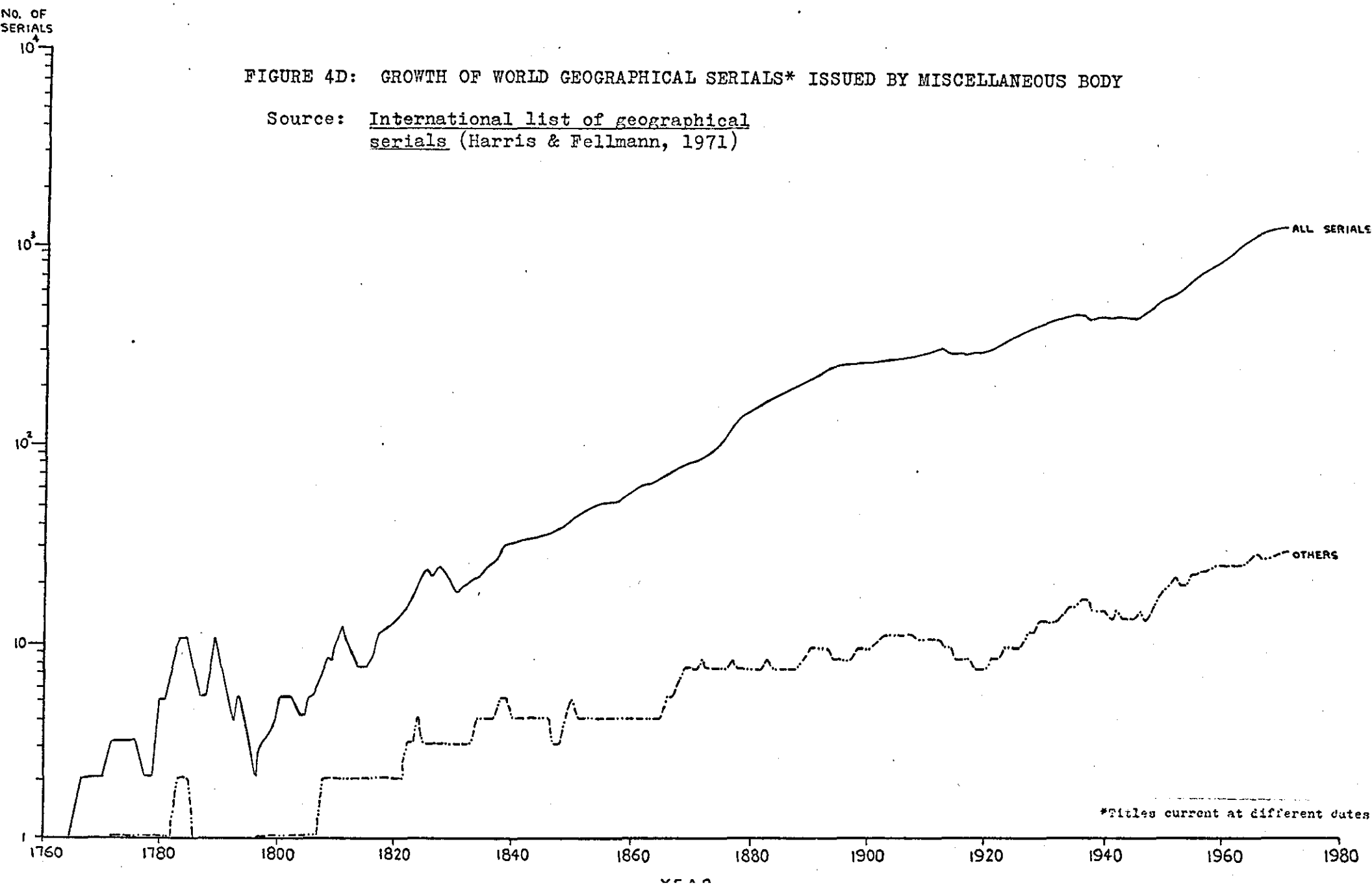


FIGURE 4E: GROWTH OF GEOGRAPHICAL SERIALS* ISSUED BY ASSOCIATIONS, SOCIETIES, ETC. FOR SELECTED COUNTRIES

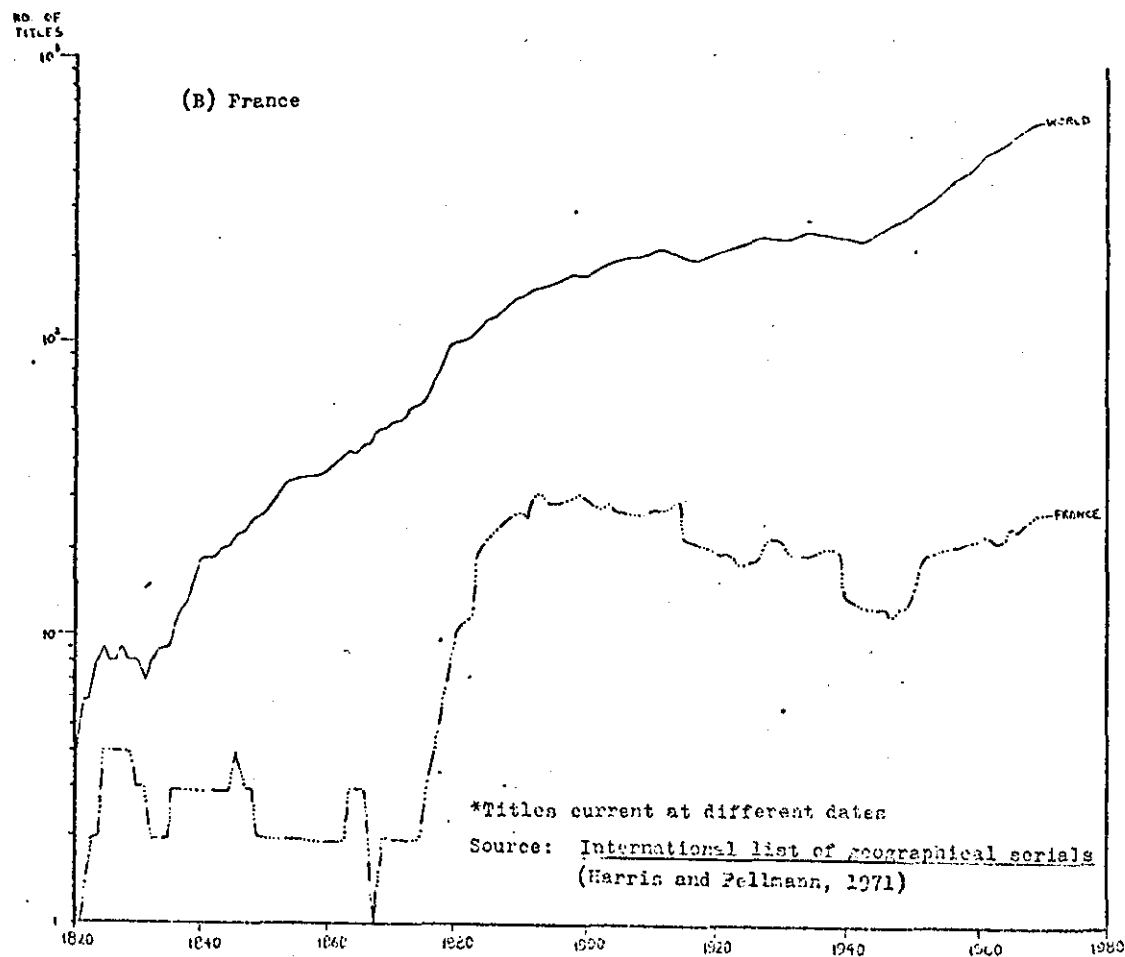
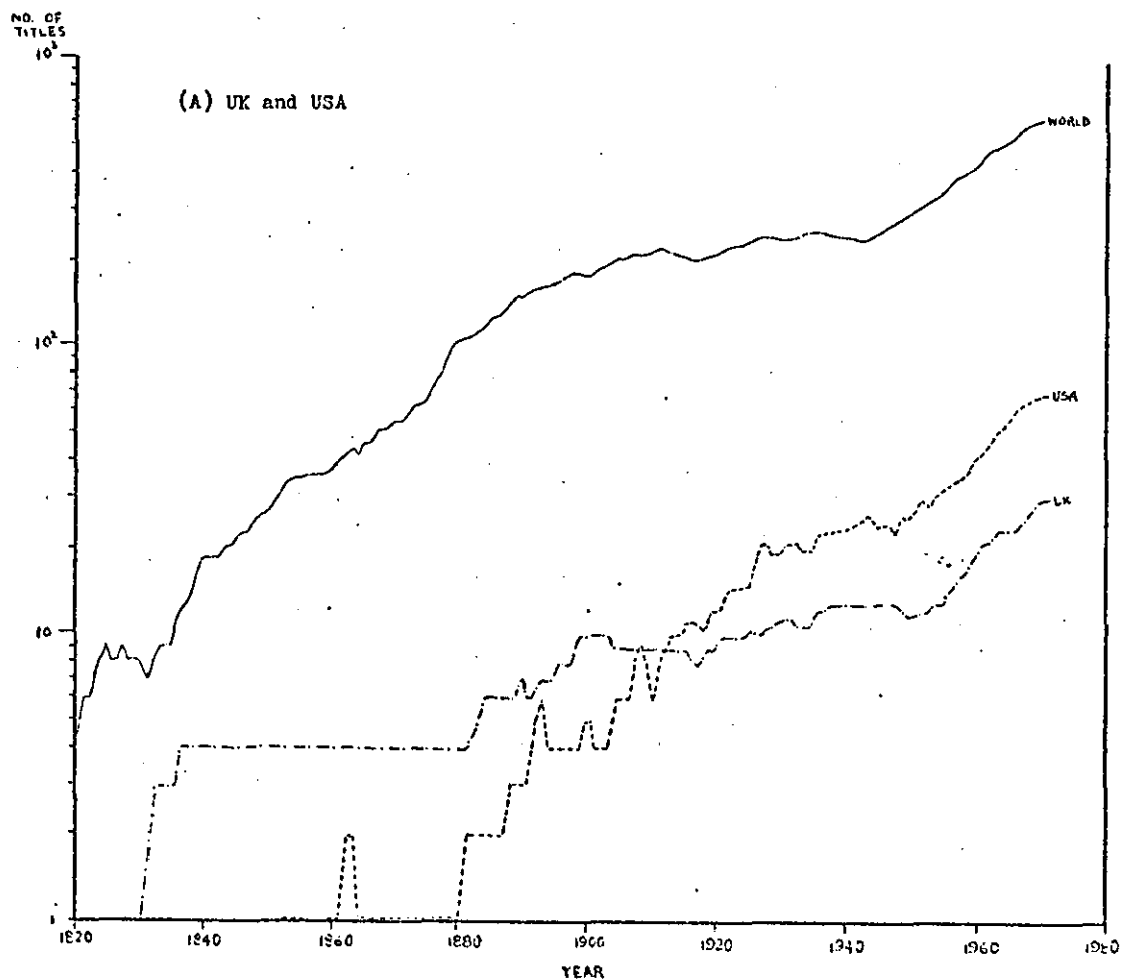


FIGURE 4E: GROWTH OF GEOGRAPHICAL SERIALS* ISSUED BY ASSOCIATIONS, SOCIETIES, ETC. FOR SELECTED COUNTRIES - continued

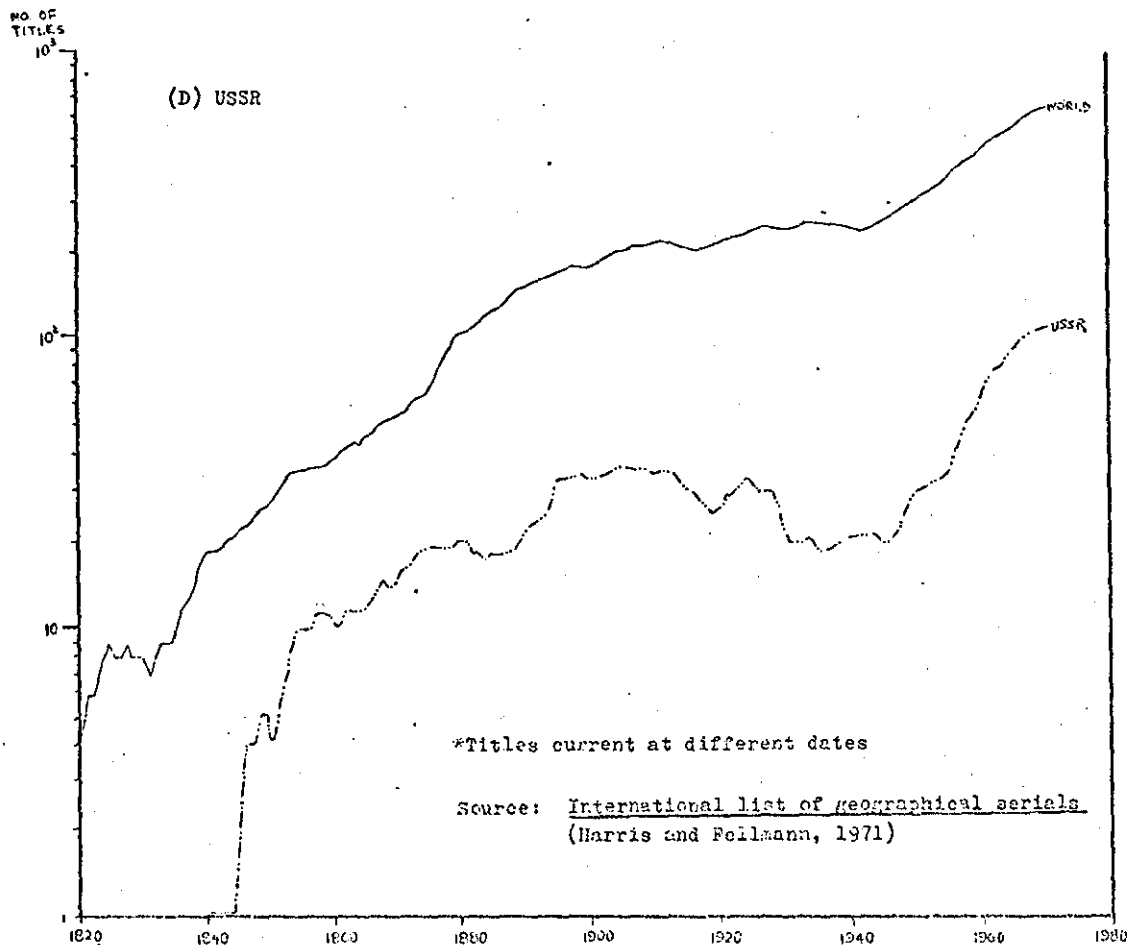
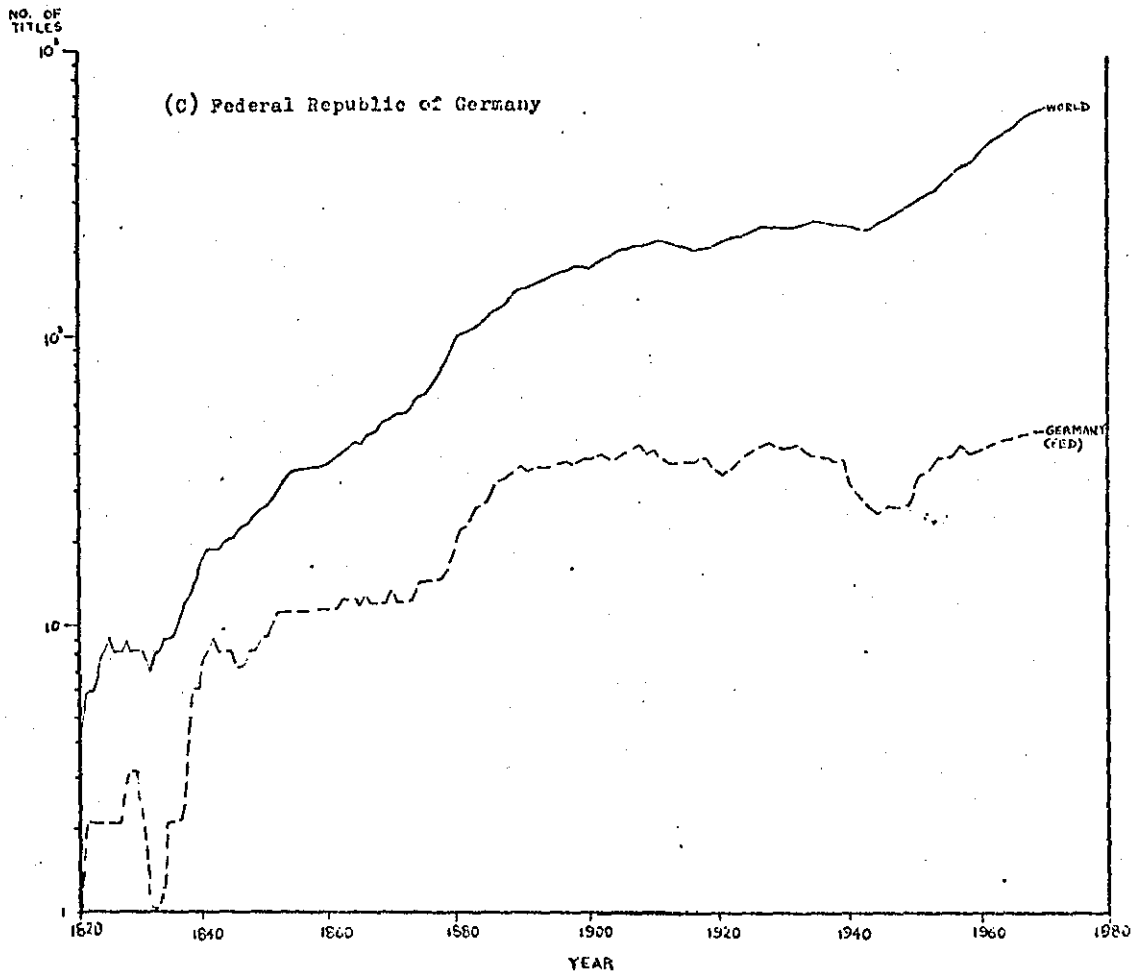
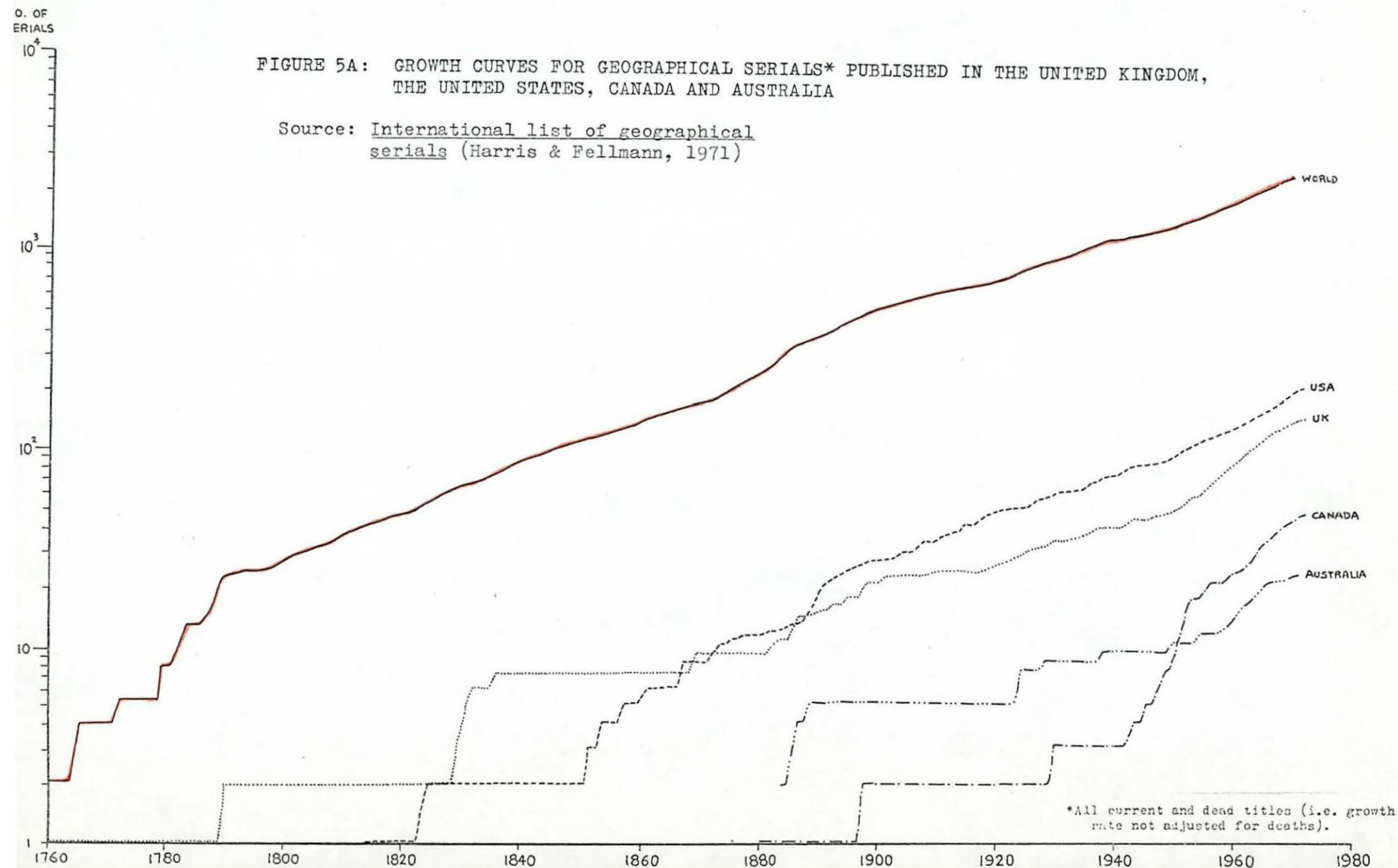


FIGURE 5A: GROWTH CURVES FOR GEOGRAPHICAL SERIALS* PUBLISHED IN THE UNITED KINGDOM,
THE UNITED STATES, CANADA AND AUSTRALIA

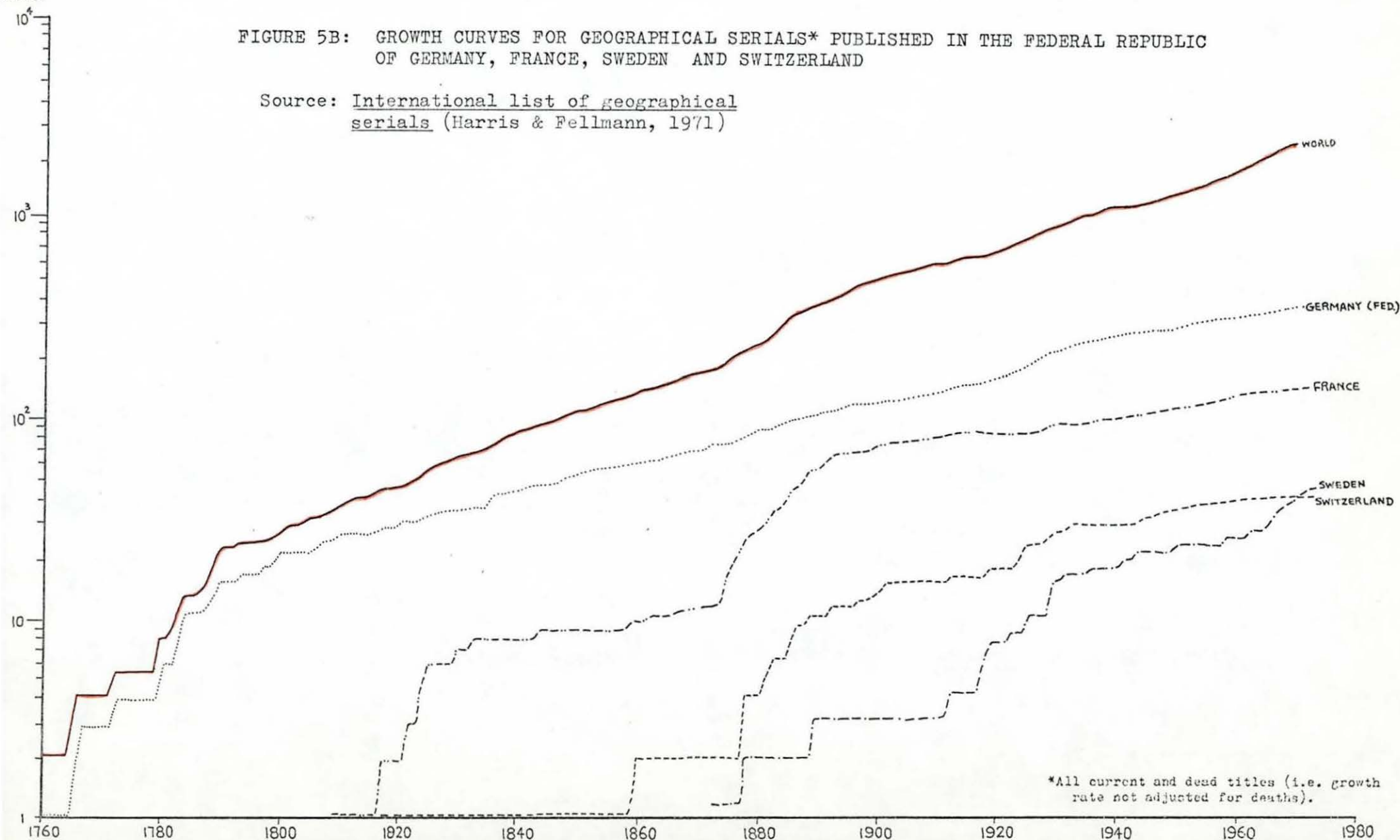
Source: International list of geographical
serials (Harris & Fellmann, 1971)



NO. OF
SERIALS

FIGURE 5B: GROWTH CURVES FOR GEOGRAPHICAL SERIALS* PUBLISHED IN THE FEDERAL REPUBLIC
OF GERMANY, FRANCE, SWEDEN AND SWITZERLAND

Source: International list of geographical
serials (Harris & Fellmann, 1971)

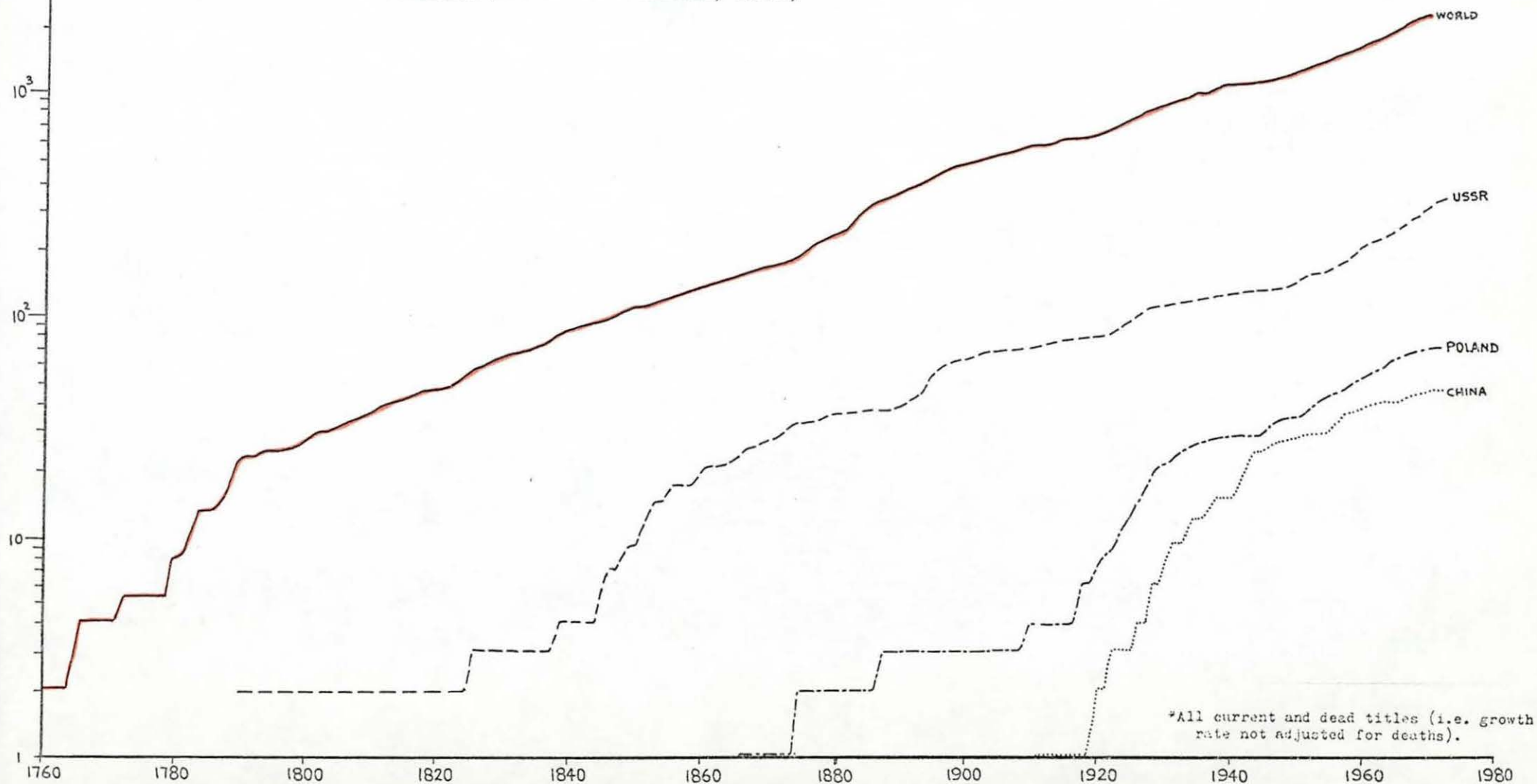


*All current and dead titles (i.e. growth rate not adjusted for deaths).

NO. OF
SERIALS

FIGURE 5C: GROWTH CURVES FOR GEOGRAPHICAL SERIALS* PUBLISHED IN THE USSR, POLAND
AND CHINA

Source: International list of geographical
serials (Harris & Fellmann, 1971)



NO. OF
SERIALS

FIGURE 5D: GROWTH CURVES FOR GEOGRAPHICAL SERIALS* PUBLISHED IN ITALY, BRAZIL AND JAPAN

Source: International list of geographical
serials (Harris & Fellmann, 1971)

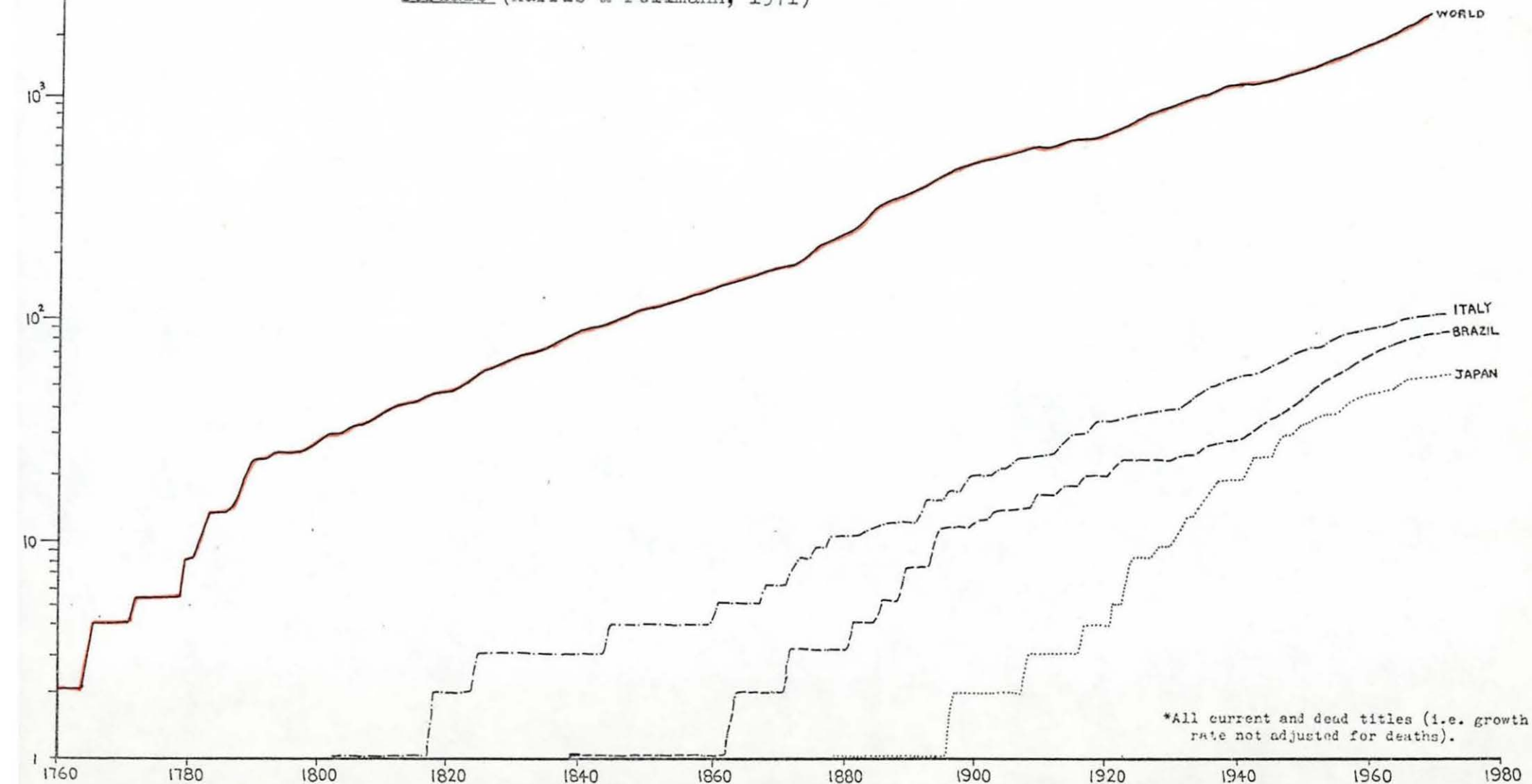
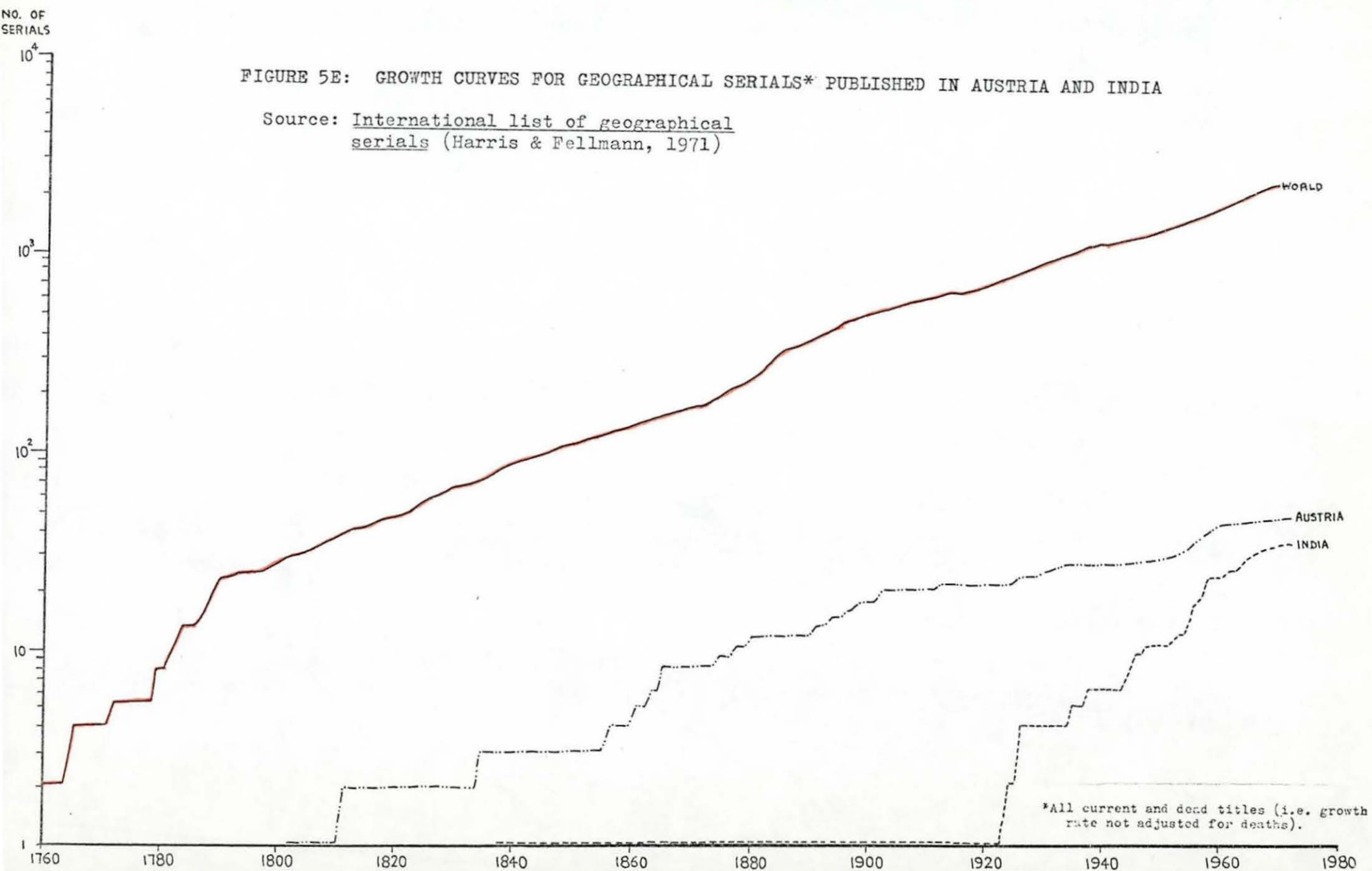


FIGURE 5E: GROWTH CURVES FOR GEOGRAPHICAL SERIALS* PUBLISHED IN AUSTRIA AND INDIA

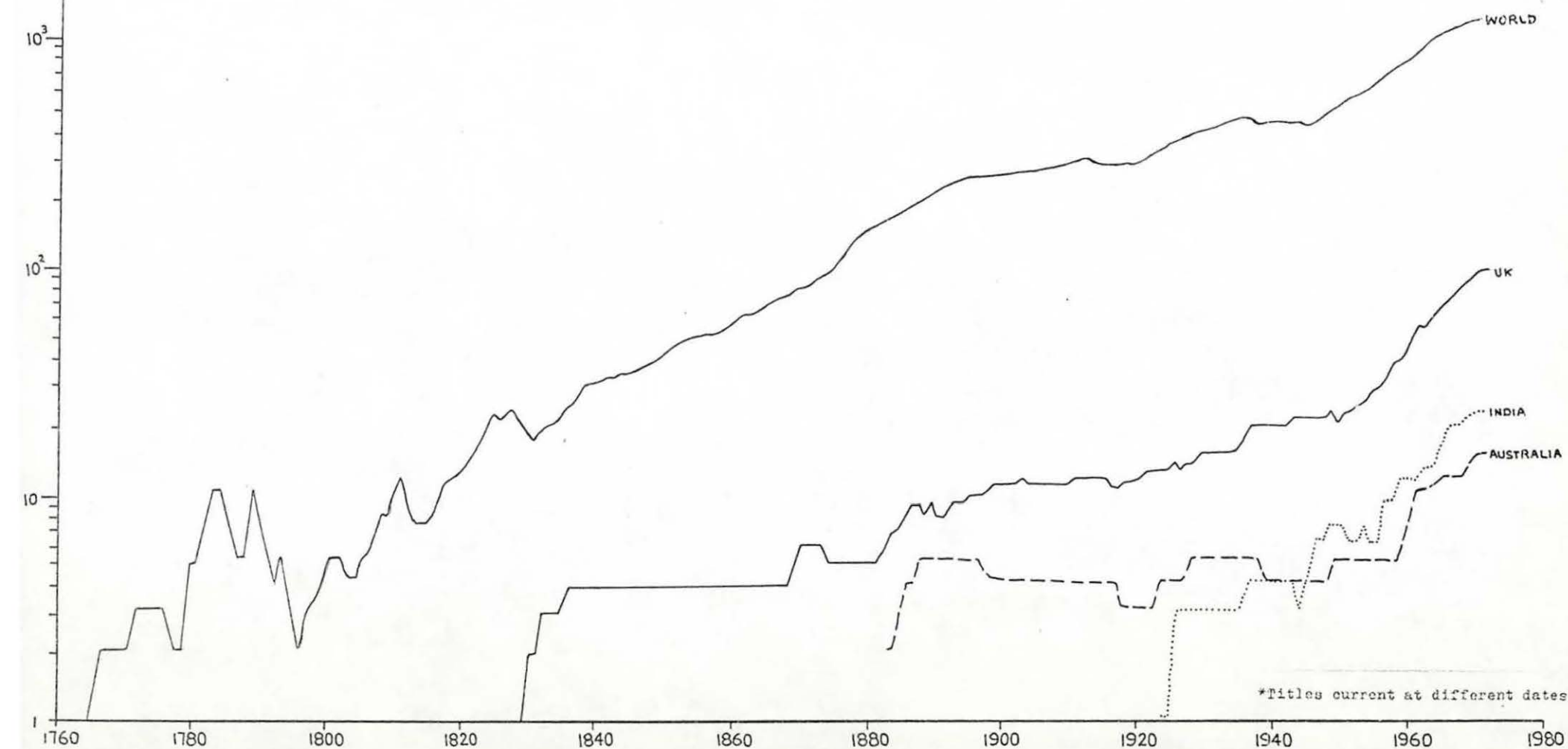
Source: International list of geographical
serials (Harris & Fellmann, 1971)



NO. OF
SERIALS

FIGURE 6A: GROWTH OF GEOGRAPHICAL SERIALS* IN THE UNITED KINGDOM, AUSTRALIA
AND INDIA

Source: International list of geographical
serials (Harris & Fellmann, 1971)



10. OF
SERIALS

10^4

10^3

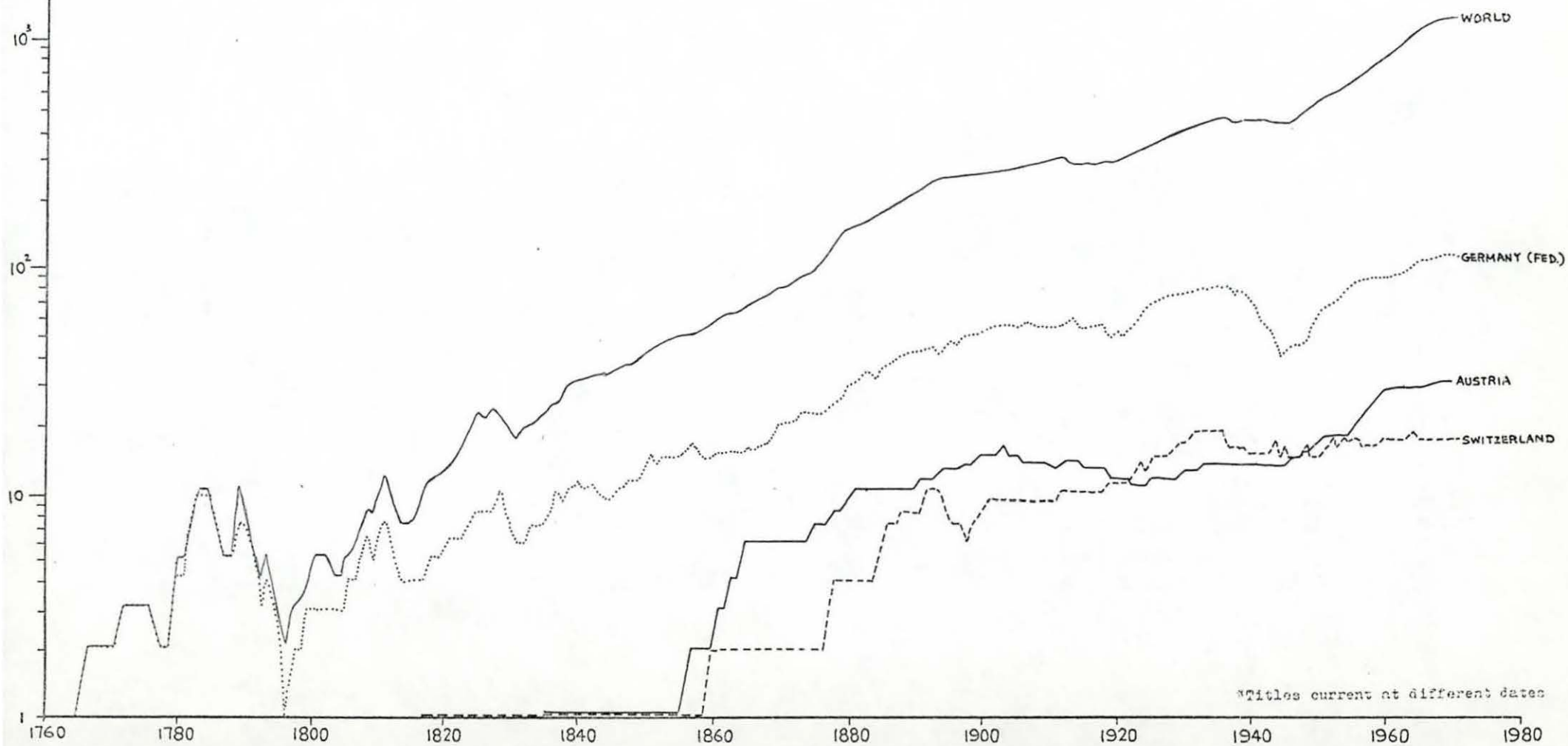
10^2

10

1

FIGURE 6B: GROWTH OF GEOGRAPHICAL SERIALS* IN THE FEDERAL REPUBLIC OF GERMANY,
AUSTRIA AND SWITZERLAND

Source: International list of geographical
serials (Harris & Fellmann, 1971)



*Titles current at different dates

FIGURE 6C: GROWTH OF GEOGRAPHICAL SERIALS* IN THE UNITED STATES AND CANADA

Source: International list of geographical
serials (Harris & Fellmann, 1971)

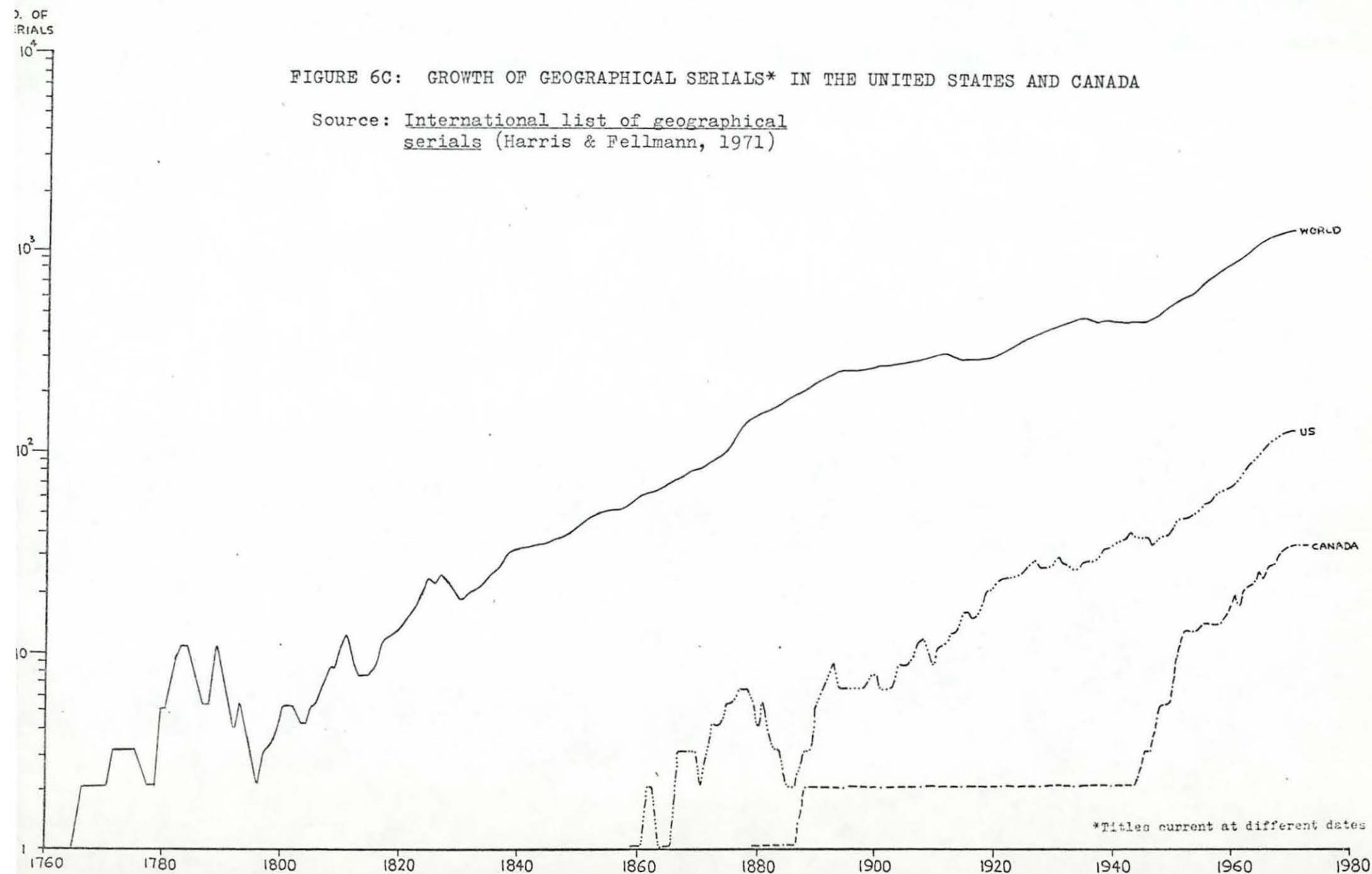


FIGURE 6D: GROWTH OF GEOGRAPHICAL SERIALS* IN THE USSR AND POLAND

Source: International list of geographical
serials (Harris & Fellmann, 1971)

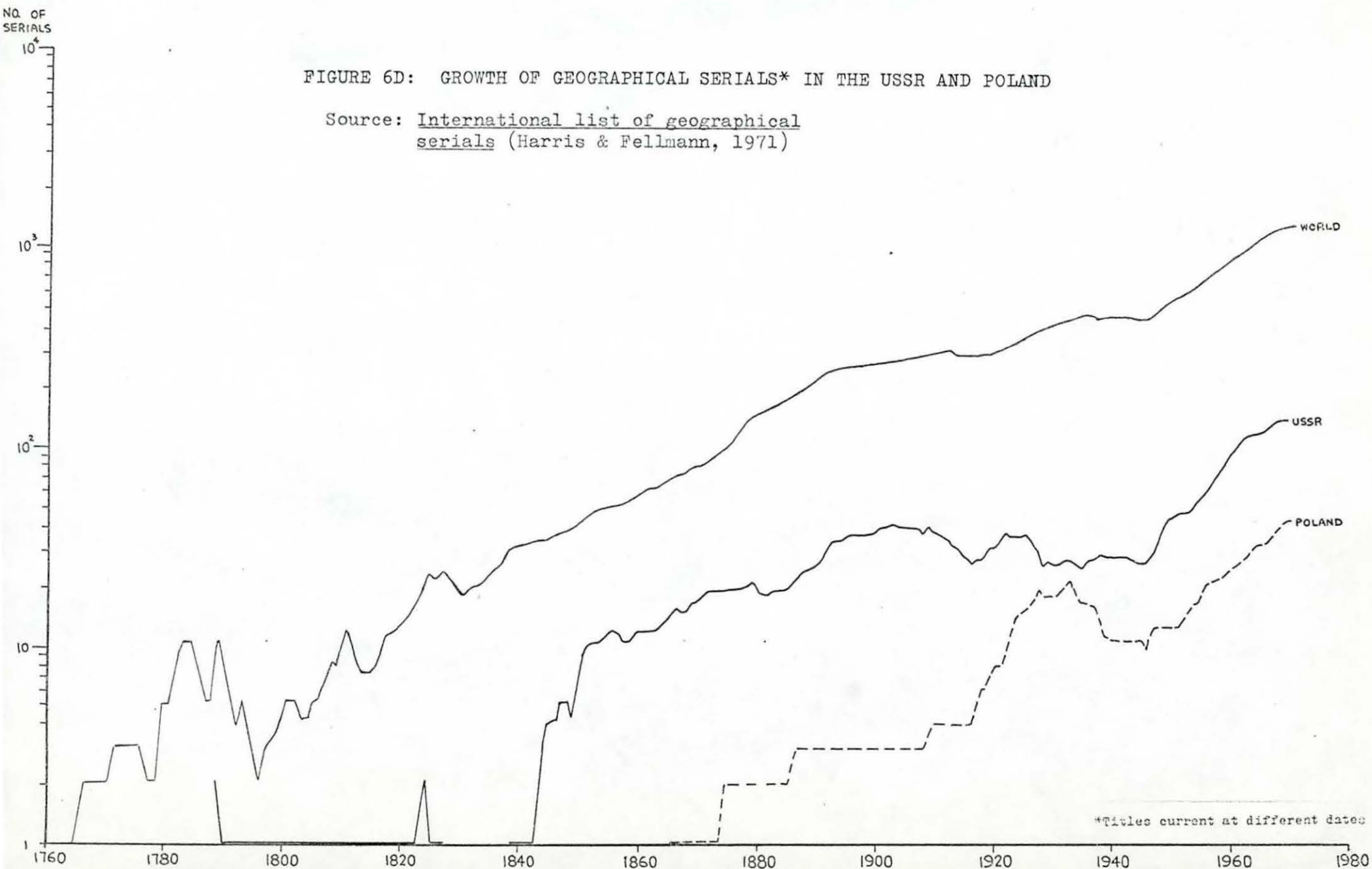
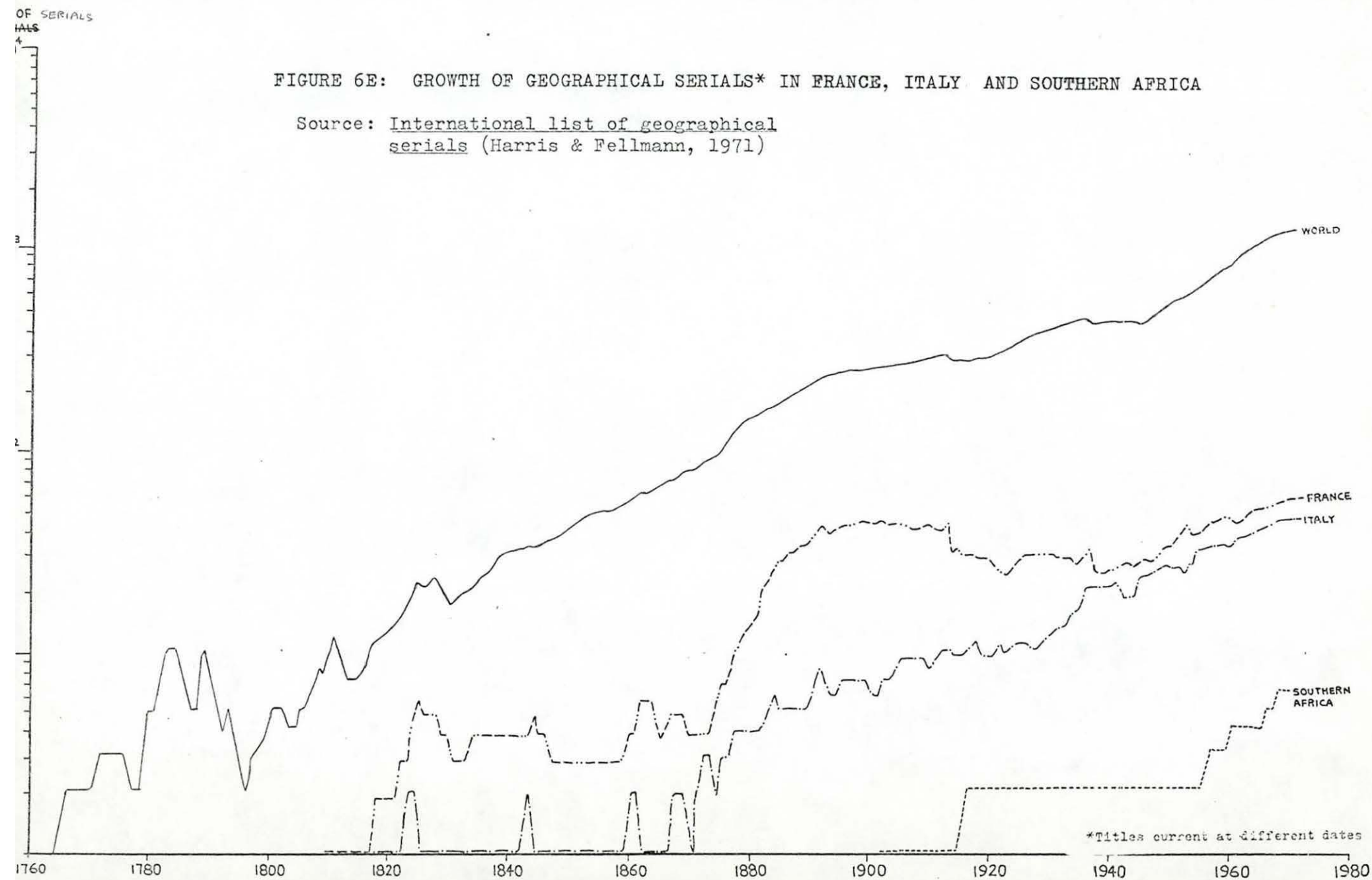
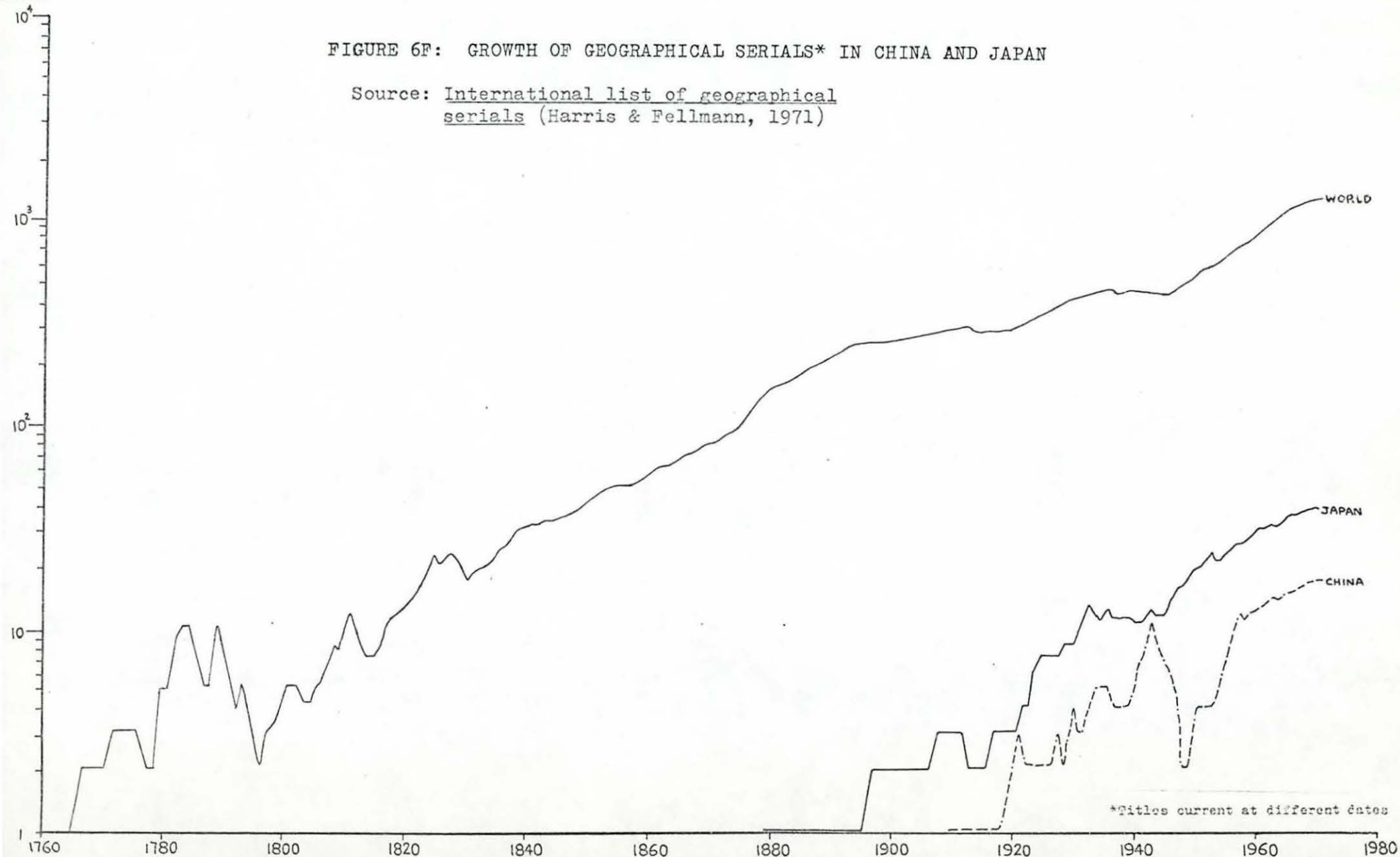


FIGURE 6E: GROWTH OF GEOGRAPHICAL SERIALS* IN FRANCE, ITALY AND SOUTHERN AFRICA

Source: International list of geographical
serials (Harris & Fellmann, 1971)



NO. OF
SERIALS



NO. OF
SERIALS

FIGURE 6G: GROWTH OF GEOGRAPHICAL SERIALS* IN BRAZIL AND SWEDEN

Source: International list of geographical
serials (Harris & Fellmann, 1971)

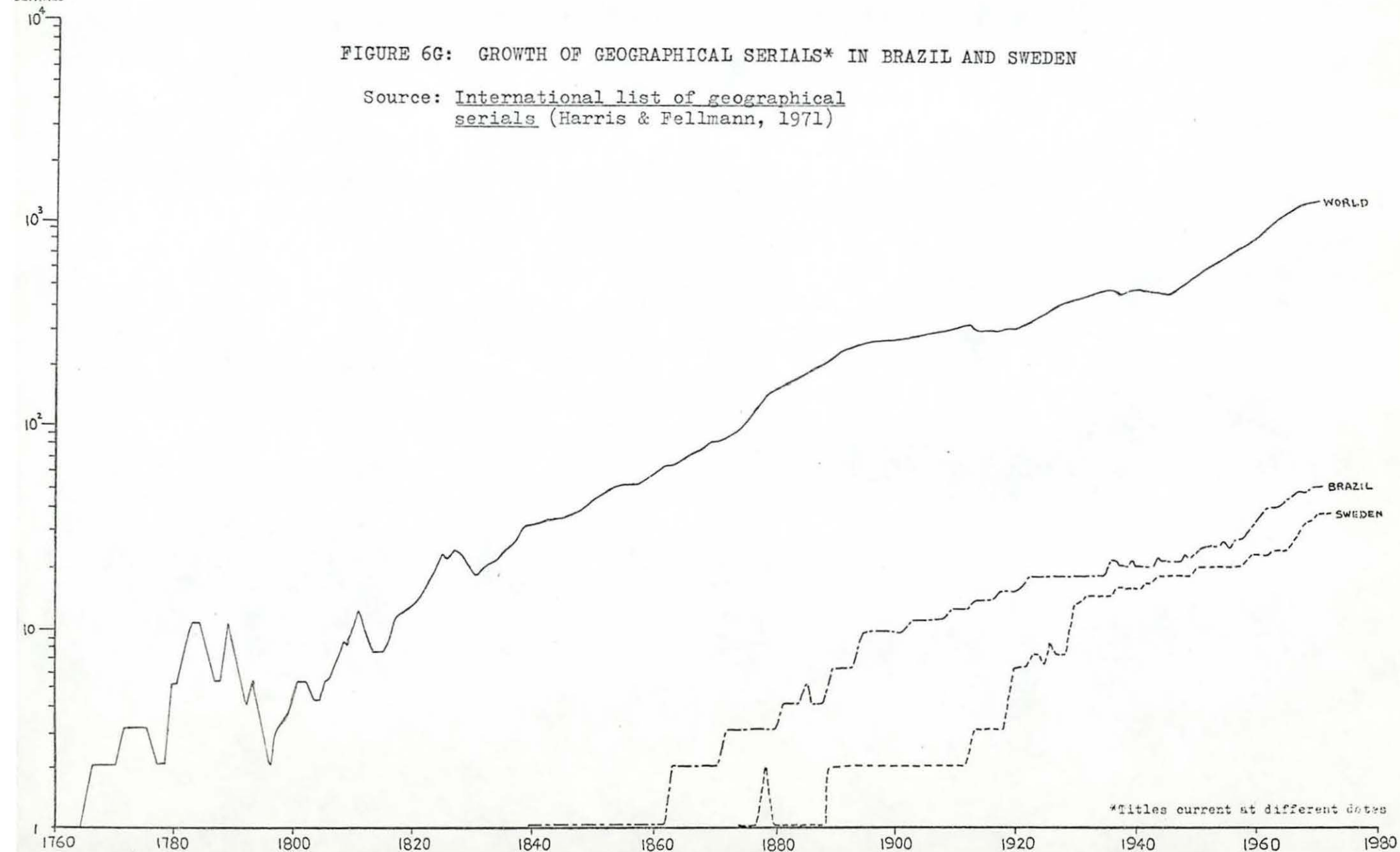


FIGURE 6H: GROWTH OF GEOGRAPHICAL SERIALS* IN WESTERN EUROPE, EASTERN EUROPE AND BLACK AFRICA

Source: International list of geographical serials (Harris & Fellmann, 1971)

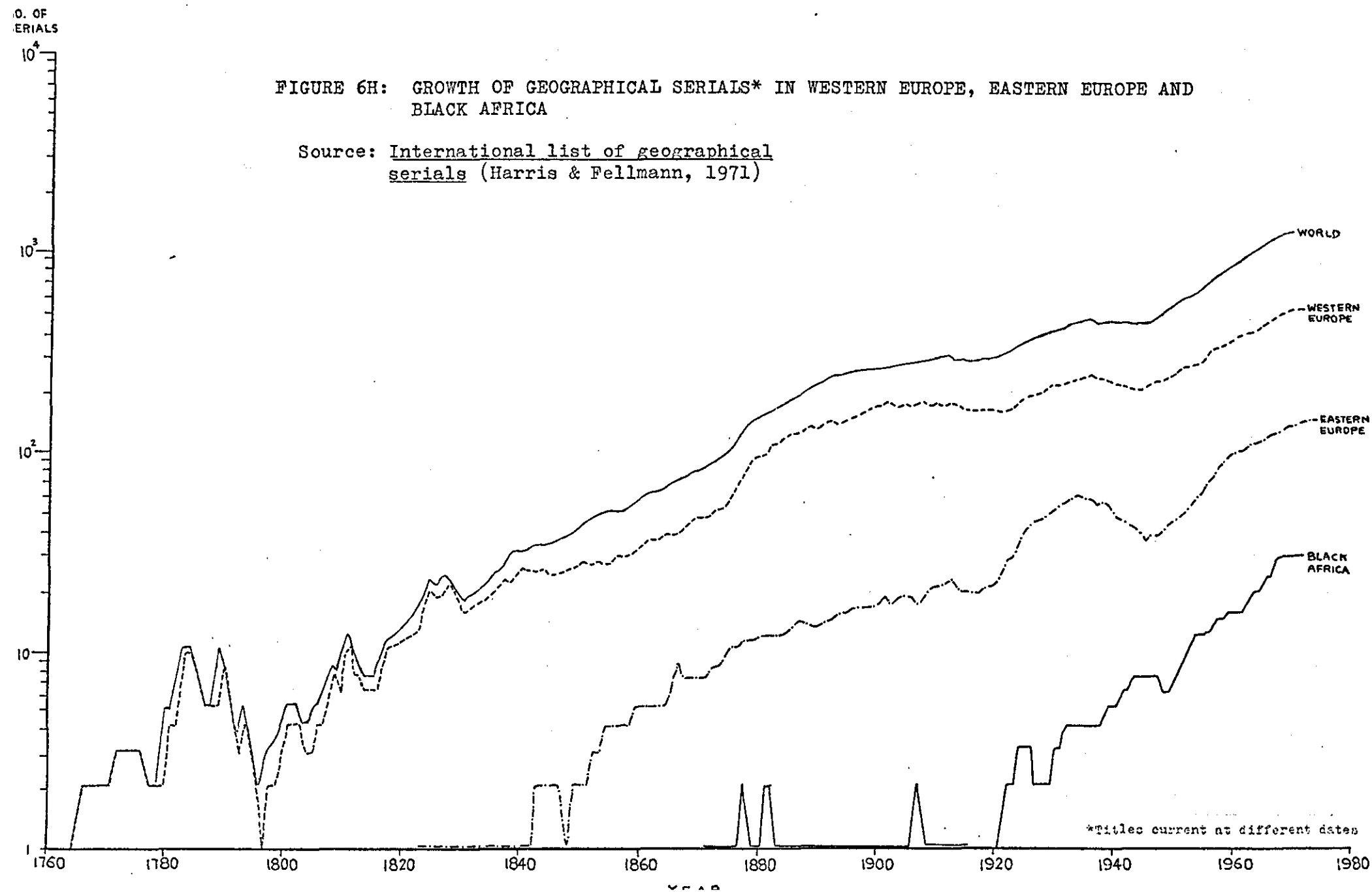
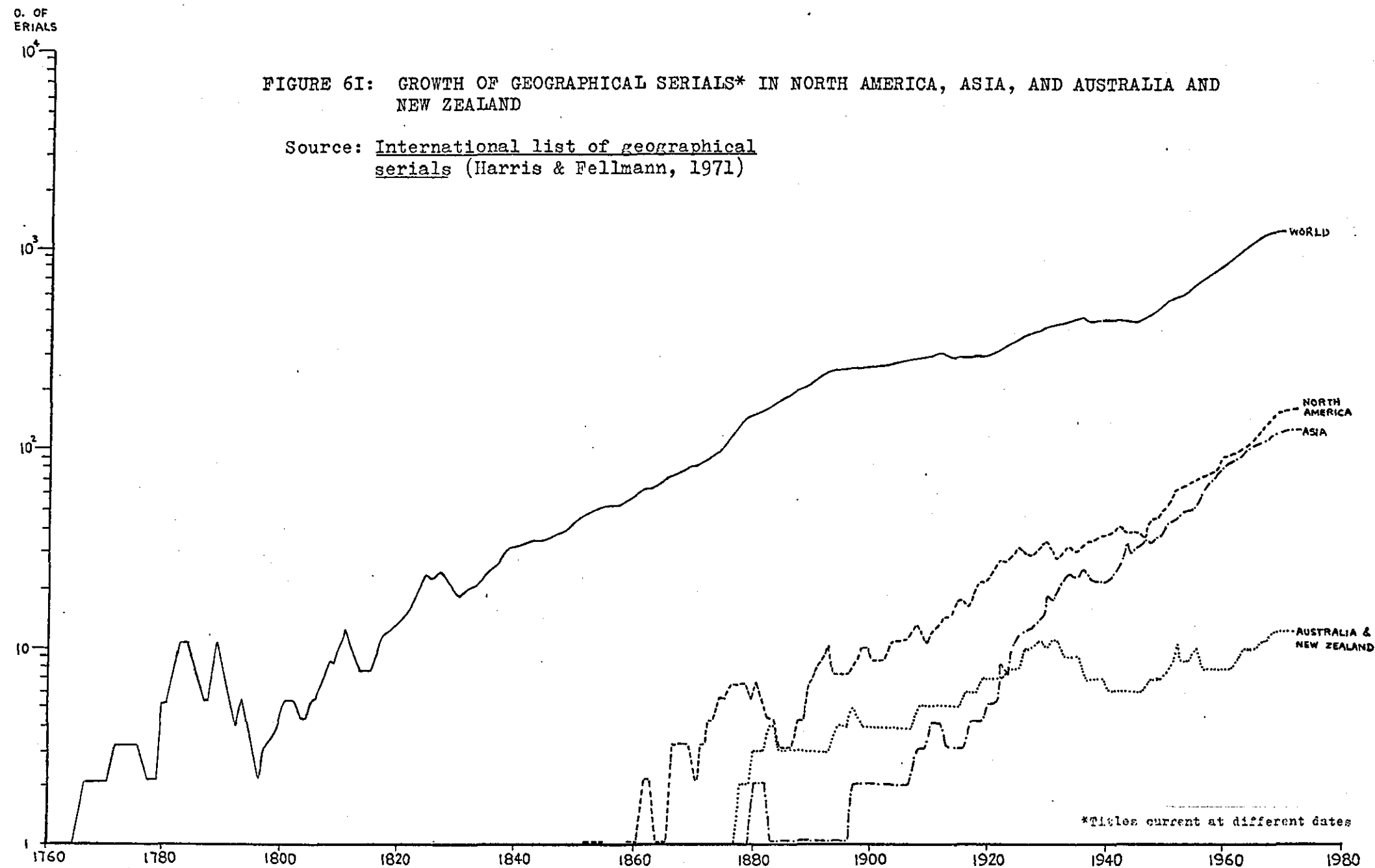


FIGURE 6I: GROWTH OF GEOGRAPHICAL SERIALS* IN NORTH AMERICA, ASIA, AND AUSTRALIA AND NEW ZEALAND

Source: International list of geographical serials (Harris & Fellmann, 1971)



No. of
SERIALS

FIGURE 6J: GROWTH OF GEOGRAPHICAL SERIALS* IN CENTRAL AND SOUTH AMERICA, SCANDINAVIA
AND ARAB COUNTRIES

Source: International list of geographical
serials (Harris & Fellmann, 1971)

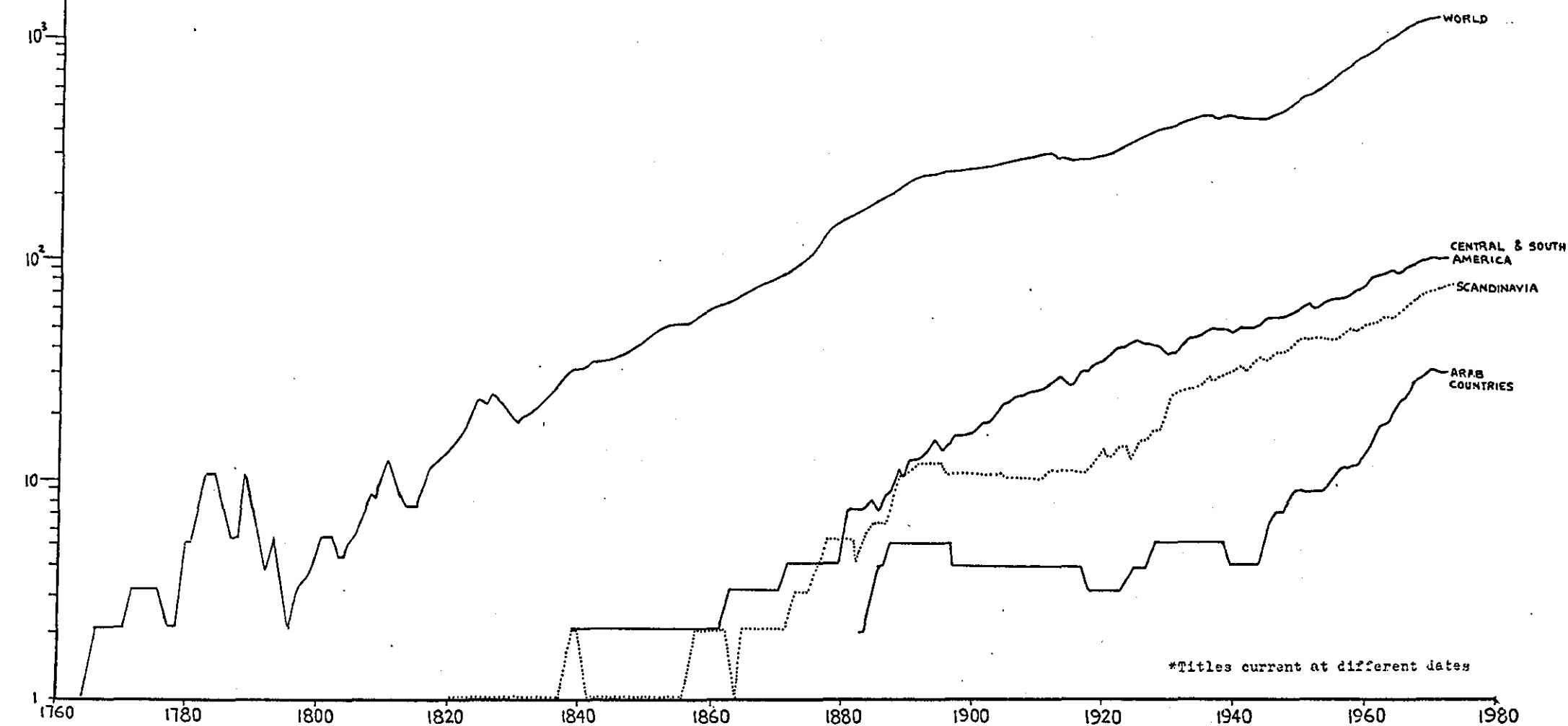
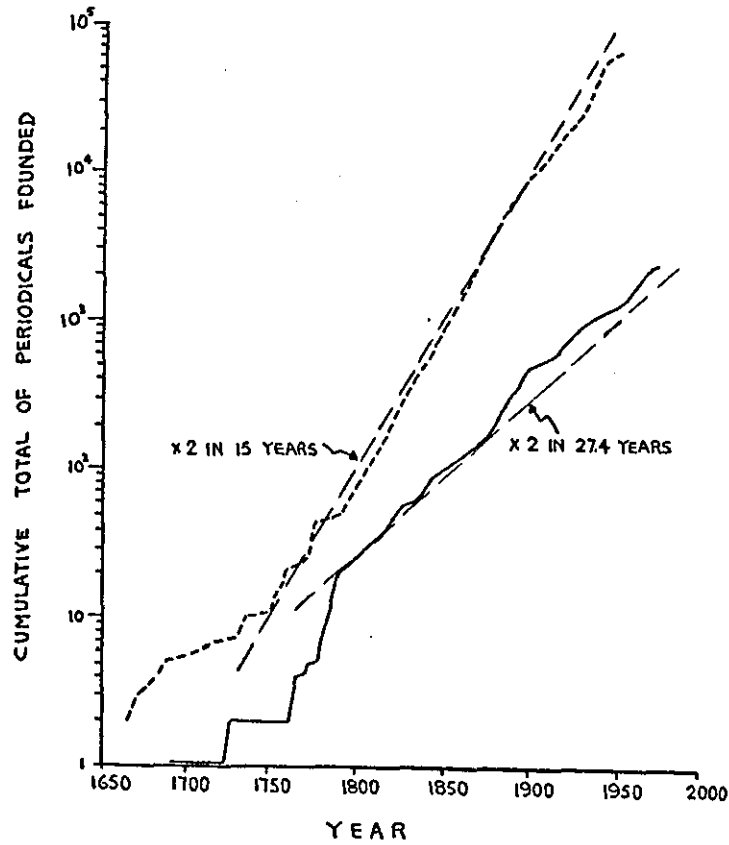


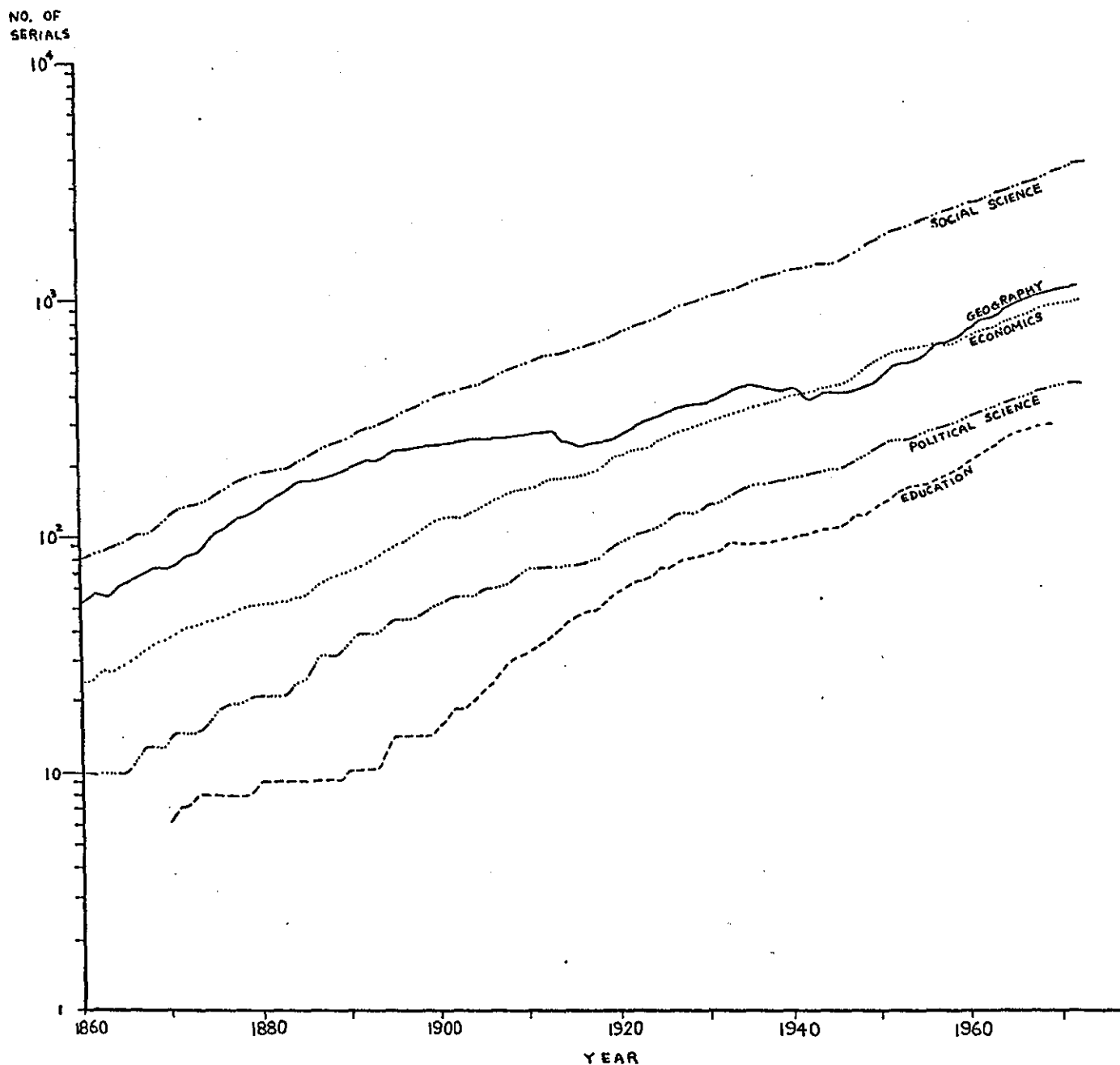
FIGURE 7: GROWTH OF WORLD SCIENTIFIC* AND GEOGRAPHICAL**
SERIAL LITERATURE



*Growth curve for scientific serials after
Price (1962)

**Growth curve for geographical serials based
on International list of geographical
serials (Harris and Fellmann, 1971)

FIGURE 8: GROWTH OF WORLD SOCIAL SCIENCE* AND GEOGRAPHICAL**
SERIAL LITERATURE



*Growth curves for social science serials after DISISS Report A2
(University of Bath, 1975)

**Growth curve for geographical serials based on International list
of geographical serials (Harris & Fellmann, 1971)

FIGURE 9: MORTALITY RATES AT SELECTED ANNUAL INTERVALS FOR GEOGRAPHICAL SERIALS

Source: International list of geographical
serials (Harris & Fellmann, 1971)

MORTALITY
RATE (%)

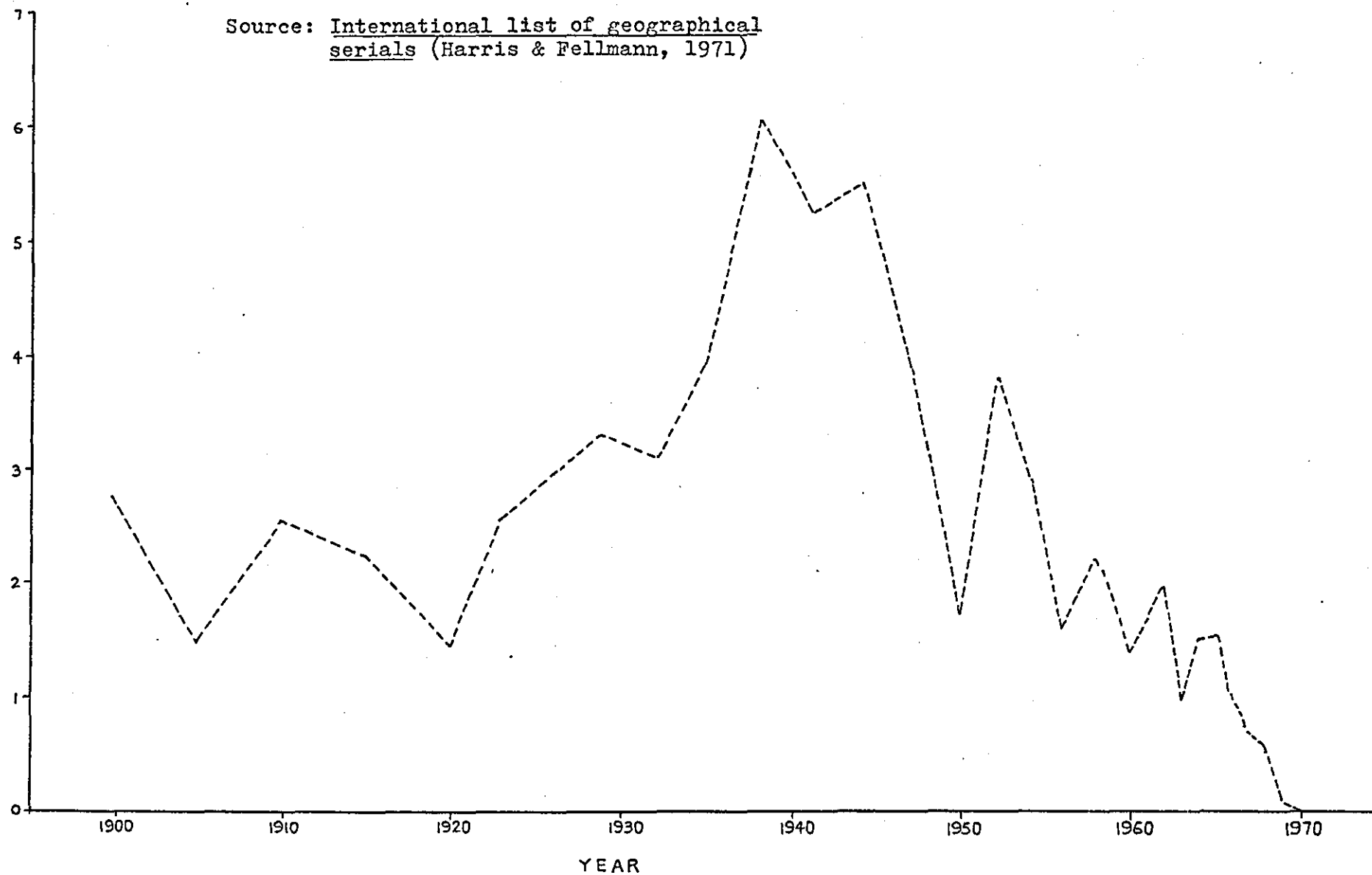
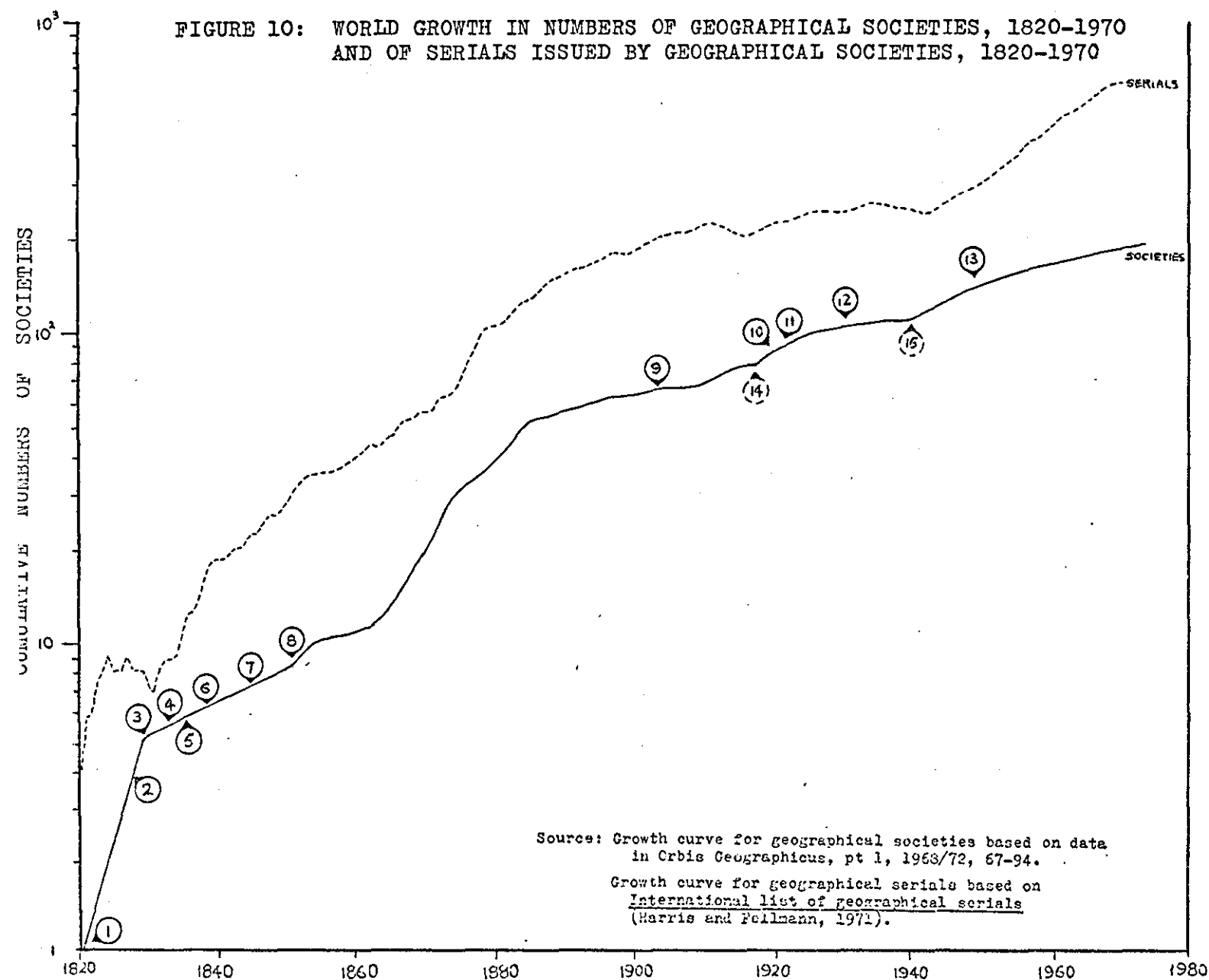
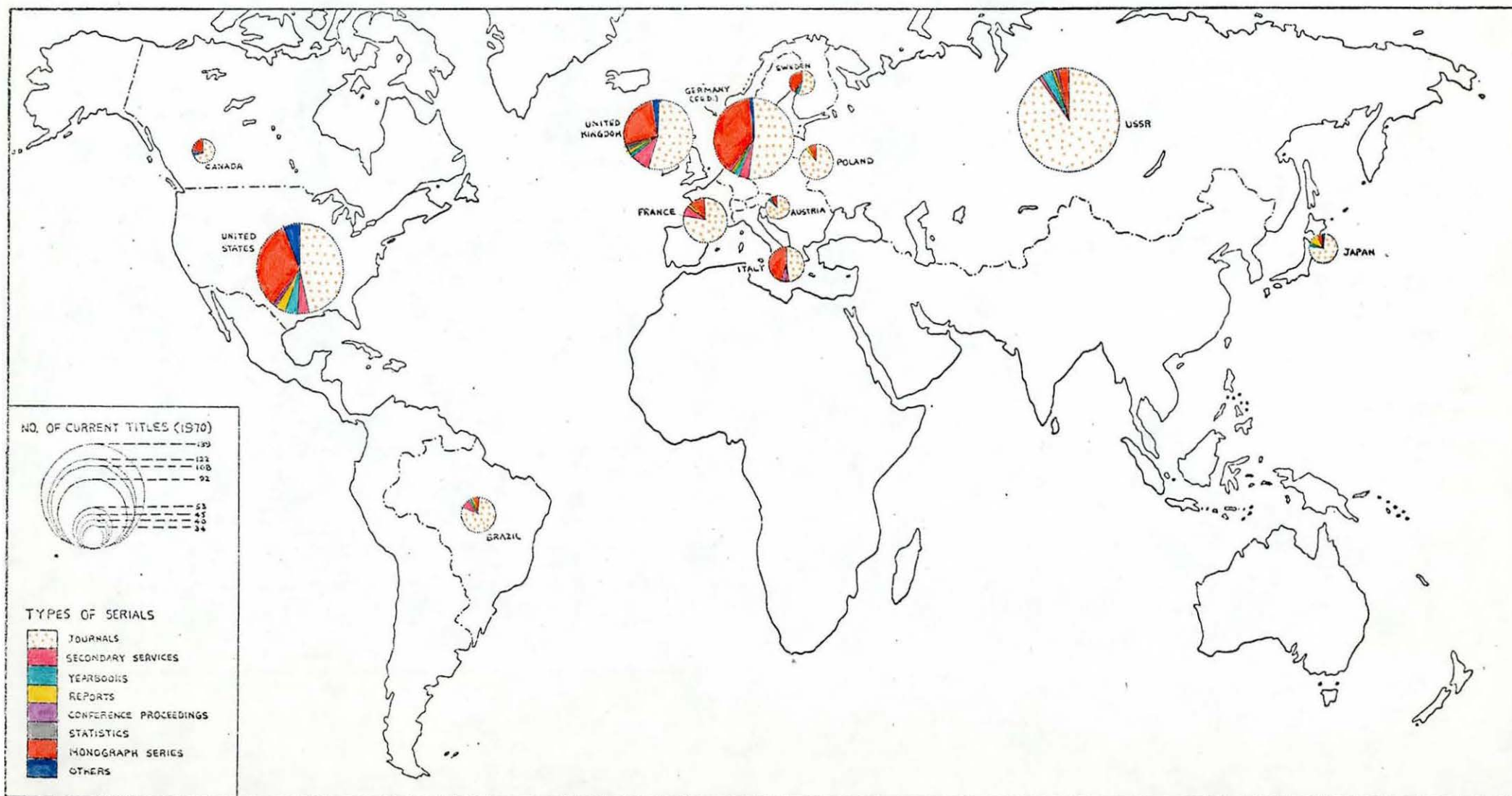


FIGURE 10: WORLD GROWTH IN NUMBERS OF GEOGRAPHICAL SOCIETIES, 1820-1970
AND OF SERIALS ISSUED BY GEOGRAPHICAL SOCIETIES, 1820-1970



- 1 Societe de Geographie de Paris (1821)
- 2 Gesellschaft fur Erdkunde (1823)
- 3 Royal Geographical Society (1830)
- 4 Sociedad Mexicana de Geografia y Estadistica (1833)
- 5 Verein fur Geographic und Statistik (1835)
- 6 Brazilian Instituto Historica e Geografico (1838)
- 7 Imperial Russian Geographical Society (1845)
- 8 American Geographical Society (1851)
- 9 Association of American Geographers (1904)
- 10 Association de Geographes Francaise (1920)
- 11 International Geographical Union (1922)
- 12 Institute of British Geographers (1933)
- 13 Zentralverband der Deutschen Geographen (1951)
- 14 World War I
- 15 World War II

FIGURE 11: TYPES OF CURRENT GEOGRAPHICAL SERIALS FOR SELECTED COUNTRIES



*Based on Table 19.

Source: International list of geographical serials (Harris and Pellmann, 1971)

