Searching GeoRef for Archaeology

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Abstract

The subject of archaeology presents a challenge to researchers attempting to find adequate indexing resources. Since there is no one source devoted exclusively to archaeology, librarians are forced to seek out any sources which can serve the researchers' needs. This study was conducted to determine the extent that GeoRef, a CD-ROM product of citations in geology, covers archaeological literature. Search strategy and results are presented and a brief comparison is made with other electronic resources. The study shows that GeoRef is a wor1hwhile resource to consult on the literature of archaeology.

Introduction

At the present, the field of archaeology is not served by its own print or online indexing service. To find archaeological literature searches must be conducted either in anthropology resources or in products devoted to other related subjects. Anthropology itself is covered by a limited number of resources, and only one presently is available electronically. [1] Obviously, since there is at present no one comprehensive source, creative avenues must be explored to cover the archaeological literature. Given the lack of sources in general, and the paucity of electronic resources in particular, the CD-ROM version of GeoRef was considered worth investigation as a source for archaeological literature.

One might ask why geological literature is appropriate to search for archaeology. Historically archaeology and geology share common techniques, terminology, and research concerns. Even today it is not always possible to distinguish their boundaries, particularly in the areas of paleontology and

human prehistory. In a 1984 article on reference sources for archaeology, Perry noted the relevance of the geology reference literature to archaeology in his review of indexes and abstracts.[2] The interdisciplinary and related natures of the two fields is sufficient cause for an investigation of GeoRef

This study was designed to ascertain whether librarians and archaeologists should consider GeoRef as a source for archaeological literature, not whether GeoRef was the best or most definitive source. Therefore we did not explore all the features of GeoRef nor did we attempt a full scale comparison with other online products. However, we do offer later in the article a list of other relevant CD-ROMs for possible consultation.

Description of GeoRef

GeoRef is a geoscience bibliographic database produced by the American Geological Institute. It contains approximately 1.8 mil- lion references to articles (from approximately 4,000 journal titles), books, theses, dissertations, government documents, and maps covering over two hundred years of geological literature. The database comprises five major geological sources: Bibliography of North American Geology (1785-1970), Bibliography and Index of Geology Exclusive of North America (1933-1968), Geophysical Abstracts (1966-1971), and Bibliography and Index of Geology (1969 to date).

GeoRef is available online through STN, DIALOG, ORBIT, CAN/OLE, and EPIC. The online files are identical to the compact disc version, which is available on three discs from SilverPlatter Information, Inc. According to information from SilverPlatter, disc 1 covers 1785 to 1979, disc 2 from 1980 to 1987, and disc 3 from 1988 to the present. There is some overlap in coverage by date on all three discs, a function of the way in which the information was loaded in the database. The compact disc version is updated quarterly.

Among the geological disciplines included in the database that make up more than 10% of the database are the following areas: geophysics and structural geology (16%); economic geology-mineral and petroleum (16%); paleontology and stratigraphy (13%); and engineering and environmental geology (11%). Among the types of literature included are meeting papers (16%) and meeting abstracts (16%).[3]

The length of the time covered (1785 to date) is indicative of the strength of the database. Many archaeological and paleontological inquiries have been published over this period. Given the global nature of archaeological work, coverage of international literature is essential. More than 40 languages are represented in GeoRef. Among the most common are: English (74%); Russian (9%); French (4%); German (4%); and Chinese (2.5%).[4]

The printed GeoRef Thesaurus and Guide to Indexing (6th ed., 1992), published by the American Geophysical Institute, is an invaluable guide to the controlled vocabulary of the database and should be consulted before beginning a search. The thesaurus, presently listing more than 27,000 terms, makes extensive use of related terms, usage notes, and scope notes. The terms and notes are critical to designing a search and interpreting results.

Searching GeoRef on CD-ROM

As with other SilverPlatter products, the GeoRef search software allows for boolean, adjacency and truncation searching. One can search either the index directly or the text of the abstract. Five subfiles, derived from the five indexing services that comprise the database, can be searched separately. One can also search the 29 category codes, which are large general subject categories (see Figure 1 for the list). Each citation has an assigned category code. To frame a more precise search, such as by a range of years, the limit function can be used on many fields (see Figure 2 for fields to which the limit function can be applied). GeoRef citations also contain document type as a searchable field. Document types include the following: analytic, monograph, collective, serial, book, report, thesis, conference, map, and abstract.

Search Results

The search strategy was designed to develop a general picture of the strength of coverage of the archaeological literature. We chose to search the entire database and all three discs to obtain the broadest search results. Thus the search was not confined to any subfile, free text searching was done to access as many fields as possible, and category codes were not used (none of these was specific enough to archaeology to warrant limiting a search in this manner). Although searching was done free text, the thesaurus was consulted to help identify appropriate terminology.

Our search of the database resulted in 9,316 citations with the words that began with the truncated bases "archaeolog" (which would include words such as archaeology, archaeologist, and archaeological sites) or "archeolog" (to cover the term archeology, which was a valid thesaurus term prior to 1971) imbedded some- where in the record. Although this number represents a small portion of the database, the result is still respectable. Citations covered a large time span and publications were from numerous different countries and publications. Many of the publications were from the geological literature, which one might not find in anthropological reference sources.

 We selected additional words from the thesaurus to see what other subjects related to or narrower than the term archaeology were covered. Since archaeology is a subfield of anthropology, we searched the word "anthropology" and found 845 citations. Archaeology is also divided by periods, so, for example, the terms "paleolithic," "Stone age," and "paleoindian" were searched. To gauge the coverage of artifactual material, we searched "artifacts or (tools and archaeology)," and for coverage of human remains, we searched "fossil man," "skulls and human," and "paleopathology." Also, since GeoRef is a geological and geographical database, we combined the search "archaeolog* or archeolog*" with geo-graphical regions (North America, United States, Mexico, and Mississippi River Basin) and standard dating techniques, (C-14, tree rings, and K/Ar). In addition, we chose a few other terms not in the thesaurus to gauge their coverage. Terms chosen were "ethno*" (to search subjects similar to anthropology, such as ethnology or ethnography), "mummies," and "physical anthropology."

Overall we were pleased with the number of hits and the kinds of citations found in the database. Judging from our search results, we would recommend consulting the thesaurus before beginning a search, although we did find relevant citations searching non-thesaurus terms. Figure 3 details complete search results.

FIGURE 1. *GeoRef* Category Codes

1. Mineralogy and crystallography
2. Geochemistry
3. Geochronology
4. Extraterrestrial geology
5. Petrology, igneous and metamorphic
6. Petrology, sedimentary
7. Marine geology and oceanography
8. Paleontology, general
9. Paleontology, paleobotany
10. Paleontology, invertebrate
11. Paleontology, vertebrate
12. Stratigraphy, historical geology and paleoecology
13. Areal geology, general
14. Areal geology, maps and charts
15. Miscellaneous and mathematical geology
16. Structural geology
17. Geophysics, general
18. Geophysics, solid-earth
19. Geophysics, seismology
20. Geophysics, applied
21. Hydrogeology and hydrology
22. Engineering and environmental geology
23. Surficial geology, geomorphology
24. Surficial geology, Quaternary geology
25. Surficial geology, soils
26. Economic geology, general and mining geology
27. Economic geology, metals
28. Economic geology, nonmetals
29. Economic geology, energy sources

FIGURE 2. *GeoRef* Fields

AB	Abstract
+AN	Accession Number
AU	Author
AV	Availability
CC	Category code
CN	Conference
+CO	Coden
CP	Country of publication
DE	Descriptors
+DT	Document type
+IB	ISBN
+IS	ISSN
LA	Language
+LS	Language of summary
MC	Map coordinates
MP	Map
NT	Note
OS	Organizational source
PB	Publisher
PD	Physical description
+RN	Report number
+SB	Subfile
SO	Source
TI	Title
+YR	Year

(+ denotes limit field)

In reviewing the retrieved citations we found that they do not always include all fields. Some were missing country of publication, others document type. This finding indicates that a searcher should not rely solely on the results obtained by searching these fields. The lack of data in some fields is due to the amount of original data available to the American Geological Institute when it developed the database. Since not all fields are included in every citation, it may be advisable to search fields that are always present, such as title or descriptor, or to search free text.

A drawback to the use of GeoRef is the necessity to switch discs to ensure a complete search. The overlap in date coverage on each disc dictates this action. As Figure 1 shows, 9,316 citations were retrieved by searching the truncated terms "archaeolog*" and "archeolog," and the distribution of citations were spread unevenly across the three discs. More citations were retrieved from disc 2 than

FIGURE 3. Terms Searched Free Text

TERMS FROM THE THESAURUS

TERM	DISC	1 (1785-1979)	2 (1980-1987)	3 (1988-Dec. 1993)		TOTAL
archaeolog* or archeolog*		2421	4099	2796	=	9316
anthropology		131	500	214	=	845
artifacts or (tools and archaeology)		1586	1427	778	=	3791
fossil man		1461	1620	299	=	3380
paleoindian		10	35	86	=	131
paleolithic		806	697	317	=	1810
paleopathology		194	31	69	=	294
skulls and human		37	78	15	=	130
Stone Age		143	76	103	=	322
(archaeolog* or archeolog*) and:						
Mississippi River Basin		0	0	2	=	2
North America		120	211	192	=	523
Mexico		104	104	122	=	330
United States		602	1614	1232	=	3448
C-14 or carbon 14 or radiocarbon dating		524	522	311	=	1357
tree rings		19	50	31	=	100
K/Ar or K AR or potassium argon		19	24	11	=	54

TERMS NOT FROM THE THESAURUS

TERM	DISC	1	2	3		TOTAL
ethno*		31	46	26	=	103
mummies		3	1	4	=	8
physical anthropology		12	203	1	=	216

(* denotes truncations)

from disc 1 or disc 3. If interested in approaching the literature by date, searching only one disc, however, may not be the best approach for obtaining reliable search results. In a study of the January 1990 release of GeoRef, Huber found that materials published before 1979 appeared on all three discs, depending on when the material was added to the index.5 If the date of citations or an exhaustive search is important, it is not advisable to rely on the date coverage listed for each disc. The problem with switching discs is, of course, an artifact of the limits to CD-ROM storage capacities.

Our original search was conducted in May, 1991. Subsequent searches in later releases of the product produced new citations on all three discs, suggesting that new material is being added retrospectively. Whenever updating a search, all three discs should be searched for full coverage of the selected topics.

Comparison with Other Products

As noted earlier, the CD-ROM version of GeoRef is identical in content to the online files. To quickly compare the number of citations in GeoRef with other online databases, on September 9, 1993 we searched Dialog using the Dialindex mode and retrieved the number of citations in all databases with the word "archaeology" in them. In total number of citations, GeoRef ranked fourth (with 7,429 citations) behind Books in Print (26,301 citations), British Books in Print (10,725 citations), and LCMARC-Books (9,411 citations). Other subject based databases, such as Social Scisearch, Arts and Humanities Search, and America: History and Life, yielded fewer than half the number of citations found in GeoRef

As an additional test of the strength of GeoRef, Anthropological literature on Citadel or on CD-ROM should be searched. At this writing, the CD-ROM version was not yet available and neither author had access to Citadel. As an alternative, the Harvard Libraries version on HOLLIS was searched for the subject "archaeology" and over 9,999 citations were retrieved (the HOLLIS software limits the search to a maximum of 9,999 hits). Despite the limitations imposed by the search software, this search demonstrates that Anthropological Literature is an excellent source for archaeology literature.

Figure 4 gives brief descriptions of other CD-ROM products that also cover archaeology. When comparing GeoRef with other data- bases, one must remember that archaeology has various faces, as it is related to anthropology, art, history, geology, paleontology, and the general social sciences and humanities. Databases differ in strength of coverage of these various subjects. For example, GeoRef cites international literature pertaining to paleontology and geological archaeology while NTIS citations are limited to archaeology funded, conducted, or supported by the U.S. federal government (primarily citing report literature). GeoRef also covers a much greater time span than most other CD-ROM products.

FIGURE 4. Other Relevant CD-ROM Databases

As mentioned in the article, there is no one source devoted exclusively to archaeology, so a variety of databases must be consulted, many of which emphasize different aspects of archaeology. Besides the geosciences, the related literature is anthropology, classical art and archaeology, history and prehistory, general humanities, and general social sciences. The following CD-ROM databases contain numerous citations to the archaeological literature:

America: History and Life: ABC-CLIO. 1987- . 2,000 journals indexed. Updated triannually. IBM.

Anthropological Literature: G.K. Hall. 1984- . 800 journals and 200 monographic series. (due 1994)

Art Index. H.W. Wilson. 1984- . 213 periodicals, selected yearbooks, and museum bulletins. Updated quarterly. IBM.

Arts and Humanities Citation Index. ISI. 1980- . 1,100 journals, selected articles from 5,800 journals. Updated triannuallly. IBM.

Expanded Academic Index on Infotrac. Information Access Corp. Current four years. 960 journals and the New York Times. Updated quarterly. IBM.

Humanities Index: H.W. Wilson. 1985- . 295 journals. Updated quarterly. IBM.

NTIS: SilverPlatter. 1984- . U.S. government sponsored research. Updated quarterly. IBM and Mac.

Social Science Citation Index: ISI. 1986- . 1,400 journals and selected items from 3,300 journals. Updated quarterly. IBM.

Conclusions

Given the number and kinds of citations retrieved, GeoRef is seen to provide good coverage of the literature on archaeology. The drawbacks noted with searching are not severe enough to discourage the use of the database. The type of literature retrieved may not be appropriate to every archaeologist's information needs, but the strength of the database should not be overlooked when determining sources for conducting a thorough investigation of the literature.

Notes

1. At this writing, Anthropological Literature, one of the premier resources for anthropology and archaeology is about to be released on CD-ROM. An online version was made available through the RLG product Citadel in November, 1993.
2. Larry Stephen Perry, "Anthropology and Archaeology: A Selective Interdisciplinary Guide to the Reference Literature," Reference Services Review 12, no.4 (Winter 1984): 35-37.
3. "GeoRef News," The GeoRef Newsletter 13 no. 1 (December 1991): 1.
4. "GeoRef Coverage," The GeoRef Newsletter 13 no. 1 (December 1991): 3.
5. Chuck Huber, "GeoRef," CD-ROM Professional 4 no. 3 (May 1991): 89-90. Refer to this article for a more detailed critique of the use of the database. One may also want to refer to an additional review, Barbara Defelice, "CD-ROM Revolutionizes GeoRef," Geotimes 36 no. 7 (July 1991): 22-24.