

## **STATUS OF BIBLIOGRAPHIC CONTROL OF PRE-1900 GEOSCIENCE LITERATURE**

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*Abstract* - There are several print bibliographies that cover the geoscience literature before 1900. The *Bibliography of North American Geology* (1785-1948) was incorporated into GeoRef as a special project. However, other non-North American bibliographies, for example, *Repertorium Commentationum a Societatibus Litterariis Editarum*, 1665-1800; The Royal Society (Great Britain), *Catalogue of Scientific Papers* 1800-1900; Agassiz, Louis, *Bibliographia Zoologiae et Geologiae*, 1848; *Catalogus Bibliothecae Historico-Naturalis Josephi Banks*; *Neues Jahrbuch für Mineralogie, Geologie und Palaeontologie*, 1830-1900; *Bibliographia Geologica*: 1896-1906; and *Annuaire Géologique Universel: Revue de Géologie & Paléontologie*, 1885-1896 were not entered into GeoRef. Should they be included? Is coverage of major geological topics and/or journals missing from GeoRef? How accessible is the literature from this time period? As libraries move older material to remote storage, do we have the tools to find and recall this material, particularly the journal literature?

The mathematicians are creating Electronic Research Archive for Mathematics, ERAM, a digital archive of the most important mathematical publications of the period 1868-1942 and a database based on the *Jahrbuch über die Fortschritte der Mathematik*. Is a similar project feasible for the geosciences?

### **INTRODUCTION**

The most recent guide to the geoscience literature was published in 1989 by Wood, Hardy and Harvey and since then the computer has changed how we access information in the library. This paper grew out of a concern that the GeoRef database was not providing the comprehensive coverage that students and faculty assumed. What was missing and what should I do to help them? Also, as I was selecting material to move to the book depository, the concern was retrieval of the literature in the future. How do researchers find references today? Do they rely on GeoRef or other online databases? As we select journal runs to remove from the open shelves, do we consider indexing before we put a title into storage? As reference resources are becoming more and more electronic and the print reference collections are less used, do we move old indexes out of the way to make room for more computers without checking to see if the indexes are available electronically? Do we, as the information specialists, know what we have available in print and how it compares with the online databases? How well do we train our staff, particularly the student staff? When someone wants information on a topic, do we just point to GeoRef? Do we assume that the serious researcher will know what is available in print or will ask? How well are we teaching the researcher of the future to know to ask? In a paper I gave several years ago I talked about reference service as guiding people through the "information swamp." Along the paths are stones, gems of the

printed literature that need to be charted on the swamp map as steppingstones. I wonder if we are dumping (into remote storage) the print volumes as boulders might be rolled into the swamp never to be seen again rather than identifying them as “gems” along the way to include on the swamp maps (Scott, 1999).

GeoRef is the major geoscience database. The coverage is back to 1785, but only for North American geology. Coverage for the rest of the world starts in 1933. I hear comments from faculty that GeoRef is not complete, it doesn't have everything, or they can't find what they need. Often, the problem is with older literature or literature from outside North America. I wondered what amount of geoscience literature was not in GeoRef and how large a project it would be to expand the coverage of GeoRef. I was particularly interested in the pre-1900 literature, since some of this is in poor physical condition and the older journal volumes are what librarians like to send to remote storage. It is easier to select a long journal run to move than to select the same number of monograph volumes.

I decided to look at some of the print bibliographies for the pre-1900 geoscience literature, some of the journals from that same time period, and publications of some of the early geologists. The goals were to get an estimate of the amount of literature not included in GeoRef, identify important bibliographies that should be available for researchers who need pre-1900 literature, and make some recommendations for improving coverage in GeoRef.

## **BIBLIOGRAPHIES**

What print bibliographies or indexes cover this time period, and does GeoRef provide the same access? I identified eight print titles to examine.

### ***Repertorium Commentationum a Societatibus Litterariis Editarum***

Compiled by Jeremias David Reuss and published by Dieterich in Göttingen between 1801 and 1821, this sixteen-volume set is a subject index to articles in publications of scientific societies between 1665 and 1800. Volume 1 is Natural History, General and Zoology; and volume 2 is Botany and Mineralogy. Volume 1 did not appear to include any geological references. The mineralogy section (which includes paleontology) in volume 2 contains approximately 1600 entries. The mineralogy section is arranged by subject and geographical headings and then alphabetical within each section. There are 29 references to the Americas. Of these 29, only 8 are included in GeoRef. The set was reprinted in 1961 as Burt Franklin Bibliography and Reference Series no. 29. It has been digitized by The Center for Retrospective Digitization, Göttingen State and University Library as part of the Göttinger Digitalisierungs-Zentrum and is available on the web at:

[http://134.76.163.65/agera\\_docs/216332BIBLIOGRAPHIC\\_DESCRIPTION.html](http://134.76.163.65/agera_docs/216332BIBLIOGRAPHIC_DESCRIPTION.html)

These are page images and are not searchable. This is a set that should be added to GeoRef or another database.

### **Royal Society (Great Britain) *Catalogue of Scientific Papers***

This set was published in 19 volumes for the years 1800 to 1900. It was published in series for different time periods and is arranged by author within each series. The only subject index published was for mathematics. This was published as a successor to Reuss' index, but the coverage was expanded to include periodical literature as well as the publications of the scientific societies. Because this has no subject index, I did not compare it to GeoRef. The Bibliothèque Nationale de France has digitized the volumes as part of Gallica. These are page images and not searchable but are available free on the web at <http://gallica.bnf.fr>. Paratext, Electronic Reference Publishing will be adding the *Catalogue of Scientific Papers* to their 19<sup>th</sup> Century Masterfile database during 2004. As of December 1, 2003, according to their web site 750,000 records were in process of being loaded. For more information go to their web page: <http://poolesplus.odyssey.com/contents.htm>.

### ***Neues Jahrbuch für Mineralogie, Geologie und Palaeontologie***

This journal was published from 1807 to 1949 under various names. The volumes include articles, reviews, abstracts and lists of publications for that year. It includes North American literature that is also included in GeoRef. In the 1894 volume, the new literature section for mineralogy was checked against GeoRef. There were 76 searched and only the 12 that related to North America were found to be in GeoRef. Once the Royal Society *Catalogue* is available online, this title should be compare to it.

### ***Annuaire Géologique Universel: Revue de Géologie & Paleontology***

This journal was published from 1885 to 1896 by the Société Géologique de France. The volumes include lists of universities, museums, collections, periodicals, societies and geologists from various countries. Starting with volume 3 it became a bibliography and review of the geology literature for the year. Volume 3 from 1887 includes 2824 geology references and 504 references in the paleontology section. The Glaciers section was checked against GeoRef: of the 33 entries, 4 were in GeoRef. There were some references to North American glaciers that GeoRef did not include, particularly articles that had been published in *Nature*. OCLC lists 20 libraries with this title. The paper in the volumes is brittle. This title should be considered as an addition to GeoRef or another database.

### ***List of Geological Literature Added to the Geological Society's Library***

Published from 1894 to 1934 by the Geological Society, this is the predecessor to the Bibliography and Index of Geology Exclusive of North America, 1934-1968, and the Bibliography and Index of Geology, 1969 to date (Ward, et al., 1981). It was published annually and included a subject index. The 1895 volume includes 225 serial titles that were either purchased by the Society, presented to the Society by authors, editors, or publishers, or were obtained by exchange. There is no indication of the volume or issues included. There are about 3000 citations included for that year. This includes North American literature that is already in GeoRef. Because this is the predecessor of the print bibliographies that were included in GeoRef, it is a logical addition to GeoRef.

***Bibliographia Geologica: Répertoire des Travaux Concernant les Sciences Géologiques Dressé d'après la Classification Décimale ... Series A and B***

This bibliography was published in Brussels, Belgium. Series A, in 9 parts, includes publications before 1896 and Series B, in 7 parts, includes those from 1897-1904. The coverage is worldwide. The entries are arranged according to the Dewey Decimal Classification System. Volume 1 of Series B for the years 1896-1897 was compared to GeoRef and of the approximately 2700 entries, 54 were in GeoRef. A supplement published in 1898 is a list of the 700 periodicals from 39 countries that were included in the bibliography volumes. Of these, 92 titles were published in North America. This is a larger coverage of periodical titles than the Geological Society Library list. These 16 volumes would be a good addition to GeoRef.

***Bibliographia Zoologiae et Geologiae. A General Catalogue of All Books, Tracts, and Memoirs on Zoology and Geology***

This bibliography by Louis Agassiz, corrected, enlarged, and edited by H.E. Strickland, was published in 4 volumes by the Ray Society between 1848 and 1854, and reprinted by Johnson Reprint in 1968. The preface states that this started as a catalog of works that Agassiz was using for his research but he realized the value of it and, through correspondence with naturalists in Europe, was able to expand it to a catalog of all known works and detached memoirs on Zoology and Geology (Strickland, 1968, p. v.) It is arranged in alphabetical order by author, and there is no subject index. There is a list by country of the publications indexed. I estimate that there are about 20,000 entries but not all are geology. As there is no subject index, this title was difficult to compare to GeoRef. My recommendation is that other bibliographies be added to GeoRef first and that we revisit this title later.

***Catalogus Bibliothecae Historico-Naturalis Josephi Banks***

This catalog of Sir Joseph Banks' personal library was compiled by Jona Dryander and published in 5 volumes in London by G. Bulmer between 1796 and 1800. It was reprinted by Johnson Reprint in 1966.. Banks was the president of the Royal Society from 1778 to 1820. This is a companion work to Louis Agassiz's *Bibliographia Zoologiae et Geologiae*. The volumes are general works, zoology, botany and mineralogy; and each volume has a subject index. Volume 5 has an author index to the other volumes. Volume 4, Mineralogi, includes fossils as well as mineralogy. Each volume is divided into major subject sections and includes a subject index. References appear to be mostly from the 1700s; however, many entries have no date. I estimate that there are about 4600 entries in volume 4. There are 18 entries for North America. Of these only 2 are in GeoRef.

These are printed indexes that provide access to the literature of this time period with varying degree of completeness and subject access. One title does not stand out over

the others as the one that should be added to GeoRef. To get the most complete coverage, all the titles will need to be considered.

## PERIODICALS

Another approach would be to take the geoscience serials from this time period and index them cover-to-cover. The Geological Society's Library in 1895 lists 299 serial titles that they received that year. Of these, 52 were North American titles. I selected six serial titles to compare to GeoRef. I checked one volume of each against GeoRef.

*Bulletin de la Société Géologique de France* started in 1830. GeoRef has 106 entries for the years between 1830 and 1900. Series 2, volume 1 for the years 1843-45 contains about 50 articles; none are indexed in GeoRef.

*The Quarterly Journal of the Geological Society of London* began in 1845. GeoRef has 272 entries for the years between 1845 and 1900. Volume 5 from 1849 includes 39 articles of which 8 are indexed in GeoRef.

*Zeitschrift der Deutschen Geologischen Gesellschaft* volume 1 from 1849 includes 31 articles. One article on fossil footprints in Pennsylvania is indexed in GeoRef. Between 1849 and 1900 GeoRef has 62 records for this journal.

*Geological Magazine* volume 1 from 1864 includes approximately 86 articles; 3 of them are included in GeoRef. Between 1864 and 1900, GeoRef has 190 records for this journal.

*Journal of Geology* volume 1, 1893 contains 42 articles; 4 articles are not indexed in GeoRef. Since this is a North American journal, an assumption would be that it is completely covered by GeoRef. Apparently articles not on North America were not indexed.

*Mineralogical Magazine* volume 1, 1877, contains 52 articles; 3 are indexed in GeoRef. Between 1877 and 1900, GeoRef has 13 records for this journal.

## GEOLOGISTS

As a third test, I took the names of six early British geologists and searched GeoRef for their publications. I only found citations to work they had done in North America.

James Hutton – 1 entry in GeoRef  
Charles Lyell – 74 entries in GeoRef  
William Smith – 9 entries in GeoRef  
Adam Sedgwick – 2 entries in GeoRef  
Joseph Prestwich – 1 entry in GeoRef  
Roderick Murchison – 9 entries in GeoRef

## CONCLUSIONS

The results of this cursory evaluation point out that there is a large amount of the pre-1900 literature for areas outside North America that is not available to GeoRef searchers. Much of this literature is probably indexed in a print index somewhere. These indexes may or may not be accessible to the researcher depending on the location of the researcher and the condition of the printed indexes. It would be valuable to have access to this literature in a database such as GeoRef. But is it feasible? Having access to the *Catalogue of Scientific Papers* as part of the *19<sup>th</sup> Century Masterfile* will be a great start.

In my other position at Ohio State University as the Mathematical Sciences Librarian, I was aware of the Electronic Research Archive for Mathematics Jahrbuch Database project. I wondered if it is feasible for the geosciences to do something similar. The project provides a database based on the *Jahrbuch über die Fortschritte der Mathematik* with links to a digital archive of the most important mathematical publications of the period 1868-1942. The *Jahrbuch über die Fortschritte der Mathematik* was published from 1868 to 1942 and reviewed more than 200,000 mathematical articles. Mathematicians considered some of these publications to still be valuable sources for mathematical research and teaching. They wanted to make the database and the actual resource available to more researchers. The ERAM now includes entries from 1868 to 1931 with links to over 13,000 digital facsimiles. The project is committed to keeping the database available free on the web. For more information see <http://www.emis.de/projects/JFM/JFM.html>. A resource such as this for the geosciences would be wonderful. It will also take work, cooperation, and money.

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