

Access to Geographical Information in Library Catalogs: a Case Study

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Abstract: Libraries offer a variety of methods to retrieve geographic data. This paper explores three case studies. The original paper, presented during the Pioneer America Society Conference on October 10, 2014, in Oklahoma City, Oklahoma, explored the first three cases. That PowerPoint is available at the the University of North Texas Libraries (UNT) Scholarly repository [here](#).

The online catalog (Case no. 1) includes various materials available to users. These include maps, audio or video recordings, and music. Many of these have place of capture or recording that is important in the understanding of the manifestation. Case no. 2 is Special Collections in general, including the Portal to Texas History. Several unique digital collections provide details such as aerial maps, or books and music produced during monumental events (Civil War). Case no. 3 is a particular collection digitized by UNT: The map collection of the University of Texas at Arlington.

This expanded edition also considers events related to a specific place and time, such as recordings made in Oklahoma City, and how to retrieve these.

Introduction

Advancements in digital technologies shape the creation, access, use, and preservation of information resources in profound ways, including for geographic information. Geographic information science is the research field that underlies the creation and application of geographic information systems.

Map and geography libraries usually collect extensively in the areas of geographic information science and geographic information systems. A review of the current landscape in digital libraries and emerging trends shows that there is no shortage of opinions on the role of geographic information systems that allow the combination of geographic/location data with attribute/theme data through computer-driven processes. According to Mark (2003), geographic information science encompasses theories, methods, technologies and data for understanding geographic patterns and relationships. A geographic information system is «a system of hardware, software, data, people, organizations and institutional arrangements for collecting, storing, analyzing and disseminating information about areas of the earth.»

This article is about Geographical Information, not about Geographic Information Systems. Therefore, the discussions will be restricted to the various methods employed by libraries to facilitate access to geographic data. Various emerging web technologies, such as the Web ontology language (OWL), the resource description framework (RDF), semantic Web rules


language (SWRL), and other members of the World Wide Web Consortium (W3C) family of specifications, offer powerful data organization, combination, and query capabilities. This paper uses four case studies to demonstrate a variety of methods to retrieve geographic data.

Classification Systems

A library classification is a system that groups related materials together, typically arranged in a hierarchical tree structure. A different kind of classification system is also widely used which allows the assignment of multiple classifications to an object or information resource, enabling the classifications to be ordered in multiple ways, facilitated in machine readable data. Library classification systems are among the tools that facilitate subject access. In other words, classification systems allow users to find out what works or information resources (such as books, serials, audiovisual materials, maps, computer files, etc.) the library has on a certain subject.

Most classification systems are suitable both for aiding subject access and for shelf location. For example, the Library of Congress Classification G covers geography, anthropology, and recreation. Catalogers use the main portion (G) not only to catalog maps and atlases, but to identify the locations of recorded events, musical or non-musical; these include concerts, recitals, interviews, speeches, and conferences.

Many of LC's other classifications are structured with geographical elements in mind: C-D is world history, E-F is United States History. Still other classifications, such as ML (Musical Literature) are arranged by place in selected areas or chronological periods.



LIBRARY OF CONGRESS CLASSIFICATION OUTLINE

CLASS G - GEOGRAPHY. ANTHROPOLOGY. RECREATION

(Click each subclass for details)

Subclass G	Geography (General). Atlases. Maps
Subclass GA	Mathematical geography. Cartography
Subclass GB	Physical geography
Subclass GC	Oceanography
Subclass GE	Environmental Sciences
Subclass GF	Human ecology. Anthropogeography
Subclass GN	Anthropology
Subclass GR	Folklore
Subclass GT	Manners and customs (General)
Subclass GV	Recreation. Leisure

Figure 1. Library of Congress Classification G

SUBJECT Music Library

Limit search to available items

1 2 Next 66

Number	Mark	SUBJECTS (1-50 of 66)	Year	Entries 799 Found
1	<input type="checkbox"/>	Music United States		174
2	<input type="checkbox"/>	Music United States 18th Century		28
3	<input type="checkbox"/>	Music United States 18th Century Bibliography Catalogs : ML136.C5 N47 1983	1983	1
4	<input type="checkbox"/>	Music United States 18th Century History And Criticism		3
5	<input type="checkbox"/>	Music United States 19th Century		41
6	<input type="checkbox"/>	Music United States 19th Century Bibliography Catalogs		3
7	<input type="checkbox"/>	Music United States 19th Century Bio Bibliography Dictionaries : ML106.U3 B73 1999	1999	1
8	<input type="checkbox"/>	Music United States 19th Century History And Criticism		26
9	<input type="checkbox"/>	Music United States 19th Century Periodicals Bibliography : ML128.P24 .W4 1987	1987	1
10	<input type="checkbox"/>	Music United States 19th Century Periodicals Indexes : ML128.I66 A32 2009	2009	1
11	<input type="checkbox"/>	Music United States 19th Century Social Aspects : ML3551.4 .C67 2004	2004	1
12	<input type="checkbox"/>	Music United States 20th Century		75
13	<input type="checkbox"/>	Music United States 20th Century Bibliography : ML128.S3 G5 1974	c1974	1
14	<input type="checkbox"/>	Music United States 20th Century Bio Bibliography : ML106.U4 C44 1994	1994	1
15	<input type="checkbox"/>	Music United States 20th Century Discography : ML156.2 .A45 1982	c1982	1
16	<input type="checkbox"/>	Music United States 20th Century Encyclopedias : ML82 .W625 2002	2002	1

Figure 2. UNT Libraries Catalog for the Subject “Music – United States” with subdivisions following “Music – United States.”

SUBJECT All Collections

Limit search to available items

Number	Mark	SUBJECTS (1-9 of 9)	Year	Entries 82 Found
1	<input type="checkbox"/>	Ohio Politics And Government		5
2	<input type="checkbox"/>	Ohio Politics And Government 20th Century : E840.8.M48 D54 2008	c2008	1
3	<input type="checkbox"/>	Ohio Politics And Government 1787 1865		52
4	<input type="checkbox"/>	Ohio Politics And Government 1861 1865 : H31 .C7 no.105 1968	1968	1
5	<input type="checkbox"/>	Ohio Politics And Government 1865		2
6	<input type="checkbox"/>	Ohio Politics And Government 1865 1950		9
7	<input type="checkbox"/>	Ohio Politics And Government 1865 1950 Sources : E748.T2 A3 1997	c2006	1
8	<input type="checkbox"/>	Ohio Politics And Government 1951		10
9	<input type="checkbox"/>	Ohio Politics And Government 1951 Anecdotes : F496.2 .Z56 2006	c2006	1

Figure 3. Ohio – Politics and Government, by period

Number	Mark	SUBJECTS (1-5 of 5)	Year	Entries 16 Found
1	<input type="checkbox"/>	Ohio Maps		10
2	<input type="checkbox"/>	Ohio Maps Bibliography : I 19.86:Oh 3	1987	1
3	<input type="checkbox"/>	Ohio Maps Bibliography Catalogs : I 19.41/6:2:Oh 3	1986	1
4	<input type="checkbox"/>	Ohio Maps Columbus		3
5	<input type="checkbox"/>	Ohio Maps Ross County	1819	1

Figure 4. Ohio Maps

Online Catalogs for Subjects, Genres, and Forms

Online catalogs are comprised of a multiplicity of formats and materials: books, manuscripts, music, audio and video recordings, and three dimensional realia. To illustrate this subject approach to the catalog, we use the books and other materials on Music of the United States, as found at the University of North Texas. Nearly 800 items are represented

Many subjects are geographically subdivided indirectly. By this we mean that the geographic zones are in order by country, state, county and city. For some countries, such as the United States, the first geographical element in a subject is the state's name. Libraries that follow the lead of the Library of Congress assign the most specific jurisdiction or geographical area available. These are known as Library of Congress Subject Headings (LCSH), which can be accessed [here](#).

Music – New York – History and criticism

Music – United States – History and criticism

Mounds – Ohio – Ross County

Many local online catalog systems allow these terms to be searched as subjects or as keywords. Many of the examples presented here are from Ohio, which has a longer history and more subdivisions of their politics, government, and history, than does Oklahoma.

The *Library of Congress Genre/Form Terms for Library and Archival Materials* (LCGFT) terms describe what something is instead of what it is about. Cartographic terms that denote genres and forms include maps and atlases. As of early 2015 it included over 600 terms for moving images (films and television programs), sound recordings, cartography, and law. The Library of Congress and members of the Music Library Association developed an additional 560 genres and forms for music, and over 900 terms in the *Library of Congress Medium of Performance Thesaurus for Music* (LCMPT). Geographical entities also appear first in subjects that access maps and atlases. (Library of Congress, 2015c)

WorldCat, operated by OCLC (formerly known as the Ohio College Library Center), provides access to over 300 million bibliographic records in all formats: books, recordings, maps,

music, and three dimensional artifacts. Over 72,000 libraries in over 170 countries participate. WorldCat Discovery will, in 2016, replace FirstSearch. Noted cartographer T.M. Fowler (Thaddeus Mortimer; 1842-1922) has created hundreds of maps, some in the region of the 2014 conference of the Pioneer America Society.

The physical version of a map, *Wichita Falls, Texas, 1890* (Fowler, 1890b), is available at the University of Texas at Arlington. But libraries are reluctant to lend audiovisual materials, including maps, via Interlibrary Loan. The result of this search is shown below.

Fortunately, as is shown later in this article, another option is available.

Special Collections of Maps

In 2002 University of North Texas Libraries began planning The Portal to Texas History, a digital gateway to historical materials from private collectors and collaborative partners, including libraries, museums, archives, and other historical groups. The goal is to structure the Portal in a way that would ensure long-term sustainability. By 2010, the Portal hosted over 900,000 digital images from 130 partners. By 2015, the Portal had grown to host 5.5 million images from over 250 partners. The Portal contains over 82,000 maps, several relevant to Texas and the southwestern United States. ([Portal to Texas History](#)). Many of these maps are from the last twentieth and early twenty-first century, but a sizeable number date back to the fifteenth century. In addition to maps, The Portal consists of the digital representations of letters, journals, original documents, photographs, newspapers, postcards, city directories, and artifacts.

The Library of Congress (Library of Congress, 2015a) holds the world's largest and most comprehensive cartographic collection:

5.5 million maps 80,000 atlases

6,000 reference works 500 globes and globe gores

3,000 raised relief models 19,000 cds/dvds

The online map collections represents only a small fraction that have been converted to digital form, over 13,000. Within these digitized collections is another maps by Thaddeus Mortimer Fowler, of Guthrie, Oklahoma. (Fowler, 1890a) Another substantial collection in the Library of Congress, in its Prints and Photographs Division, displays much history and material culture, with over one million digitized images. (Library of Congress, 2015b). The range of these photographs is reflected by their breadth: American cartoons, Baseball cards, Civil War battlefields, Farm Security Administration, and posters from the Spanish Civil War, the Works Progress Administration (WPA), and World War One.

University of Texas at Arlington Map Collection

The next case study examines a specific map collection, that of the University of Texas at Arlington. Digitized by the University of North Texas, and indexed in the Portal to Texas History, 5,188 maps date from 1493 to the present and feature noted cartographers. While

international in scope, the collection emphasizes the region of the Gulf Coast and the Greater Southwest: Texas and other southwestern states annexed by the United States after the U.S. War with Mexico of 1846-1848.

These include historical maps of the region, such as Oklahoma, geologic maps of the Arbuckle Mountains, in Oklahoma, and other local maps, such as land use in Arlington, Texas, in 1980. The previously mentioned map of Wichita Falls, Texas by T. M. Fowler is also digitized in this collection (Fowler, T. M., 1890c).

Geographical information also will aid in the identification of music, interviews, concerts, recitals, and lectures recorded in specific locations. This data is rendered into several bibliographic records about the history of a state, such as Oklahoma.

Advantages to digitization include: 1) the original map is preserved for infrequent in-person usage; 2) access is from anywhere, a desktop computer, laptop, or mobile device; 3) magnification is allowed for detailed study; 4) usage statistics are more easily gathered from digital projects, including country of user, and device used. Certain characteristics, such as watermarks, may need onsite viewing, but digital technology is changing even this.

The image shows a search interface for WorldCat. At the top, there are 'Search' and 'Clear' buttons. Below that, the database is identified as 'WorldCat' (Updated: 2014-10-06) with the description 'OCLC catalog of books and other materials in libraries worldwide'. The search criteria are as follows:

- Search for:** 'wichita falls' (Title), 'and' 'fowler' (Author), 'and' (Keyword).
- Limit to:** Year (empty), Language (No Limit), Number of Libraries (All).
- Limit type to:** match any of the following: Books, Visual Materials, Computer Files, Internet Resources, Serial Publications, Sound Recordings, Archival Materials, Continually Updated Resources, Articles, Musical Scores, Maps (checked).
- Subtype limits:** Any Audience, Any Content, Any Format.
- Limit availability to:** match any of the following: Items in my library (INT, UNIV OF N TEXAS), Library Code (empty).
- Rank by:** Number of Libraries.

At the bottom, there are 'Search' and 'Clear' buttons.

Figure 5. FirstSearch, Search strategy

Wichita Falls, Texas, 1890 /


T M Fowler

1890

English  Map 1 map ; 51 x 70 cm.
Morrisville, Pa. : [s.n.],

GET THIS ITEM

Availability: **Check the catalogs in your library.**

- [Libraries worldwide that own item: 1](#)
-  [Search the catalog at UNT Libraries](#)

External Resources:

- [Find Full-Text](#)
- [UNT InterLibrary Loan](#)
- [UNT TestILL](#)
-  [Cite This Item](#)

FIND RELATED

More Like This: [Search for versions with same title and author](#) | [Advanced options ...](#)

Find Items About: [Fowler, T. M.](#) (max: 3)

Title: **Wichita Falls, Texas, 1890 /**

Author(s): [Fowler, T. M. 1842-1922.](#) (Thaddeus Mortimer),

Publication: Morrisville, Pa. : [s.n.],

Place: United States; Pennsylvania; Morrisville.

Year: 1890

Description: 1 map ; 51 x 70 cm.

Language: English

SUBJECT(S)

Descriptor: [Business enterprises -- Texas -- Wichita Falls -- Maps.](#)
[Buildings -- Texas -- Wichita Falls -- Illustrations.](#)
[Buildings.](#)
[Business enterprises.](#)

Figure 6. FirstSearch, Search results .

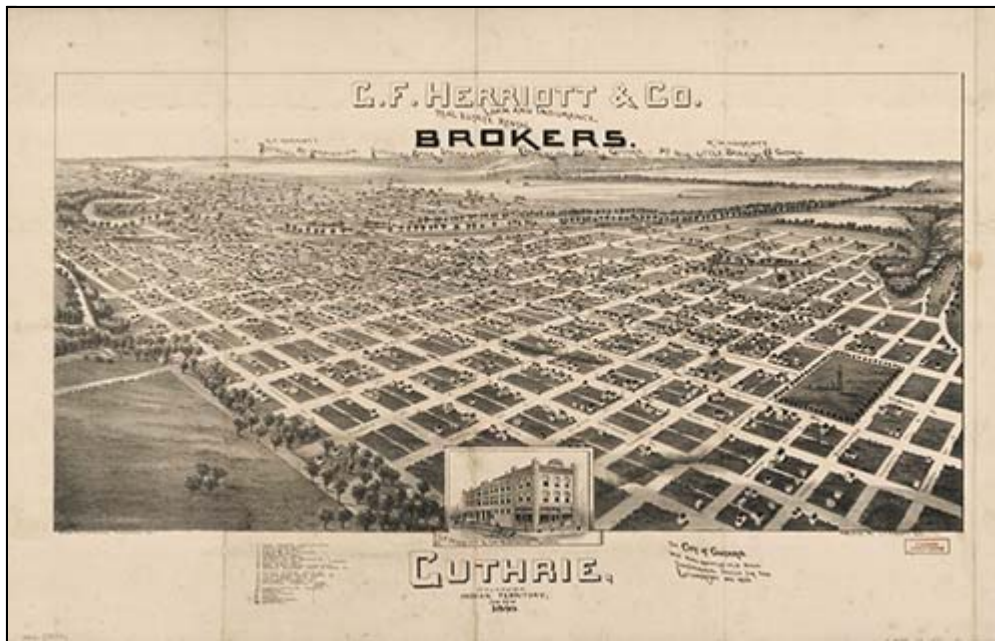


Figure 7. Folwer: Guthrie, Oklahoma, Indian Territory, Jan. 22nd 1890



Figure 8. Fowler: Map of Wichita Falls, Texas, 1890

History and Material Culture Derived from Bibliographic Records

Bibliographic records in libraries also provide a historical record of performances and other events that shaped the material culture of America. The Ronald J. Norick Downtown Library, site of the 2014 conference of the Pioneer America Society, houses *Oklahoma*

Voices, an oral history collection. Each person was interviewed in the library. Subjects range from television personality Barbara Jean Williams to geologist Barth Bracken. (Bracken, 2007)

Music from classical to rock and Contemporary Christian may be found in the history of Oklahoma City. Instrumental in the classical and symphonic music was Guy F. Harrison, conductor of the Oklahoma City Symphony Orchestra. The Library of Congress now holds recordings of the orchestra, broadcast live on KTOK radio (Oklahoma City), and subsequently on the Voice of America. (Oklahoma City Symphony Orchestra, 2004) The rock group, Grateful Dead, performed at the Oklahoma Fairgrounds Arena, in Oklahoma City, on October 19, 1973. (Grateful Dead, 2014) These live recordings are preserved in libraries from Oregon to Ohio. The local recording of Contemporary Christian music, recorded at Victory Church, Oklahoma City is preserved in *Resonation*. (Victory Church, 2007).

Future Trends

These are but a few of the myriads of recordings, audio or video of various cultural activities with geographical implications. For fifty years the library of Congress has utilized an eight bit memory system to encode bibliographic data, Machine Readable Cataloging (MARC). But on the digital horizon, an evolution to web-compatible resource description framework (RDF) will be manifested in the future by the Bibliographic Framework (BibFrame). This will allow natural language to be use for metadata.

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Contributor Biographies

Dr. Daniel Gelaw Alemneh, a digital curator in the Digital Library Division of the University of North Texas (UNT) Libraries, has been heavily involved in the creation of the repository services at the UNT Libraries. He has been instrumental in the establishment of the UNTL Metadata standards and PREMIS preservation metadata implementation, where he currently coordinates the UNT's ETDs related activities. Alemneh received his BS in LIS from Addis Ababa University, Ethiopia (1994), his MA in Library and Information Management from the University of Sheffield, UK (1997), and his Post Masters in Digital Image Management and PhD in Information Science from the UNT (2000 and 2008). Alemneh is also an adjunct faculty member at the UNT College of Information teaching indexing, abstracting, and information retrieval courses. He has a history in publishing and presenting on topics of digital libraries, preservation metadata, ETD lifecycle management and analysis workflows.

Ralph Hartsock, Senior Music Catalog Librarian for the University of North Texas Libraries, catalogs sheet music and dissertations. In the realm of cataloging he published *Notes for Music Catalogers: Examples Illustrating AACR2 in the Online Bibliographic Record* (Lake Crystal, Minnesota: Soldier Creek Press, 1994). He has published extensively on America's avant garde composers, including the reference sources *Otto Luening: a Bio-Bibliography* (Westport, Connecticut: Greenwood Press, 1991), and *Vladimir Ussachevsky: a Bio-Bibliography* (Westport, Connecticut: Greenwood Press, 2000), the latter in collaboration with Carl Rahkonen. Hartsock has also published articles on Milton Babbitt and Edgard Varese. In addition to over 200 published book reviews, he has also contributed to reference sources on American history (Civil War, Disability history, Countercultures, Movies in American Culture). Topics range from Fanny Crosby, Josephine Griffing, and Ray Charles to Woodstock, and Peter, Paul and Mary.