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MERIDIAN

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During the recent Persian Gulf War, magazine and newspaper readers as well as television viewers were introduced first-hand to the role of remote sensing, satellite imagery, and aerial photographs in military operations. Images of possible SCUD missile launch sites in Iraq and the hundreds of burning oil wells exuding thick black smoke and its drifting over the Arabian Peninsula remain fresh in our minds today. But the use of aerial photographs by the military predates the Gulf War by many decades.

During World War II aerial reconnaissance photography was heavily used, and its technology was extensively developed. Aerial photographs were used by the military on both sides of the war for several reasons: to construct mapping of an area, to locate enemy positions and potential targets, and to assess and better understand the situation of an area at a particular point in time. In some cases, photographs were taken during bombing missions to verify that targets were hit successfully. Other photographs were taken by airborne journalists for news reporting and publicity purposes.

At the war’s end, one of the positive results from the destruction was the compilation, declassification, and subsequent distribution of maps and aerial photographs held by the United States government. After fifty years, the value of these aerial photographs has not diminished.

Although users and their needs have changed, these reconnaissance photographs remain an extremely important source of information. Their value lies in the fact that an aerial photograph captures on film a particular place at a specific moment of time without the discrimination of details found in a map of the same area. In the eyes of a trained and experienced photo interpreter, aerial photographs provide a wealth of information.

In the late 1950s, Professor Joseph E. Spencer acquired a significant collection of aerial photographs of the Pacific Islands which had become declassified government surplus materials from the Office of Naval Research for his University of California, Los Angeles (UCLA) Geography Department. These photographs, taken generally between 1942 and 1949, primarily concentrated on areas of real or potential military importance including Taiwan, Laos, Borneo, Malaysia, Philippines, Moluccas, Celebes, Hainan, New Guinea, Burma, Java, Banda Sea, Timor Sea, Flores Sea, Vietnam, the Carolines, Indian Ocean, Sumatra, Pescadores, Thailand, Solomon Islands, and southern Japan.

The collection probably arrived at UCLA during the early 1960s in forty-five large cardboard boxes and five wooden crates; the crates and boxes formed a cube measuring 72x100x50 inches and weighed approximately 6,000 pounds. The
The Map Collection is administratively a part of the Government Documents and Maps Department within the University of Hawaii at Manoa Library.

Photographs remained mainly in storage and were largely underutilized. In 1983 a near tragedy occurred when a fire damaged a portion of the collection. Of the fifty boxes, nineteen were damaged. The concern of faculty and students for the surviving photographs prompted offers to and acceptance by the University of Hawaii and Cheju National University in Korea. These universities were selected because of their proximity to the locations photographed as well as an aggressive interest in the development of Pacific rim and basin programs. The unharmed photographs were reboxed and were shipped to the two sites in 1984; twenty-eight boxes went to Hawaii and nine to Korea.

KOREA COMPONENT
Dr. David Nemeth, the UCLA faculty member responsible for the transfer of the photographs to these two universities, spent a year (1984/1985) at Cheju National University (CNU) on Cheju Island, Korea. Using the Spencer Photograph Collection as the core, Dr. Nemeth was instrumental in establishing the Joseph E. Spencer Aerial Photograph Collection and the Remote Sensing Laboratory at the CNU Central Library. He wrote a number of articles publicizing the collection. The University of Hawaii Library donated their duplicate copies of World War II Army and Navy gazetteers to CNU to assist with their identification of place names. In addition, cataloging and indexing procedures were shared. By the end of Dr. Nemeth's stay, the Korea component consisted of, in order of descending size: Japan, Korea, Taiwan, the Philippines, Melanesia, and the Netherlands Indies.

HAWAII COMPONENT
The Map Collection at the University of Hawaii Library's current holdings include approximately 140,000 sheet and folded maps and 86,000 aerial photographs (including 70,854 photographs in the World War II collection of the Western Pacific). Coverage is world-wide in scope, with special emphasis on Hawaii, the Pacific, and Asia. The Map Collection is administratively a part of the Government Documents and Maps Department within the University of Hawaii at Manoa Library. The documents department is a regional federal depository of the Government Printing Office and as such receives all GPO distributions including USGS topographic map products, DMA and NOAA nautical charts, and maps produced by the CIA and other federal agencies. Aerial photographs are usually purchased selectively or donated from various sources such as the UCLA Geography Department.

The sheer magnitude of the aerial photographs project was felt when twenty-eight very large, extremely heavy boxes arrived. Even more overwhelming was the discovery that, while there was an accompanying index, the collection was far from complete. In fact, many of the 542 described items were never found in either the Korea collection or in the Hawaii collection. It was presumed that these missing items were destroyed in the UCLA fire.

A small grant from the University of Hawaii Foundation paid for additional student help to unpack, sort, catalog, and file the large collection. The Cartography Section of the Geography Department also loaned the library one of its student assistants. In addition, file folders and file cabinets had to be purchased from library funds.

One of the first steps taken was to photocopy the index sheets, cut and paste the individually described items on to 3x5 cards, and match them with the individual sets (sorties) which in the haste of the reboxing after the UCLA fire were not packed in any particular order. Any one of the twenty-eight boxes could have contained a particular indexed item. For a large majority of the collection, an index card had to be devised,
similar in style to the existing index. It was unclear, too, whether the initial indexing was done by UCLA or the Navy. Figure 1 is the index card form used at UH.

<table>
<thead>
<tr>
<th>Index no.</th>
<th>Mission/proj.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>Coordinates</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Time</td>
</tr>
<tr>
<td>F.L.</td>
<td>Altitude</td>
</tr>
<tr>
<td>Angles</td>
<td>Print nos.</td>
</tr>
</tbody>
</table>

(Sortie)

The information for the index was taken primarily from the titling strip on the bottom (or in some cases the top or sides) of the photographs themselves. In most cases, the identification was quite clear about the location, date and time of the event, flying altitude, and focal length of the camera. Numerous U.S. Army and Navy gazetteers also proved useful in identification and coordinates on the photographs' backs were especially helpful. Other information was found scribbled on backs or containers. But a few photographs still remain unidentified.

Professor Everett Wingert of the UH Cartography Department and the library's Science and Technology Librarian, Basil Idler, were the primary consultants for the technical aspects of the photography; Charles E. Taylor of the National Archives Cartographic and Architectural Branch also generously assisted with the identification and interpretation of the photographs. It was difficult at the outset of the project to determine whether any of our photographs matched the World War II photographic negatives in roll format housed at the National Archives.

When the indexing portion of the project was completed, the final count of the collection included 1,032 sorties with 70,854 photographs. The area files are shown in Table 1.

Due to other Map Collection activities, staff turnovers and lack of funds, the holdings information still remains in index card form. But because of the geographical nature of the collection, the user can consult this catalog to quickly determine whether a region is represented. Some sets are accompanied by flightline diagrams but many are without, a major inconvenience for users. A future project, now under consideration, would draw these diagrams and develop a computerized database.

<table>
<thead>
<tr>
<th>FILE NO.</th>
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<th>SORTIES</th>
<th>PHOTOGRAPHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Indonesia</td>
<td>411</td>
<td>33,370</td>
</tr>
<tr>
<td>II</td>
<td>Papua New Guinea</td>
<td>18</td>
<td>270</td>
</tr>
<tr>
<td>III</td>
<td>Philippines</td>
<td>420</td>
<td>30,199</td>
</tr>
<tr>
<td>IV</td>
<td>Solomon Islands</td>
<td>114</td>
<td>2,910</td>
</tr>
<tr>
<td>V</td>
<td>New Hebrides</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>VI</td>
<td>Other Southeast Asia</td>
<td>12</td>
<td>1,250</td>
</tr>
<tr>
<td>VII</td>
<td>Far East</td>
<td>42</td>
<td>2,206</td>
</tr>
<tr>
<td>VIII</td>
<td>Volcano Islands</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>IX</td>
<td>Others</td>
<td>3</td>
<td>455</td>
</tr>
<tr>
<td>X</td>
<td>Unidentified</td>
<td>9</td>
<td>166</td>
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<tr>
<td>Total</td>
<td></td>
<td>1,032</td>
<td>70,854</td>
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A) File I.A.17 375
Meandering river and oxbow lakes of central Borneo, Netherland Indies (now Indonesia). Note the area to the right of the river that is less densely vegetated.

B) File I.F.37 543
Aju Island, a coral atoll off the coast of New Guinea, Netherland Indies (now Irian Jaya, Indonesia).

C) File III.B.22 638
An oblique view of Batangas and Balayan Bays in Luzon, Philippines. Note the expanse of agricultural lots.

Parts of the Pacific region have changed a great deal while other parts have seen little change since World War II. Therefore, it is primarily for the historical perspective and in "change detection studies" that the potential use of these photographs appears limitless. Applications in the fields of history, geology, hydrology, archaeology, soils, agriculture, forestry, mineral resources, and urban planning have brought researchers to study the photographs in this collection. For example, a major Hawaii crop grower has used these photographs to study the feasibility of growing crops in Indonesia.

Research topics have varied among the university’s graduate students and post-graduate researchers. Several of these users are studying the shifting patterns in crop growing from self-sufficiency and farmstead to larger-scale commercial agriculture in regions of Southeast Asia. Other research concerns physical changes in the natural environment that have occurred in coastal areas due to agricultural practices and urbanization. Studies on deforestation and its effect on the ecosystem due to urban growth, resettlement and logging is an important issue to geographers studying Indonesia. Several volcanically active regions in Southeast Asia are of great geologic interest to researchers investigating volcanology and geophysics. These research topics represent a few of the potential uses of the collection.

The University of Hawaii’s centralized location in the Pacific Ocean promotes scholarly exchange between the East and West. Hawaii serves as both a bridge and host for researchers and scholars from Asia, the Pacific islands, and the mainland United States. Faculty and students of the university community as well as outside researchers use its many resources. It is only natural in such an environment that the University of Hawaii is at the forefront of the rapid emergence and growth of Pacific and
D) File III.B.29 672
An oblique view of Volcano Island located in Lake Taal, Luzon, Philippines. The name of the lake on Volcano Island is appropriately called Crater Lake.

E) File IV.A.7 1236
A vertical view of Torokina Harbor and airstrip on Bouganville Island, Solomon Islands. Note the activity of vessels in the harbor and the numerous aircraft lined up on the small airstrip.

Asian country studies. As this region continues to grow in importance, these aerial photographs will become more valuable as a primary source of information.

FUTURE ENHANCEMENT PROJECTS

Flightline diagrams
As previously mentioned, the aerial photography collection does not include flightline diagrams for the majority of the sorties and missions. One of the top priorities for this collection is to construct flightline diagrams in order to provide easier access to the photographs. With such diagrams, the ease and efficiency in locating the appropriate photograph for the user will be increased and unnecessary handling and potential for damage or misfiling will be decreased.

Computer Geography/Cartography
Among the possible future projects of this collection is the use of computers to index, catalog, and display these photographs. The UH Map Collection is a traditional collection consisting primarily of sheet maps and aerial photographs. Efforts are currently underway for the collection to expand into the realm of computer geography and geographical information systems (GIS). The collection has been awarded a grant through its affiliation with the U.S. Geological Survey as an Earth Science Information Center (ESIC) to receive Strategic Mapping Incorporated’s ATLAS®GIS software. The collection is also actively seeking funding and technical assistance from the library and other departments at the university. Other endeavors for the development of the collection are the acquisition of additional mapping software, GIS programs, and hardware that are appropriate for a library setting.

It is hoped that with the acquisition of computer hardware and software we will be able to construct a database to search these thousands of World War II photographs in an efficient and speedy manner. Brainstorming discussions between the library’s Government Documents/Map Collection staff and the faculty of the university’s Geography Department’s Cartography Section have produced some interesting ideas. These ideas include jointly funded projects, topics for possible masters’ theses, and the hiring of undergraduate and graduate cartography students to assist the Map Collection staff on these potential projects. One of the proposed projects is to produce a computer database for these aerial photographs which can be searched by key word or place name. Another project is to construct a "graphic computer index" to pinpoint a spot on a map image on the screen which would produce a listing of all photographs of that place.
Three photographs taken from a sequence of twenty-one photographs taken during a bombing mission over Subic Bay and the village of Olongapo on Luzon, Philippines. A large ship is being bombed and subsequently hit. Note the "V" shaped features in the shallow waters of the harbor and river mouths which appear to be large fish traps.

OTHER PACIFIC BASIN AND RIM PHOTOGRAPHY

Trust Territory of the Pacific Islands Archives

The University of Hawaii Library also houses the Trust Territory Archives which includes over 2,000 reels of microfilm of documents and correspondence from the files of the former Trust Territory government. Each government in Micronesia has a set of the microfilm, as does the United States National Archives and Records Administration. In addition,
Three photographs taken from a sequence of eleven photographs showing the harbor city of Cebu and a nearby airstrip on Cebu Island, Philippines. Note the disabled ships, burning pier area, and the extensive damage to the city and airstrip.

The University of Hawaii received maps, aerial photographs, an audio-visual and a photograph collection from the former Trust Territory government. The 10,784 photographs further update the Micronesia portion of the World War II coverage of both the University of Hawaii and Bishop Museum collections. Coverage extends from 1945 to 1976. The earlier photography (1945-1971) appears to be part of the U.S. Navy photography
Two photographs (one conventional and the other infrared) of a bombed airstrip on Buka Island, Solomon Islands. The infrared photograph clearly shows the areas hit by bombs as darkened areas and spots amidst the neatly planted rows of coconut trees.

while the latter years (1975–1976) were done for the Public Land Survey Project by a commercial firm.

The library’s Preservation Department is currently undertaking a major project funded by a U.S. Department of Education Title II-C grant to digitize approximately 25,000 non-aerial photographs of people, buildings, ships and the like included in the Trust Territory of the Pacific Archives. After digitization, the photographs will be accessible through specially designated computer terminals. The Map Collection is exploring the possibility for aerial photographs to be digitized and preserved in a similar manner.

Bishop Museum World War II Aerial Photograph Collection

The Bernice Pauahi Bishop Museum, located in Honolulu, also owns an extensive collection of World War II Navy aerial photographs for various parts of the Pacific. The collection was “rescued” from the incinerator of a deactivated Army headquarters, so the story goes, by the late Edward H. Bryan, Jr., founder of the Pacific Scientific Information Center at the museum. The collection consists of approximately 65,000 aerial photographs of parts of Micronesia, Melanesia, and to a lesser extent, a part of Polynesia. An index to the collection, Air Photographs of the Pacific Islands Filed in Bishop Museum, serves as its catalog of holdings. A small portion of the museum’s collection overlaps and duplicates some of the UH holdings. This photograph collection is currently a part of the museum’s newly created Archives Department. Although these two World War II aerial photo-
30 handcrafted maps from around the world
by a master of cartography, Dr. Erwin Rasiz

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Graph collections are housed in separate institutions, together they total an estimated 140,000 photographs of the Pacific Islands during the 1940s (including the approximately 5,000 photographs contained in the Trust Territory Archives) available for researchers in Honolulu.

The authors of this article hope that they have piqued readers' interests to encourage the sharing of ideas and experiences with aerial photographs and computer indexing.

Mabel K. Suzuki is a government documents librarian at the University of Hawaii at Manoa Library. A University of Hawaii School of Library and Information Studies graduate, she was the library technician when the aerial photograph collection first arrived from UCLA.

Ross R. Togashi is the current Map Collection library technician. He holds an undergraduate degree in geography and has enrolled in the UH School of Library and Information Studies on a part-time basis.

25th ANNIVERSARY MEETING

The Western Association of Map Libraries is celebrating its 25th year with its fall meeting in Hawaii. Brigham Young University, Hawaii, at Laie, Oahu, will be the site for the meeting commencing on Wednesday, November 4th, continuing through Saturday, November 7th.

In addition to a business meeting and contributed paper sessions, there will be a tour of the Hawaii Institute of Geophysics and an opportunity for golf with Boy Manipon at the Kahuku municipal course. On Friday, November 6th, the group will fly to Hilo for two days of touring which will include Volcanoes National Park, the Volcano Observatory, Kilauea Crater, Thurston Lava Tube, the Lava Tree State Park, Kapoho, and Kalapana.

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Users and Geographic Areas of Interest in an Academic Library Map Collection, 1983-1989: Implications for Policy Development

Charles A. Seavey
Heather F. Rex

Data collected at an ARL library map collection over seven years about users and their areas of geographic interest roughly corresponds with previous research. Users' primary areas of geographic interest relate to the immediate area (state) with demand decreasing as distance from that state increases. Conceptually, the perception of immediate locale as prime generator of usage is confirmed while findings about geographic areas of interest are more complex than those reported in earlier studies. Implications for both collection development and cataloging prioritization and possibilities for future research are also discussed.

Maps and other cartographic formats are becoming an increasingly important information source in an energy and environmentally conscious age. Libraries of all types are either starting to build, or placing increased emphasis on, map collections (Carrington and Stephenson 1978; Cobb 1986, 1990). This increasing emphasis necessitates paying attention to collection development and cataloging priority decisions. Data both on users and on their geographic areas would be invaluable to librarians managing map collections geared to meeting user population information needs. With such data, map librarians could formulate a theory of collection usage which would assist in developing appropriate collection and cataloging policies. Two primary questions need to be addressed when investigating users of cartographic collections and the usage of those collections:

1. What categories of user can be identified?
2. What geographic areas were of interest to the users of the collection?

Answers to these questions should provide some conclusions about collection development, cataloging priorities, and future research possibilities. Reviewing relevant literature begins generating some answers to these questions, and further information is available from an analysis of 16,572 users, and their areas of geographic interest, at the University of New Mexico Library's map collection from 1983 to 1989.

Literature Review

Library Literature and GeoAbstracts were searched for relevant articles published since 1970. Studies which reported actual data similar to that collected from the University of New Mexico study on either users (by various categories) or usage by geographic region were of primary interest while literature discussing the disciplinary or departmental origin of map collection users was of secondary importance. Eight studies...
reported on either users, usage, or both. They are discussed in chronological order.

Hagen reported on 1,565 individuals using the main map library at UCLA, 1967-1969 (Hagen 1970). Data were collected from forms filled out by individuals actually checking material out, as opposed to using materials in-house. While Hagen presents data by department/major, rather than level (undergraduate, etc.), 45.75% of his users did not report disciplinary affiliation or were undergraduates who had not yet decided upon a major. Of the 54.25% (N=849) for whom data were available, geography, largely in the person of undergraduate majors taking a required course on map reading, provided the largest percentage (8.8%) of total users. The remainder provide an impressively cross-disciplinary list: 11 departments in the humanities; 12 in the social sciences; 4 in fine arts; 8 in the physical sciences; and users from five independent schools, Architecture and Urban Planning, Law, Library Science, Business Administration and Education (Hagen 1970, 30-31).

Ray describes users and usage at the map collection of the University of Southern Illinois (SIU), Carbondale, from June to December 1972 (Ray 1974). At that time the map collection contained approximately 150,000 sheets. Data on users (N=223) were gathered from borrower records, and data on usage (N=2,721) were collected from circulation records.

Miller, et al. surveyed 91 users at the University of Oregon map collection in 1977 and reported on an earlier survey of 112 users done in 1972 (Miller, et al. 1977); this information was on users only. Their data were gathered from survey forms distributed to users of the 150,000 sheet collection, which at the time was administered by the Geography Department.

Bridges reported on 875 users at the 75,000 sheet collection at the Department of Geography, University College, Swansea, Wales (Bridges 1978). Data were assembled from circulation records and the librarians’ observations of in-house usage and includes information on both users and usage. The data do not include “...lunchtime or evening use by members of staff who have access to the collection outside normal working hours.”

In a 1974 replication of her original work, Ray reports on 1,360 users (Ray 1978). The map collection had grown to 170,000 sheets by the time of the second survey. This second report also summarizes, and presents data from, the 1972 survey. In both studies, the five departments with the greatest number of borrowers, accounting for roughly one-third of the total, were (in order): forestry, geology, geography, zoology, and botany; the remaining two-thirds of the borrowers represented 80 other departments. History, anthropology, political science, recreation, design, and psychology are mentioned as departments with at least 12 borrowers in any given year (Ray 1978, 15).

Treude summarized a survey of 500 users of the 180,000 sheet collection at the University of Minnesota in 1980 (Treude 1981). It is not clear if this figure represents the total number of users at the collection or simply those who were willing to fill out the forms. Usage by general category, as well as specific data on type but not geographic region of materials used, was described.

One hundred forty one users of the UCLA map collection were surveyed in the fall of 1988 (Deckelbaum 1989). Although this paper is primarily about how and why users arrived at the collection, it does include some data on type, but not area, of material consulted. Deckelbaum reports on usage by 31 departments with geography, history, and political science being the three heaviest users. His conclusion that usage by the social sciences, humanities, and life
Table 1: Percentage of Users by Category

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>Faculty</th>
<th>Students</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ray (1974)</td>
<td></td>
<td>19.0%</td>
<td>76.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>(users)</td>
<td>223</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(loans)</td>
<td>2721</td>
<td>10.0</td>
<td>88.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Miller, et al (1977)</td>
<td></td>
<td>10.9</td>
<td>83.0</td>
<td>5.0</td>
</tr>
<tr>
<td>(1972)</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1977)</td>
<td>91</td>
<td>8.0</td>
<td>88.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Bridges (1978)</td>
<td>875</td>
<td>94.6*</td>
<td></td>
<td>5.4</td>
</tr>
<tr>
<td>Ray (1979)</td>
<td>1360</td>
<td>14.0</td>
<td>77.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Treude (1980)</td>
<td>500</td>
<td>2.0</td>
<td>82.0</td>
<td>14.0</td>
</tr>
<tr>
<td>Deckelbaum (1989)</td>
<td>141</td>
<td>4.2</td>
<td>75.2</td>
<td>20.6</td>
</tr>
</tbody>
</table>

*94.6% departmental usage. The study did not differentiate between students and faculty.

Table 1: Key Points

- The study did not differentiate between students and faculty.
- The consistently highest percentage of users of the map collections studied is students, followed by faculty except where Treude and Deckelbaum both report a higher percentage of off-campus users; both Treude and Deckelbaum were studying map collections located in the largest urban concentrations in their respective states. While Bridges' figures for on-campus use had to be aggregated (i.e., she did not differentiate between faculty and students), her off-campus usage is consistent with the other studies.

### Usage by Geographic Region

The map library community has long recognized that map users are primarily interested in the geographic area depicted by the map being viewed, not in cartographic or production techniques. Because of the primacy of geographic area, as opposed to subject, map collection development may be far more quantifiable and predictable than that for other formats. This theory has been developed into an operational collection development plan (Larsgaard 1987, chapter 1 and 301-312) but there are no reports of any experience with, or long term testing of, these ideas. While a suggested framework is in place, there are few guidelines as to how specific collections might approach collection development (and cataloging priorities) based on the local situation. It could be assumed that the geographic area of interest to most of the patrons of a map collection will be the local area, "the state," and that interest in other areas will decrease as distance from the location of the map collection increases. But this assumption does not, at this point, have enough supporting evidence to begin to state it as a general, let alone a testable, hypothesis.

Table 2 summarizes the four studies which presented data on geographic area of usage. Data are collapsed slightly for clarity of presentation. The two Ray studies are
Table 2: Usage by Region, Four Studies

**Ray (1978)**

<table>
<thead>
<tr>
<th>Location</th>
<th>1974</th>
<th>1978</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illinois</td>
<td>68.0%</td>
<td>61.6%</td>
</tr>
<tr>
<td>Nearby*</td>
<td>9.0</td>
<td>11.6</td>
</tr>
<tr>
<td>USA</td>
<td>16.0</td>
<td>19.6</td>
</tr>
<tr>
<td>All other</td>
<td>6.0</td>
<td>7.2</td>
</tr>
</tbody>
</table>

N = 15,343 (circulation records)
Location of map collection: Illinois

* Nearby: Indiana, Kentucky, Missouri, Iowa, Wisconsin, Tennessee, Arkansas (Tennessee and Arkansas are non-contiguous)

**Bridges (1978)**

<table>
<thead>
<tr>
<th>Location</th>
<th>1978</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wales</td>
<td>43.4%</td>
</tr>
<tr>
<td>British Isles*</td>
<td>19.3</td>
</tr>
<tr>
<td>Europe</td>
<td>21.5</td>
</tr>
<tr>
<td>Africa</td>
<td>6.7</td>
</tr>
<tr>
<td>Americas</td>
<td>4.9</td>
</tr>
<tr>
<td>All other</td>
<td>4.2</td>
</tr>
</tbody>
</table>

N = 841 (combination of circulation and in-house usage)
Location of map collection: Wales

* British Isles: England, Scotland, Northern Ireland, Eire

**Brunvand (1991)**

<table>
<thead>
<tr>
<th>Location</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorado</td>
<td>41%</td>
</tr>
<tr>
<td>Four Corners*</td>
<td>42</td>
</tr>
<tr>
<td>Western U.S.*</td>
<td>4</td>
</tr>
<tr>
<td>Rest of U.S.</td>
<td>5</td>
</tr>
<tr>
<td>Rest of World</td>
<td>8</td>
</tr>
</tbody>
</table>

N = 1,007 (maps refiled)
Location of Map Collection: SW Colorado

* Four Corners: Arizona, Colorado, New Mexico, Utah
  ** Western U.S.: west of 1040, or the nine western states (counting Alaska and Hawaii) not included in the Four Corners region.

Remarkably consistent across time, showing that approximately 93% of the usage, by area, was generated by the United States. Illinois, with 1.6% of the landmass of the United States, accounted for over 60% of the usage; the "nearby" states, comprising 9.8% of the landmass, accounted for roughly 10% of the usage, and the remaining 88.6% of the United States with the rest of the world accounts for the remainder. In the Bridges study, Wales, 0.2% of the landmass of Europe, accounts for 43.4% of the usage, while the rest of the British Isles (3.1% of Europe) accounts for another 19.3% of the usage. The rest of Europe plus the entire world makes up the rest of the usage. One would like a more detailed breakdown of "Europe," but nevertheless the data are not inconsistent with Ray’s findings. Brunvand, like Ray, indicates that over 90% of the usage is generated by the United States; 83% of the usage in Brunvand’s study is generated by the “Four Corners” (Arizona, Colorado, New Mexico, Utah) area, or 11.9% of the landmass of the United States. Allowing for differences in type of library, and local geography, the four studies are remarkably consistent.

Two tentative conclusions may be drawn from the literature review. First of all, as previously mentioned, students are consistently the largest percentage of users across the studies; this tallies with conventional wisdom about users of academic libraries in general. Based on the demographics of Treude (1980) and Deckelbaum (1989), it was expected that off-campus usage at the University of New Mexico would exceed that of the faculty. Secondly, usage by geographic area reported from 1) a map collection administratively part of a regionally important general library (SIU) of moderate size; 2) a small map collection administratively part of a geography department; and 3) a regionally important, but small, map collection is centered on the local (locally defined) area and...
Careful development of cartographic collections, indeed all collections, will become increasingly important in the years ahead.

Neither Ray nor Bridges were really investigating their usage with an eye towards collection development and cataloging priorities, hence both report the data without any analysis as to the implications in those areas. Brunvand does conclude from her study that 1) usage, and hence collection development and cataloging priorities, can be predicted by locale of the library; and 2) a small map collection can satisfy a large percentage of the user population (Brunvand 1991, 40).

The University of New Mexico Map Collection

Data from 16,572 users of the map collection of the University of New Mexico, Albuquerque (UNM) for 1983-1989 were collected with the assumption that most usage is generated by the local (defined as state in this case) area and that usage decreases as distance from the local area increases. Evidence from the Ray, Bridges, and Brunvand studies, as well as the subjective impressions of many map librarians, tend to confirm these assumptions. However, these studies were in sufficiently different settings and were conducted with such smaller data sets as to warrant replication.

It appeared that the UNM Map Room was being used by more members of the general public (off-campus) than others had reported (see Table 1). Secondarily, we were interested in seeing if area of geographic interest could be differentiated among the three broad categories of users employed in the data collection instrument. At a somewhat more general level, we were interested in providing a possible exemplar study for data collection and analysis at other map collections. Using the relatively simple data being collected, we hoped to demonstrate the value of such data for managers of cartographic collections faced with increased costs and shrinking budgets. Careful development of cartographic collections, indeed all collections, will become increasingly important in the years ahead. At any library that does not aspire to having a comprehensive world-wide collection, knowledge of potential user demand will become a critical piece of information.

The University of New Mexico Map Collection

The map collection of the University of New Mexico is: 1) the largest map collection in the state, 2) located in the largest academic institution in the state, and 3) located in by far the largest city in the state. In stating those conditions we claim a condition of demographic differentiation from the studies reviewed above. UCLA is the largest pure map collection in California, but not the largest collection of cartographic materials, nor does Los Angeles dominate California the way Albuquerque does New Mexico.

For the years 1972 through 1987, the UNM Library's map collection was situated in a large room, previously the Reference and Serials departments, in the West Wing of Zimmerman Library. The West Wing is the original and the oldest part of the library, built in 1937 as a Works Progress Administration (WPA) project. Its historic significance kept the West Wing from being modernized during renovation projects in other parts of the growing and expanding library system. The approximately 3,200 square foot space in the West Wing used as the Map Room originally was lighted with only reading lights on the massive oak study tables, almost all of which were removed to bring in map cases. For the Map Room this fact resulted in an early closing and no evening hours; the collection was open 44.5 hours a week.

The only access to the map collection was through a gate in the twelve foot high wrought iron grill that was the area's west wall. Just inside the
gate there was a lighted stand with sign-in sheets. The sheets asked for date, patron name, geographic area of interest, and whether the patron was student, faculty/staff or public. With the restricted means of access to the room, and the proximity of the reference desk to the front gate, it was difficult for patrons to get into the room without signing in. Even if a patron forgot to sign in on her way into the room, she was asked to do so by the staff. Only if a patron was particularly resistant was she excused from signing in. After resistant patrons left, however, the staff or student assistant who had helped them would note on the sign-in sheet how many patrons had used the collection during the transaction and what their geographic area(s) of interest had been.

In January 1988 the entire collection was moved to new quarters in the University of New Mexico library system's newest library, the Centennial Science and Engineering Library. For the first time in its twenty year history as a discrete unit, the collection was in a space specifically designed to accommodate maps, their processing, referencing and storage. The new space has 4,200 square feet, a room for technical processing, 1,500 drawers of map storage, a study area, an air photo collection area, and a definable reference section. The old Map Room was renamed the Map and Geographic Information Center (MAGIC): this change was designed to reflect the addition of new formats, photographs, images and electronic, and to note the growing emphasis on the library's mission to disseminate geographic information, not just curate a paper collection.

Although the move brought several other changes, the need to know who used the collection and what they used remained unchanged. Access to MAGIC still is restricted to a single door inside of which the sign-in stand is again located. A reference and loan counter are just steps beyond the signing in area so, just as in the past, staff are present to encourage patrons to sign in or to do it for them later. Even with all the mechanisms set up to ensure that visitors sign in upon entering the map collection, it is estimated that 1 in 10 visitors does not sign in which means the count of users may be up to ten percent low. Service hours were extended in October 1989 to 59 hours a week.

The move to a new, less centrally located building has definitely not affected usage and, in fact, has increased reference work. The map collection had moved to a building far from its original site, but MAGIC was more accessible within that building than the collection had ever been in its former homes in the centrally-located Zimmerman library. Not only did reference work increase after the move but the collection continued the growth it had begun in the early 1980's with gifts becoming a major new source of acquisitions. The collection expanded its formats to include nearly 15,000 air photos and satellite images as well as several electronic programs residing on a publicly-available personal computer in the reference area of MAGIC. Close to 100 CD-ROM products with terrestrial as well as planetary information became part of the "map collection."

Although this study utilized statistics based upon calendar year, collection size and user numbers are compiled based upon the fiscal year, July 1 through June 30. The figures below (Table 3) show Map Room/

<table>
<thead>
<tr>
<th>ACADEMIC YEAR</th>
<th>COLLECTION SIZE (maps only)</th>
<th>USERS (signed in+phone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982-1983</td>
<td>105,896</td>
<td>2,582</td>
</tr>
<tr>
<td>1983-1984</td>
<td>113,356</td>
<td>3,358</td>
</tr>
<tr>
<td>1984-1985</td>
<td>121,763</td>
<td>3,408</td>
</tr>
<tr>
<td>1985-1986</td>
<td>130,684</td>
<td>3,277</td>
</tr>
<tr>
<td>1986-1987</td>
<td>139,154</td>
<td>3,049</td>
</tr>
<tr>
<td>1988-1989</td>
<td>160,864</td>
<td>3,382</td>
</tr>
</tbody>
</table>
The study involved looking both at users of the map collection and at their geographic areas of interest.

Data Collection and Analysis
The study involved looking both at users of the map collection and at their geographic areas of interest. Sign-in sheets, collected since January 1983, were the instrument used for data collection. One of the co-authors has been in charge of the collection for the entire data collection period. Efforts to locate continuous runs of sign-in sheets prior to January 1983 have failed.

The sheets used for sign-in have spaces for type of user (student, faculty/staff, or off-campus) and geographic area of interest as well as the date. User codes were assigned thus:

1 — Student
2 — Faculty/staff
3 — Public

Areas of geographic interest were identified by using the four-digit area codes in the “G-Classification Schedule” of the Library of Congress (U.S. Library of Congress, 1976). The final data item was the year/month code entered as four digits also, e.g., 8901 is January, 1989.

Conventions Adopted for Data Entry
1. Data relating to area coding.
   • No attempt was made to interpret users’ meaning of any geographic area marked on the sign-in sheet. Even if their area of interest turned out to be different from that originally marked the sign-in notation was not changed.
   • Only four digits were used to encode an area because this was found to be the smallest unit reliable across all users’ intentions to describe their needs. Some users will be specific, but most give the larger geographic area needed. It was this larger area that was recorded for the study. Therefore, no area Cutters were used.
   • New Southwest (G4300) was not used unless specifically written as such. Southwest was encoded as G4295.
   • The G-schedule number for the smallest area encompassing the entire request was used. States are coded Gxxx0, regions within states Gxxx2 (with no area Cutter) counties are coded Gxxx3 (with no area Cutter), all cities Gxxx4 (with no area Cutter).

2. Data relating to users.
   • Only data that indicated both user type and geographic area were used in the study. If either data element was missing, no entry was made for that user.
   • If a user requested more than one area that user was recorded in the study for each area he/she requested. Therefore the study although indicative of volume of use cannot be used strictly as such.
   • Likewise if several users together requested a single geographic area during one visit, each user was recorded separately for that area. The rationale for both this and the above decisions is that a user/area study must record all instances of the match between requestor and map requested.

Data were entered in the QUATTRO PRO spreadsheet program which was then used for all subsequent data manipulation and calculations. Data were entered as a separate file for each of the 83 months of the study; data for January 1988 were not available because the collection was closed during its move to new quarters. Annual aggregated files were created by linking the individual monthly files, and final summary files for users and usage were created by linking the annual files.

Data on Users
Table 4 presents aggregate data for users of the UNM map collection, by
Table 4: Users, by Category, 1983-1989

<table>
<thead>
<tr>
<th>Category</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>10,213</td>
<td>61.62</td>
</tr>
<tr>
<td>Faculty</td>
<td>2,153</td>
<td>13.00</td>
</tr>
<tr>
<td>Public</td>
<td>4,206</td>
<td>25.38</td>
</tr>
<tr>
<td>Total</td>
<td>16,572</td>
<td>100.00</td>
</tr>
</tbody>
</table>

category for the duration of the study. As expected, students are the largest single group of users of the map collection. Faculty and off-campus usage is consistent with the previously reported studies. Off-campus usage exceeds faculty usage, reflecting both the demographics of the position of the map collection in New Mexico and the findings of the Treude and Deckelbaum studies.

Table 5 shows that the type of user has been slowly shifting over the course of the study. Faculty and off-campus usage has been accounting for an increasing percentage of use while the student percentage has been dropping. These figures should be viewed in the context of an overall increase in usage (see Table 3). In absolute terms, usage by all categories of user increased over the period of the study. Student usage increased by 16.2%, faculty by 85.2%, and off-campus by 87.8%.

Data on Usage (Areas of Interest)

For clarity of presentation, data were aggregated into 11 areas defined as:

- New Mexico — the state of New Mexico
- Contiguous States — Arizona, Colorado, Oklahoma, Texas, Utah
- United States — the rest of the United States
- World/Western Hemisphere — the entire world, or the entire western hemisphere
- Africa, Asia, Central America, Europe, South America — defined in accordance with the areal definitions found in the Library of Congress “G-Classification Schedule” (U.S. Library of Congress, 1976)
- Other — everything with a G-classification number higher than 8900, basically Oceana

Table 6 summarizes the geographic areas, aggregated as above, requested by users for the duration of the study. New Mexico, which is 3.6% of the landmass of the United States, accounts for almost half of the total usage of the collection. The contiguous states, or 18.7% of the landmass, account for another 8.1%; and the rest of the United States 16.9% of total usage. New Mexico, combined with the contiguous states and the rest of the United States, accounts for 73% of the total areal usage of the collection.

Conclusions

About Users

This study does not offer substantially different conclusions about users than the previously cited studies. Our percentage of student use is slightly lower, and our percentage of off-campus users somewhat higher, than all of the other studies.
The percentage of faculty users is consistent with that reported by Ray and Miller, et al. but rather higher than that reported by Treude and Deckelbaum. There is no immediately obvious explanation for the differences. On the face of it, the Minnesota and UCLA map collections are the most similar to that at New Mexico in terms of their urban location and research missions. It may be that the lower percentages of faculty usage are based on sampling error at Minnesota and UCLA rather than any real differences. Replication of their studies, possibly based on larger samples or populations, would shed light on the problem.

About Usage

It seems quite clear that geographic area of interest is going to be determined by local area with usage declining as distance from the collection increases. Although the specific geographic locations vary, the two Ray studies, Bridges, Brunvand, and this study all conform to this pattern. Usage in this study is more varied than that reported by the earlier studies but the user base is considerably larger. Further data analysis may show that the variation in geographic usage may be generated by the large proportion of off-campus users at New Mexico.

The implications for library cartographic policy development seem clear. Small and medium sized institutions and collections will have to take the local area pattern into account when working on a collection development, or cataloging priority, policy for maps. We suggest that even large map collections (>200,000 sheets) are probably affected by the pattern of usage demonstrated here. We suggest that priority be assigned in the following a real sequence:

1. State in which the collection is based
2. Contiguous states, subject to some modification, based on gathered data. While Oklahoma and Texas are contiguous to New Mexico, users are more likely to look west rather than east.
3. The rest of the United States
4. The rest of the world dependent on the demographics and areas of interest of local users

Map libraries in states contiguous with international boundaries should consider users’ demand for neighboring country maps in any collection development statement.

Acquisition of material relevant to the local area should assume a top priority. Large scale mapping of the local area, available through the U.S. Government Printing Office depository program or by purchase from the U.S. Geological Survey, is easily identified and acquired. Locally produced mapping is not always easily identified, or acquired, and collections will have to place increased emphasis on developing sources for this material.

Cataloging programs should reflect the priority of local area usage. Federally produced large scale topographic sheets do not really need cataloging. Locally produced material

| Table 6: Percentage of Usage, by Geographic Area, 1983-1989 |
|-----------------|-----------------|
| Area            | Percentage of Usage |
| New Mexico      | 48.0             |
| United States   | 16.9             |
| Contiguous States | 8.1          |
| Europe          | 6.8              |
| Central America | 5.9              |
| World Western Hemisphere | 3.6        |
| Asia            | 3.5              |
| South America   | 2.2              |
| Africa          | 2.2              |
| North America   | 1.7              |
| Other           | 1.1              |
| Total           | 100.00%          |
Methodologically, this study was not complex and could easily be replicated with, or without, the aid of the spreadsheet program.

This study suggests that local area, contiguous states (areas), and the rest of the country will account for well over half the usage of any given collection.

Methodologically, this study was not complex and could easily be replicated with, or without, the aid of the spreadsheet program.

Certainly other data elements can be added to the matrix. For instance, dividing the undergraduate population by class or by lower/upper divisions might provide additional useful information on users. While we did not report the findings, we are in the process of analyzing Europe and the Latin American areas on a country-by-country basis to add to our understanding of usage in those areas, and additional analysis of the United States usage on a state-by-state basis will refine understanding of that area.

A further refinement of data collection could identify the type of material used to satisfy patron needs, i.e., topographic maps, thematic maps (perhaps broken down by LC subject code), atlases, etc. All of these steps will allow the cartographic collection manager to refine acquisitions and cataloging practices to better meet local conditions and information needs.

In a time of fiscal retrenchment librarians have to be ever more careful in making collection development decisions and in allocating internal resources to manage our collections. Map collection development can be more easily quantified than that for other formats. The question then revolves around the geographic areas that users need/use. This study suggests that local area, contiguous states (areas), and the rest of the country will account for well over half the usage of any given collection. Given this information map librarians should be able to better plan their collection development activities and establish cataloging priorities.

NOTES

¹David K. Carrington and Richard W. Stephenson (1978) reported on 684 map collections in the United States. Cobb (1986) reported on 919 collections, and Cobb (1990) reports on 974 collections. Some, but not all, of this growth is attributable to better data collection methods.

²The present study had been completed and submitted for publication when the Brunvand article appeared.

³This is almost a truism in map library circles. See Larsgaard (1978, 92: 1987, 123-124). Larsgaard is discussing cataloging, but the importance of geographic area as prime access point runs through the discussion.

⁴Seavey (1982) argues that the number of maps for any given area is a function of format and scale. Once format and scale are determined the number of maps required to cover a given area is absolutely predictable. The vast bulk of maps produced worldwide are produced to predetermined scales and formats, and the map collection developer knows in advance the quantity of material involved in acquiring such material. Larsgaard (1987) further develops the idea.

⁵This assumption is another unarticulated, and largely untested, notion widely held by map librarians. The authors have, between them, over 25 years of experience with several map collections.

⁶Our feeling is that using a spreadsheet gives managers and researchers far more power to manipulate the data to answer various questions. Most commonly used spreadsheet programs have sorting capabilities similar to QUATTRO PRO. Given the almost ubiquitous presence of the microcomputer in libraries, developing an analysis program similar to the one described here should be an easy task.
LITERATURE CITED


This is a joint stamp issue by the United States and Russia. The designs portray past space achievements and envision possible future cooperation in space exploration. A designer from each of the two countries worked together to create the unique painting for the four stamp designs.
The publication of a new English-language street map of Moscow is well timed to meet the needs of the professional and academic visitor, as well as the "tourist." This new full-color map of the capital of the Russian Federation includes the numerous street name changes and governmental office redeployments which have occurred in the wake of radical political change. It also features scores of new “free enterprise” businesses, restaurants, groceries stores, cafes, commodity businesses and hundreds of phone numbers.

Technical attributes: dimensions = 97 X 69 cm; two sides printed in full color; R.F. of Moscow = 1:35,000; R.F. of Central Moscow = 1:15,000. Additional insets: Moscow Region, Moscow Metro and Kremlin.

Indexing: A two-color indexing system allows at-a-glance reference of the grid coordinates to the appropriate map. Indexed features include: academies, airlines, boat stops, bridges, bus terminals, business services, cafes, cemeteries, churches, cinema, clinics, communications, dance, embassies, exhibition, galleries, government offices, hospitals, hotels, industry, institutes, libraries, localities, markets (open air), mosques, museums, music, restaurants, river ports, sports facilities, squares, stores, streets (more than a thousand are listed with dual listings for recent name changes), synagogues, theaters, tourist services and universities.

Two formats are available: folded 9 X 4 inches or flat, $9.95 includes shipping.


Ordering: Direct orders must be pre-paid. Libraries may utilize one of the following authorized jobbers: Baker & Taylor, Blackwell North America, Brodart, Coutts Library Service, Midwest Library Service.

*Northern Cartographic’s previous work has included Access America: An Atlas and Guide to the National Parks for Visitors with Disabilities (464 pages, hardcover, illus., color, ISBN 0-944187-00-5, list $89.95) The latter was a Dartmouth Medal Nominee, selected as a “Best Reference” by Library Journal and as an “Outstanding Reference Source” by the American Library Association. Regarding this book, a free brochure and 50% library discount are available on request.

NORTHERN CARTOGRAPHIC/P.O. BOX 133/BURLINGTON, VT 05402/TEL. 802-860-2886/FAX 802-865-4912
The Gilbert Thompson Collection
Library of Congress
Paula Rebert

Thompson was active as a topographer during the Civil War, in the great surveys of the American West, and in the early years of the U.S. Geological Survey. The Gilbert Thompson collection at the Library of Congress, Geography and Map Division contains maps, photographs, and drawings documenting the work of George M. Wheeler’s surveys west of the 100th meridian. The materials illustrate nineteenth century preparation and reproduction techniques. Topographical draftsmanship is further represented by a group of original drawings by a colleague of Thompson’s, John E. Weyss.

The Gilbert Thompson collection, a visually and historically interesting collection in the Geography and Map Division of the Library of Congress, was acquired by the library nearly 100 years ago. Although preliminary appraisal had determined that the collection was intrinsically valuable and merited vault storage, the materials never had been fully organized. At an earlier time, part of the original Thompson collection was dispersed, distributing some of the maps throughout the division’s collection. There is a need to understand the nature of the materials still housed in the vault and their relationship to those items already in the general collection.

The portion remaining in the vault contains approximately 135 items and consists of three material categories, maps, photographs and drawings. The largest category is maps; most are manuscripts or photoreproductions. There are also a number of photographic prints and a group of carefully executed topographic drawings. All of the materials date from the mid- to late-nineteenth century and had been collected by Gilbert Thompson.

Gilbert Thompson was a significant nineteenth century cartographer about whom little has been written. He served as a topographer in the Union Army during the Civil War, participated in the great surveys of the American West, and was appointed to the U.S. Geological Survey when it was formed. Born in Blackstone, Massachusetts in 1839, Thompson first trained and practiced as a printer. When he volunteered at the outbreak of the Civil War, Thompson was assigned to the United States Engineer’s Battalion where he received his training as a topographer. After the war, Thompson continued as a civilian topographer for the War Department until 1866 when his association with the western surveys began.

He worked as a topographer on George M. Wheeler’s Geographic Surveys West of the 100th Meridian and was appointed chief topographer of one of Wheeler’s field parties. When the great surveys were disbanded, Thompson joined the newly organized U.S. Geological Survey and was assigned to work as a topographer with Grove Karl Gilbert mapping the shores of ancient Lake Bonneville in Utah. Thompson then became chief topographer and director of various western divisions of the U.S.G.S. and eventually returned east to take charge of the southeastern division. He was appointed chief geographer of the Geological Survey, settled in Washington, D.C., and became active in several historical societies. He died in
Washington in 1909 (U.S. Department of the Interior [1950-55], 343). A contemporary of Thompson’s said that

as a maker of maps his skill was superior, and in that duty he was active to the end. His drawing was the admiration and despair of younger men; it was said that he drew so that you could see the country portrayed. His name printed on a map is a certificate of its correctness and is so recognized wherever the maps of the U.S. Geological Survey are used. (Benjamin 1910, 9)

Most of the maps in the Thompson collection pertain to his work on the Wheeler survey. The geographical surveys of the territories of the United States west of the 100th meridian, directed by Lieutenant George M. Wheeler of the Corps of Engineers, was one of two surveys conducted prior to the forming of the U.S.G.S. that had military sponsorship and perhaps has been less studied than the civilian surveys. Wheeler’s first independent expedition was in 1869; over the 10 years that the surveys existed they developed from reconnaissance operations to systematic astronomical and trigonometrical surveys and map production. Wheeler introduced a regular grid format to cover the entire western territories in contiguous map sheets, a system later applied by the U.S.G.S in its quadrangle mapping. His original plan for mapping at a scale of one inch to eight miles was later revised to a scale of one inch to four miles so that the area of the United States west of the 100th meridian would be divided into 95 rectangles, and each rectangle would be covered by four map sheets (Bartlett 1962, 351). Wheeler published a number of progress maps with his annual reports showing the grid format and the status of the work but the survey was discontinued before all the maps had been completed. Although the maps in the Thompson collection are not printed sheets, most of the materials can be correlated with maps that were printed for the projected Topographical Atlas or the Geological Atlas. A few maps showing astronomical stations were prepared to illustrate Wheeler’s final report (Wheeler 1875-89).

Often a number of sheets in the Thompson collection were found to represent the same atlas plate at various stages of the mapping process: survey, compilation, drafting, and proofing. These photoreproductions contain the base information to which the topographic depiction would be added. One of the sheets has had form lines for hachuring drawn on the planimetric outline; another has place names and elevations added by hand. Several manuscript maps demonstrate the process of drawing the finished map in pen and ink. One sheet, with delicately rendered hachures and lettering, is only half complete; in the areas of the map that have not been inked form lines and the courses of rivers have been penciled in faintly (fig. 1). Other manuscripts, complete and beautifully drawn, differ from the published maps. One is lettered “rejected.” There are a number of photoreproductions that were used as proof sheets, sometimes labeled “standard correction sheet.” Corrections have been handwritten over the images and included additions such as place names, spot heights, graticule lines and railroad routes or notes to remove certain lines, draw patterns, or change lettering styles. The
proof sheets can be compared with the corresponding printed plates for the projected atlas where it can be seen that some of the indicated changes were incorporated into the final maps.

The survey's work proceeded in times which provided an environment of innovation and rapid change in map production and reproduction processes. The many photoreproductions among the Thompson materials suggest the willingness of Wheeler's organization to experiment with new techniques. Some of the large photoprints used for compilation and proofing may have been made by contact photography, while many reproductions are reductions and must have been made in a camera. The first cartographic cameras were in use in 1860, and these cameras were operated without electric lighting until 1900 (Koeman 1975, 139-40). The final atlas sheets were printed by lithography; the title page bears the name of Julius Bien, a New York lithographer who printed many important maps. The rapid development that the lithographic process underwent at the time of the Wheeler survey is indicated by the imprint of "The Graphic Co. PhotoLith." on some of the black-and-white sheets. Thompson must have been interested in map reproduction processes as he collected some drawings made by heliogravure, a

Figure 1. Section of the incomplete pen and ink manuscript map for atlas sheet no. 52D showing central Colorado. The area of the sheet that has not been inked contains faintly pencilled river courses and form lines for hachuring.
Graphic presentation, as well as production technique, was subject to experimentation in the Wheeler maps. Wheeler himself later wrote about the technique of heliogravure (Wheeler 1885, 547-55). Graphic presentation, as well as production technique, was subject to experimentation in the Wheeler maps. The Thompson materials contain examples of hill shading, hachure, and contour as methods for relief representation; in some cases the same area was portrayed in both a hachure map and a contour map.

Materials from the Wheeler survey in the Thompson collection also include photographs and drawings. A group of mounted prints illustrate the western landscape and are part of the body of work of well-known survey photographers Timothy H. O'Sullivan and William Bell. There are also two group portraits of survey personnel. An ink wash drawing portraying Wheeler's Peak is undated but signed by P.W. Hamsel, chief topographer in the early years of the survey (fig. 2).

A group of topographic drawings made by another member of the Wheeler survey, but well before the survey was undertaken, is some of the most interesting artifacts in the Thompson collection. John E. Weyss, the draftsman, is, like Thompson, a noteworthy nineteenth century cartographer about whom little has been written. Weyss was born in Austria and in 1848 emigrated to the United States where he enlisted in the Engineer Corps of the Army. Shortly he was assigned to the U.S.-Mexico boundary survey and later to the survey of the northwest boundary of Texas. During the Civil War he served on the staff of engineers of the Army of the Potomac and after the war was employed by the Wheeler survey where he drafted maps and made topographic drawings that were engraved for the final report (Wheeler 1875-89). Weyss died in Washington, D.C. in 1903 (Taft 1953, 277; Washington Post, June 25, 1903). The small, detailed pencil drawings by John Weyss in the Thompson collection, made while he served on the U.S.-Mexico boundary survey, illustrate the boundary landscape. Some of the drawings were engraved and published in the boundary.

Figure 2. Wheeler's Peak drawn by P.W. Hamsel
Gilbert Thompson was a significant figure in the lineage of topographic cartographers, and his collection holds much interest for the study of the development of topographic mapping.

The variety of materials in the Thompson collection offer evidence for research in several lines of inquiry. There are examples of work and information about the careers of the little-known nineteenth century cartographers Gilbert Thompson and John Weyss which could be used in constructing accounts of their cartographic contributions and life stories. There are materials for a detailed study of the cartographic practices of the Wheeler survey, an important element for a more complete study of the survey. There are also manuscript maps and photo-reproductions relating to the early cartography of the U.S. Geological Survey. The Wheeler survey manuscripts and photo-reproductions, together with the printed atlas sheets in the Geography and Map Division’s collection, are particularly interesting as illustrations of nineteenth century map preparation and reproduction processes. Compilation and drafting techniques, the early use of photography, and the competition between different printing processes are demonstrated in the materials and remain in need of further exploration. The Thompson collection is also a source for the study of topography drawing as it contains Weyss’ original drawings, one drawing by the mysterious Hamel, and a number of photographs that served as models for published engravings. Gilbert Thompson himself was a topographic artist, as attested by the meticulous drawings in his Civil War diary (Thompson 1861-65) and an engraving in Wheeler’s final report (Wheeler 1875-89, 1: pl. VIII). Gilbert Thompson was a significant figure in the lineage of topographic cartographers, and his collection holds much interest for the study of the development of topographic mapping.

ACKNOWLEDGEMENTS
I would like to thank Ralph Ehrenberg, Ronald Grim, and Richard Stephenson of the Geography and Map Division for selecting the Thompson collection for my research project as a Junior Fellow during the fall of 1991 and for the assistance and continuing interest in the project.

NOTES


4 Atlas sheet no. 78A.

5 Atlas sheet nos. 38D, 49, 50, 57, 58, 65, 66.

6 Atlas sheet nos. 49, 57, 58.

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Kathryn Womble and Mary Larsgaard

The Library of Congress Geography and Map Division (G&M) published the Map Cataloging Manual in March 1991. This paper looks briefly at the development of map cataloging standards and in more depth at the resources used to interpret and apply them. It then discusses selected guidelines put forth in G&M’s 1991 manual. The paper concludes with a discussion about the need to expand cataloging standards and guidelines to include spatial data in all formats.

In the final paragraph of his 1981 article on map cataloging standards, Robert W. Karrow stated:

AACR2 may take cataloging into the 21st century, but it will do so flanked by five-foot shelves of manuals, guides, and rule revisions. (Karrow 1981, 11)

In the spirit of Mr. Karrow’s prediction, the Library of Congress Geography and Map Division (G&M) published the Map Cataloging Manual (MCM) in March 1991. The MCM’s introduction begins:

This new Map Cataloging Manual represents more than twenty years of effort to assemble all viable information, practice, and policy regarding the cataloging of maps into one document. (Library of Congress 1991, ix)

The MCM was published in loose-leaf format and consists of 257 pages of G&M’s internal map cataloging philosophy and guidelines. It is neatly divided into tabbed chapters and appendices and includes a detailed table of contents as well as a thorough index.

The scope of the MCM is wide in that it covers all aspects of creating a map cataloging record from coding fixed fields to classification to description to series to subject analysis. The appendices cover topics including less-than-full level (minimal-level) cataloging, copy cataloging procedures, and MARC content designation. It should be noted that the MCM deals strictly with hard-copy, mainly 20th-century maps, not with atlases, globes, remote sensing imagery, spatial data in digital form, nor — except in a very few places — even with pre-1900 maps.

Having come from the Library of Congress, and with a generic title such as the Map Cataloging Manual, the volume is destined to become a classic in map librarianship. As of mid-February 1992 over 350 copies of the MCM had been distributed by the Cataloging Distribution Service.

Indeed, it is a “must-have” for any person or institution aiming to create map cataloging records to national standards in the United States.

INTERNATIONAL STANDARDS FOR MAP CATALOGING DEVELOPED IN THE 1970’s

The history of map cataloging standards in the United States has been well-documented in the map library literature (Larsgaard 1987, 147-151; Karrow 1981). Generally, the international standards of ISBD(CM), MARC, and AACR2 (International Standard Bibliographic Description for Cartographic Materials; Machine Readable Cataloging; and Anglo-American Cataloguing Rules, second edition) for map cataloging have been in place for at least ten years.

These standards, as well as the...
Treatment of cartographic materials had certainly leapt forward from the days of AACR1.

...it became immediately apparent that guidelines were necessary if any consistency among map catalogers across the country was to exist.

An effort is currently underway to update Cartographic Materials in order to bring it in line with the latest AACR2 which was revised in 1988.

bulk of the professional literature which discusses their development and implementation, were created during the latter half of the 1970's. OCLC (Online Computer Library Center), the national database which includes the largest number of map records and may be considered the mainstream database for map cataloging, first made the map format available on its system in 1976. For map librarians, these years were a time full of planning for cataloging. The next step after these standards were put into place to catalog maps was for librarians in map collections across the country to dive wholeheartedly into their collections and start cataloging in earnest.

Until this time very little standard map cataloging had been done in the United States, and in some ways this worked out for the best since map catalogers did not come to their task with a long history of cataloging. While the book cataloging world had to make considerable changes in the way it did things after AACR2 was published in 1978 so few map librarians had ever done any pre-AACR2 cataloging that they were not unduly disturbed by AACR2's edicts.

They did voice legitimate complaints about AACR2. First, non-Library of Congress map librarians in the U.S. had no say in the development of AACR2. This may have been logical as almost none of these map librarians had done any cataloging, but who better to give input in the area of user needs? Secondly, the pernicious 21.1B2 — the section in AACR2 that stated that an agency could not hold intellectual responsibility for a publication — was a problem. For anyone who had to deal with topographic or geologic map series, all created by governmental agencies, this was a glaring inadequacy.

Given these reservations, map librarians were pleased overall that "cartographic materials" — and note that phrase, no longer just "maps" — were given considerable prominence in AACR2. Treatment of cartographic materials had certainly leapt forward from the days of AACR1.

NEED FOR INTERPRETATION AND GUIDELINES

For those map librarians in the 1970's who had the opportunity to begin cataloging their collections to meet these newly-accepted standards, it became immediately apparent that guidelines were necessary if any consistency among map catalogers across the country was to exist.

In 1979 an international committee consisting of Canadian, British, and American members of the map community convened as the Anglo-American Cataloguing Committee for Cartographic Materials (AACCCM).

One of the purposes of the meeting was to discuss the possible production of a manual for the interpretation of AACR2 for cartographic materials.

(Stevens 1980, 118)

Three years later, in 1982, AACCCM's Cartographic Materials: A Manual of Interpretation for AACR2 — a 258-page classic of guidelines for creating the descriptive portion of a map cataloging record — was published. The American Library Association reports that more than 1,800 copies of Cartographic Materials were sold.2

An effort is currently underway to update Cartographic Materials in order to bring it in line with the latest AACR2 which was revised in 1988. The Library of Congress Geography and Map Division is serving as Secretariat and will soon begin inputting into a word processor the changes and additions proposed by various organizations and individuals since the 1982 publication of Cartographic Materials. This material will then be distributed to the map library community and will serve as a starting point for the updating process. Most of the work and correspondence will be done by mail and electronic mail, perhaps with a
...in 1979, the Western Association of Map Libraries (WAML) held a two-day map cataloging workshop as part of its fall meeting held at the University of Arizona in Tucson.

A mere three weeks after AACCCM had its first meeting in Ottawa in 1979, the Western Association of Map Libraries (WAML) held a two-day map cataloging workshop as part of its fall meeting held at the University of Arizona in Tucson. John Schroeder, then head of the Cataloging Unit of G&M, led the workshop which was attended by 60 people representing the United States, Canada, and Mexico.

Each workshop attendee received a paperback compilation of materials entitled Map Cataloging Workshop Reference Material compiled by Stanley D. Stevens. This material, complete with handwritten annotations, included the G&M’s unpublished internal manual for cataloging maps in accordance with AACR1 plus a working paper on proposed rule interpretations for the maps area of AACR2. John Schroeder graciously allowed WAML to compile and print 120 copies of this material. Sixty copies were distributed at the workshop, and the remaining 60 were sold and sent to interested parties in the United States, Canada, and England.

Before the 1979 WAML publication came out, copies of G&M’s internal documentation were out and about in the map community.

By the early 1970’s many map librarians had embraced the LC format, but there was still no body of detailed information to which to turn for guidance. AACR1 chapter eleven was sketchy at best, and a lively trade in unauthorized copies of LC Geography and Map Division’s internal cataloging manual helped to fill the gap. (Karrow 1981, 3)

John Schroeder was very generous about sending out a copy of G&M’s documentation to anyone who requested it but the WAML workshop and publication distributed the documentation more broadly and systematically.

So until the appearance of the 1991 MCM, map catalogers in the U.S. had two main resources for guidelines in applying map cataloging standards: WAML’s Map Cataloging Workshop Reference Material from 1979 and AACCCM’s 1982 publication of Cartographic Materials: A Manual of Interpretation. (Other cataloging resources were available, of course, but not devoted strictly to maps.)

Even with these publications available in 1982, Dorothy McGarry wrote in 1983 of continued interest within the map community for G&M’s guidance in map cataloging:

Interest was expressed by some at the WAML meeting to have the Library of Congress Geography and Map Division cataloging manual made available either as a separate publication or through information issued in Cataloging Service Bulletin. I [Dorothy McGarry] called John Schroeder ... and he said that the preferred way to disseminate information will be through the CSB [Cataloging Service Bulletin], and that this can be done in the future. (McGarry 1983, 129)

This policy was satisfactory to map librarians but only a few items of information from G&M ever came through the Cataloging Service Bulletin!

For those already familiar with the G&M/WAML documentation of the 1970’s, the 1991 MCM will look very familiar, in fact, disappointingly so. With the appearance of MCM in 1991, map catalogers still really have only two resources devoted strictly to map cataloging as the MCM essentially replaces WAML’s 1979 publication, and Cartographic Materials is still a necessity because the MCM generally does not repeat information that had been well covered in Cartographic
Materials. Also the MCM goes far more into the mechanics of cataloging — how to carry out a policy — than does Cartographic Materials.

The Library of Congress partially explains the publication of the MCM with:

Recently, the demand for an updated cataloging manual and for guidance on LC map cataloging practice and policy has increased dramatically due in part to the expansion of map cataloging by the bibliographic utilities, the proliferation of independent map cataloging projects at other libraries and archives, and the large number of librarians outside LC who are now responsible for cataloging maps. (Library of Congress 1991, ix)

Hence, the 1991 publication of the Map Cataloging Manual from the Geography and Map Division.

CATALOGING STANDARDS AND INTERPRETATIVE RESOURCES WORK TOGETHER

One of the strong points of the MCM is that it...

One of the strong points of the MCM is that it... provides guidelines covering aspects of the entire catalog record while the other resources are more focused in their scope.

One of the strong points of the MCM is that it...

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Figure 1. AACR2 is indeed "flanked" on Robert Karrow's proverbial five-foot shelves by "manuals, guides and rule revisions." This table shows which resources the map cataloger may turn to for help in creating a map cataloging record to national standards.
History Decision Table

<table>
<thead>
<tr>
<th>Map title</th>
<th>History map?</th>
<th>Publication date</th>
<th>Classification</th>
<th>Notes</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Battle of Bannockburn</td>
<td>YES</td>
<td>1989</td>
<td>G5771.S34 1989</td>
<td>Use date of publication even though Battle has single date</td>
<td>Scotland-History-Battle of Bannockburn, Battle of 1314-Maps.</td>
</tr>
<tr>
<td>The Scotland of James I</td>
<td>NO</td>
<td>1989</td>
<td>G5770 1406</td>
<td>Date of James' accession</td>
<td>Scotland-History-Stuarts to the Union.</td>
</tr>
<tr>
<td>Scotland under the Stuarts</td>
<td>NO</td>
<td>1989</td>
<td>G5770 1707</td>
<td>Choose later date for call number</td>
<td>Scotland-Maps.</td>
</tr>
<tr>
<td>Scotland touring map, 1989-90</td>
<td>NO</td>
<td>1989</td>
<td>G5771.P2 1989</td>
<td>Date of situation reflected by date of publication, map intended to be used in 1990 as well</td>
<td>Scotland-Road maps.</td>
</tr>
</tbody>
</table>

Figure 2. A decision table of assistance in assigning call numbers and subject headings to historical maps. (Library of Congress 1991, 1.15)

Subject Headings

DECISION TABLE

<table>
<thead>
<tr>
<th>Map subjects</th>
<th>Existing headings</th>
<th>Heads used</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>A, B</td>
<td>A, B</td>
</tr>
<tr>
<td>b</td>
<td>A, B</td>
<td>A, B, Z</td>
</tr>
<tr>
<td>c</td>
<td>A, B</td>
<td>A, B, Y</td>
</tr>
<tr>
<td>d</td>
<td>A, B, C</td>
<td>A, B, C, X</td>
</tr>
<tr>
<td>e</td>
<td>A, B, C</td>
<td>A, B, C, Q</td>
</tr>
<tr>
<td>f</td>
<td>A, B, C, D</td>
<td>A, B, C, D, R</td>
</tr>
<tr>
<td>g</td>
<td>A, B, C, D</td>
<td>A, B, C, D, V</td>
</tr>
</tbody>
</table>

Note the differences between e and f. Three distinct subjects in a work usually receive the broader subject heading, unless the heading is very much broader than the combination of the 3 individual headings. Four subjects always receive the broader subject heading, regardless of the extra scope.

Figure 3. A decision table for assigning subject headings. If you never understood algebra, you will not understand this table either. (Library of Congress 1991, 4.4)

aware that this is not a "how to catalog maps" manual. It will not provide step-by-step guidance on how to create a map cataloging record. Rather, it expects the user to know standard formats and rules, and it will provide guidelines and examples to help the cataloger make decisions on tricky applications as he/she works through record creation and alert the cataloger to various challenges that are common in map cataloging. Indeed, one tries to use manuals as little as possible because this slows down the cataloging process. Instead these materials should become so familiar to the cataloger that they are only referred to for those pesky questions that do not come up often enough to remember the answers to (e.g., using the 534 original version note field for facsimiles, etc.).

Although it is well organized, the MCM is not a book many people will want to sit down and read from cover to cover. The serious map cataloger will, and anyone who intends to use the MCM should, browse through it and note that the table of contents reveals all of the headings and major sub-headings used in the MCM's text. Users should also scan the list of 16 figures; two of these figures are shown as Figures 2 and 3. Figure 2 shows a useful decision table for help in applying the history subject Cutter "S" and Figure 3 depicts a rather convoluted subject heading decision table.

The cataloger should review the index and definitely follow-up by reading any entries that are puzzling. There are some enigmatic index entries (due to the in-house nature of the manual) such as "bettering," apparently a convention used in LC corrections procedures. One of the more intriguing index entries is "During a war" which leads the reader to a discussion about the use of the "S" subject Cutter for historical maps.

There is no entry in the index that brings together the few items in the
Appendix B on less-than-full level cataloging may be of interest to those contemplating minimal-level cataloging for their own collections...

The appendices on copy editing procedures may also be of interest in light of the consideration by LC to begin using copy cataloging for maps (as well as other materials) at some point yet to be determined (Rankin 1991, 22). The final appendix on content designation nicely pulls together into one place lists of MARC tags and indicators, language and country codes, and a handy page on ending punctuation. Coding examples are given for the 007 field for several types of reproductions, i.e., "aj-azza for positive photocopy map on paper" (Library of Congress 1991, E.19). Also in Appendix E, the cataloger finds a useful reminder that inputting minutes, seconds, feet, and inches requires escape characters, not apostrophes and quotation marks.

Chapters 1 and 4 of the MCM are about classification and subject access, respectively. These are especially welcome since Cartographic Materials does not cover these aspects of map cataloging. Examples given within these areas are useful in that they give both classification number and subject headings.

The list of subject Cutters discussed should be expanded. For instance, the entire "C" range of subject Cutters for physical sciences is nowhere to be seen. In addition, it
The cataloger should use the MCM and Cartographic Materials hand-in-hand particularly when working on the descriptive area of a cataloging record.

seems more logical to include the information about aerial views (subject Cutters A3 and A35) in Chapter 1 with the other subject Cutters rather than separating it out into Chapter 9 on special treatment.

There are useful paragraphs about classification and subject headings for coasts, as well as the statement “Class maps of Southern California or Northern California in G4360 or G4361 as appropriate. Do not use G4362.5 or G4362.N” (Library of Congress 1991, 1.7). This is especially frustrating because there are separate subject headings for “California, Southern” and “California, Northern.” Also on the topics of California and subject headings, note the MCM’s suspiciously detailed entries on the subject of wine. The reader gets almost a complete page discussing subject headings and cutters including viticulture, vineyards, wine and wine making, wine districts, wine industry and wineries! (Library of Congress 1991, 4.14-4.15) Progress can be made in the area of subject heading revision; it is most helpful that “geology, structural” may now be subdivided geographically — unfortunately, “geology, stratigraphic” still may not.

When putting together classification numbers, the cataloger is given assistance in creating a scale symbol for map series/sets. In addition to the usual scaled sets:

For a map series/set composed of maps for which the scale is not expressed as, or based on, a representative fraction (e.g., Scale not given. Not drawn to scale, or a non-linear scale) use the designation so00 as the scale value in the call number. (Library of Congress 1991, 1.19)

Also useful for classing maps is a section on creating item cutters for proper shelf listing order when entry is under a numeral, initial, or acronym. G&M makes additions to its call numbers for special vault collections in the Division. In the list of collection names in the MCM, the Erwin J. Raisz collection is erroneously called the Edwin J. Raisz collection (Library of Congress 1991, 1.23).

Chapter 2 works well in conjunction with Cartographic Materials in the area of description. When dealing with the title of a multisheet set where one element on each sheet differs, the cataloger may replace that individual sheet information with a more general description for all of the sheets:

Comprehensive plan map [name of township] Marion County, Indiana (Library of Congress 1991, 2.2)

In this case, the wording is placed in brackets rather than omitting the words and using an ellipsis.

Also found in Chapter 2 are some helpful Latin terms and contractions seen occasionally on older materials for cartographer, engraver, and printer/publisher. Guidance on the projection statement is given: “the first word and any proper names within a projection statement are capitalized” (Library of Congress 1991, 2.5). This advice differs from examples given in AACR2 and Cartographic Materials in which only proper names are capitalized; the first word of the statement is not capitalized if it is not a proper name.

When describing a map under other physical details, grammar should be uniform. In this sample, MCM is directing the cataloger to be consistent when using plural and singular forms.

2 maps: photocopies
1 map on 2 sheets: photocopy (Library of Congress 1991, 2.14)

The cataloger should use the MCM and Cartographic Materials hand-in-hand particularly when working on the descriptive area of a cataloging record. For example, Chapter 3 talks about notes in the catalog record. There is a good discussion on punctuation and form of notes and the use
of notes to justify other portions of the catalog record. The MCM provides a list entitled “Order of Notes” in which it lists the categories of notes in prescribed order but then lists sample types of notes within these categories in alphabetical order. The MCM says “the order of notes within these categories...is determined by considerations of style, aesthetics, readability, etc.” (Library of Congress 1991, 3.4). Cartographic Materials nicely lays out an order for notes within these categories that is different from the alphabetical order found in the MCM (i.e., “Shows...” under nature and scope of the item should come first.)

The MCM allows for the use of a note “Relief shown by satellite imagery.” It would be helpful to know how G&M codes the fixed field for relief for such a note. Still on relief notes, the standard note “Relief shown by contours” is not used when “contouring is the only method used to show relief,” and the contour interval can be quoted.”

“Contour interval 15 feet.”

but

“Relief shown by contours and shading.”

(even though the contour interval may be stated in the work)

(Library of Congress 1991, 3.10)

The MCM added a compass diagram to the 1979 WAML documentation’s explanation on map orientation. Other information on notes includes a paragraph on simplification in which catalogers are advised to simplify contents notes as complicated notes “tend not to be read” (Library of Congress 1991, 3.43). Consider, however, the importance of keyword searching in note fields for insets or ancillary maps that are not being accessed through subject headings.

Finally on notes, combining simple and structured notes into one note is not allowed. For example:

“Includes index and col. ill.”

and

“Insets: Tallahassee — Miami — Ft. Lauderdale — Florida’s Keys.”

not


Chapter 5 covers descriptive access and includes a helpful section explaining series tracings for titles that include a representative fraction. The punctuation used in this case is important for filing order in catalogs.

Chapter 6 on numbers is pretty straightforward and gives the reader useful insight into some of the numbering conventions of government agencies, including Government Printing Office printing codes.

Chapters 7, 8, and 9 are on sets/series/serials, facsimiles/photoscopies/reprints, and special treatment. These chapters also expand, through the use of specific examples, discussions found in Cartographic Materials on these topics.

Chapter 7 has a useful section on differentiating between sets/series/serials. It also tells, for instance, how G&M handled the National Geographic Society’s Making of America series — one copy classed as the series, second copy classed (and presumably cataloged) individually, G&M apparently kept the contents notes current in the series record to include all new sheets as they came in. Conversely, each individual sheet record included a note referring to the series title and call number.

Also in Chapter 7 is a good explanation of the standard map series designation system (SMSD) and how it is dealt with in catalog records. SMSD’s are not traced as a series but instead as a variant title. This is a change for G&M, as one would see if he/she is familiar with some of the
The Library of Congress is a pragmatic institution; it catalogs only what it collects, and since G&M does not actively collect remote sensing imagery or digital data it does not catalog it.

The completion of "map" collections is changing rapidly in the US. today as the federal agencies upon whose generosity we have depended for many years go digital as quickly as they can. Most notable in this group are the U.S. Geological Survey, the U.S. Bureau of the Census, and the National Oceanic and Atmospheric Administration (its active sub-units such as the National Geophysical Data Center). Even before this began happening, many university collections had been collecting aerial photography that seemed to multiply faster than librarians could keep up with it. Thus many catalogers across the country working with maps are also faced daily with the challenge of bringing other formats of spatial data under bibliographic control. These formats include aerial photography, satellite imagery, images on film, and digital data on tape (reel, cartridge) and compact disc — to none of which does the MCM speak.

The Library of Congress is a pragmatic institution; it catalogs only what it collects, and since G&M does not actively collect remote sensing imagery or digital data it does not catalog it. While this is very understandable at the same time it does leave the many librarians who do collect such data in a quandary. The MCM addresses only one facet (albeit a very large one) of spatial data. G&M’s cataloging is superb, and the country’s map catalogers depend on it, not only to help catalog map and atlas collections quickly but also as a touchstone — a way to measure their own cataloging.

More practically, setting up and maintaining cataloging policy is a time consuming task, which is probably why so many libraries look to the Library of Congress to lead them in this area. Currently, the collections that include non-paper spatial data do the best they can in creating systems to improve accessibility. Librarians/curators get together and say, in effect, “This is how I do it — what do YOU do? And what about dealing with this pesky situation?”

When they can, librarians attend or give workshops (with the givers learning as much as the attendees!). For example, the “Workshop on Remote Sensing Imagery: Identification, Control and Utilization” was given on June 22, 1990 at the Newberry Library in Chicago. Holding workshops like this and networking with colleagues will help spatial data librarians move their collections forward toward the goals of control and access for all spatial data materials, no matter what the format. A prime example of this kind of collegial interaction is the Canadian Committee on Geomatics which has made considerable strides forward in the cataloging of spatial data in digital form.

When AACR2 came into being, the
Spatial data librarians are poised at yet another break point where "cartographic materials" does not adequately include all those materials for which they are responsible...

G&M is to be commended. Publication of the MCM represents many years of dedication and hard work by relatively few people. A volume that comes out of the Library of Congress carries with it a special status and visibility that can help focus attention on its subject matter. The MCM has joined Cartographic Materials in helping to provide a common base for Anglo-American map catalogers and help them continue to catalog maps at an ever increasing rate. These two volumes are so valuable for "map" catalogers that catalogers dealing with spatial data in other formats dearly long for similar guidelines. The MCM is LC's internal cataloging manual developed over twenty years in the Geography and Map Division. In this respect, the Map Cataloging Manual is G&M's autobiography and not a leadership manual for the spatial data cataloging community. The challenge facing spatial data catalogers, currently without the help of the LC's Geography and Map Division, is to develop that leadership manual.

NOTES
2 Telephone conversation with ALA Marketing and Publications March 18, 1992. Unfortunately, ALA did not have statistics available noting if this number included copies that they sold to co-publishers Canadian Library Association and The Library Association in London. If not, the 1844 number of copies sold could be low.
4 Telephone conversation with Stanley D. Stevens, January 29, 1992.
Cartographic Citations
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By Suzanne M. Clark, Mary Lynette Larsgaard, Cynthia M. Teague
Published by the Map and Geography Round Table
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The beauty of this well-illustrated work lies in Suarez’s success in synthesizing cartography and history, allowing the reader to glimpse the past through the interpretation of diverse early maps. The maps, portolan charts, and globe, all selected from the Sidney R. Knafel Collection, span every aesthetic mode and include the well-known as well as obscure. “Any collector or dealer will find this a valuable addition to their reference library . . . more than 300 footnotes and an extensive index evidence just how wide-ranging this work is” (David Jolly). An asset for anyone interested in carto-history.


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The one-year project seeks to introduce, educate, and equip librarians with GIS skills.

The Association of Research Libraries recently initiated the ARL GIS Literacy Project. The one-year project seeks to introduce, educate, and equip librarians with GIS skills. The increasing reliance upon GIS by multiple communities including federal agencies, requires that research librarians become effective users as well as educators of these resources. The ARL Project introduces these capabilities to a limited set of research libraries and seeks to:

- develop a core of GIS professionals in the library community willing to lend time and expertise to new applications, user training, and education programs relating to GIS;
- stimulate and encourage the establishment of centers of excellence for GIS information;
- promote research, education, and the public right-to-know through improved access to government and related information;
- initiate library projects to explore new applications of spatially referenced data;
- introduce GIS to public, academic, research, state, rural and large urban libraries to address the diverse information needs of disparate user communities.

Palm Springs was the scene in early June for the launching of the ARL GIS Literacy Project in which 31 research libraries are participating. Meeting in conjunction with the Environmental Systems Research Institute, Inc. (ESRI) User Conference, participants began the week with a two-day training session in GIS and ArcView software conducted by the staff of ESRI.

The ARL GIS Literacy Project grew out of several years of discussions by the membership of the ARL concerning how to address, introduce, and integrate electronic services into depository libraries. An ARL report, Technology & U.S. Government Information Policies: Catalysts for New Partnerships (ARL, 1987) examined existing information policies and proposed several new approaches to the delivery of government information via libraries. The report stimulated a dialog in the community that continues today.

The ARL GIS Literacy Project seeks to present a new model for approaching existing problems while introducing new services and capabilities into research libraries. The first objective of the Project is to address current needs. At an October 1991 Information Policies Forum, ARL directors explored ways to provide effective and meaningful access to government information and in particular, to Census data. The ARL Project was designed and developed based on these discussions.

In partnership with GIS vendors and in particular with a leadership role from ESRI of Redlands, California, ARL framed a carefully structured program to provide training, data, and technical support that will permit each participating institution to experiment and model a GIS program to suit local needs. The Project draws heavily upon an earlier TIGER Test Project designed and managed by Donna Koepp of the University of Kansas. In addition to being a participant in the Project, Ms. Koepp is a Visiting Program Officer on the ARL Project providing advice and guidance to ARL staff.

In response to ARL’s announcement seeking 25 participants for the
The goal of these discussions was to identify user information needs in order to design a product to meet many of the research library community's requirements.

Project, well over 60 research libraries indicated an interest in the Project. Libraries offered to invest in needed resources and to dedicate staff to undertake a significant local effort to explore GIS applications with library users and to serve as resource people for other libraries that may subsequently elect to offer GIS services. In response to the high level of interest, ARL with ESRI agreed to expand the Project to accommodate the need of the research library community.

Phase I participants include 31 research libraries located throughout the United States. The development of Phase II of the Project is under discussion.

Representatives of each of the 31 participating libraries attended the two-day workshop on June 6 and 7 in Palm Springs, and many stayed for the Twelfth Annual ESRI User Conference which followed. The program for the workshop was planned by Donna Koepp, Prue Adler, Patrick McGlamery of the University of Connecticut, ESRI staff and Duane Marble of the Ohio State University. It was designed to provide as much hands-on experience as possible with the software following a tutorial on GIS by Dr. Marble, a leader in the GIS field. The tutorial was an excellent introduction to GIS particularly given the wide range of experience and knowledge of the group. The session also provided an excellent opportunity for the development of a clearer understanding of the nature and type of use anticipated in research libraries.

The workshop training was conducted by the ESRI ArcView design team. There was an opportunity for extended discussions with the ESRI staff concerning product development, especially with the new ArcCensus product. The goal of these discussions was to identify user information needs in order to design a product to meet many of the research library community's requirements. ArcCensus will include data from all 50 states, for tracts and block groups with information from STF 1A and 3A. This new product will support many of the research libraries' immediate information needs.

In the week that followed the week-end training session, participants enjoyed meeting ARC/INFO users from around the country and the world. Special efforts were made for each library participant to meet and get to know users from their respective home regions. Many library participants will join their home area users group for the technical support offered to the ARL GIS Literacy project in their library.

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Rare Americana, Antique Maps, Exploration - Catalogues Issued
Cartographic Citations: a Style Guide
Suzanne M. Clark, Mary Lynette Larsgaard, Cynthia M. Teague.
Chicago: Map and Geography Round Table, American Library Association, 1992. 23 pages.
ISBN 0-8389-7581-X. $10.00

Cartographic Citations is a welcome source for both the scholar and the librarian. With the increasing use of cartographic materials in a variety of formats such as maps, aerial photos and digital areal data files, the question of how to reference material is becoming complex. Whether one is doing research that involves the use of cartographic materials, or assisting those doing the research, the question of how to cite cartographic material has needed the answers that this book provides.

Of the many bibliographic style guides available, none give the amount of detail for cartographic resources found in this publication. In fact, some of the major style manuals, such as The Chicago Manual of Style, do not address cartographic materials at all. Other guides give limited treatment for a few particular types of resources, such as printed maps. For example, the MLA Style Manual has a very brief section on maps and charts which recommends treating maps and charts like anonymous books and adding the appropriate label (e.g. map). Readers are referred to A Style Manual for Citing Microform and Nonprint Media for items such as globes and models (Achtert 1985, 159).

Archival Citations is a more specialized style guide from Canada giving citation guidance for documents at the Public Archives of Canada. Attention is paid to cartographic materials in greater detail then the previously mentioned guides by addressing elements that are particular to maps and by illustrating how to cite maps with some good examples. This is a vast improvement. However, once again printed maps are the only cartographic medium addressed.

These examples demonstrate quite clearly the need for a citation guide that specifically addresses the whole realm of cartographic materials. Two of the most widely used style manuals simply do not provide the information needed to cite the different types of media found within this area. One does not deal with maps at all, and the other does not discuss any map specific information. The third example given is attempting to furnish more help in this area, but the focus of the book is broader than cartographic materials. Because of this lack of assistance in citing cartographic resources, and because of the aforementioned increase in use of these materials, the authors of Cartographic Citations state in their introduction that “there is demonstrable need for a citation guide to assist map users” (p. 5). This is indeed that guide.

The first thing one notices is that Cartographic Citations addresses all types of cartographic materials, including those on the cutting edge of cartographic technology (e.g. computer spatial-data files). Automation is changing the way all types of information are created, stored, and disseminated, and cartographic resources are no exception. This citation manual provides guidance on how to refer to even the newest forms of cartographic information. All formats are covered and one of the primary benefits of this guide is its comprehensive nature.

Equally important is the easy-to-follow format of the book. The authors have kept it simple without sacrificing the thoroughness needed.
The citation guidelines are the meat of the work, but there are other tasty morsels of information.

This makes the guide accessible to a wide audience. Students from the junior high school level up through doctoral programs, as well as teachers, librarians, and researchers can all use this guide. It is clear, concise, and applicable to anyone using cartographic materials in their research.

One reason this guide is so easy to use is that each section begins with an example called the “basic form.” This form establishes the structure of the citation using generic terms such as “author” and “title.” According to the introduction, “the basic form gives the proper placement and punctuation of the elements of the citation” (p. 6). The examples that follow in each section show how the basic form is adapted to specific references.

A third benefit of the guide is flexibility; “general citation guidelines as mandated by The Chicago Manual of Style were followed, particularly when manuals differed” (p. 6). This compliance with a widely accepted citation standard allows the guide to work well with various citation practices.

It must be remembered that the guide is not entirely self-sufficient. The authors state that “this guide is to be used in conjunction with a standard style/citation manual, supplying the reader with specific examples for describing cartographic materials” (p. 6). In other words, Cartographic Citations specifically meets the needs particular to these special resources. Therefore, if recording a name or title that is not in a usual format, another style guide that gives detail in these areas must be consulted. For example, The Chicago Manual of Style devotes many pages in showing how to cite authors, including situations dealing with more than one author, pseudonyms, or editors. Cartographic Citations is primarily concerned with details that are specific to maps and other cartographic materials and thus has left more traditional questions of citation practice to the established manuals.

Physically the 23-page booklet is easy to carry and use. However, slim page count does not indicate a shallow treatment of the material. The guide is packed full of examples. These citation samples are divided into six main categories and then further subdivided. The main categories are: manuscript maps, printed cartographic materials, atlases, models, remote-sensing imagery, and computer spatial-data files. In order to gain some insight into the depth of information, consider the subdivisions under computer spatial-data files: satellite data, software for manipulating spatial data, map-data database, and map created from database.

The citation guidelines are the meat of the work, but there are other tasty morsels of information. An “explanation of map citation elements” gives the user clear and concise information on the various parts of the citation, including those elements particular to cartographic resources. It also explains how to deal with some of the peculiarities of author, title, and date information found on cartographic materials.

Following the explanation section is a glossary with definitions adapted from the Glossary of Mapping, Charting, and Geodetic Terms and from Morris Thompson’s Maps for America. Both the glossary and the explanation of map citation elements make this guide useful for the school age student or novice map user.

Finally, the work concludes with an index. It appears to be a fairly extensive and useful index for the size of the volume. The authors have even included terms from specific examples (e.g. TIGER/Line Precensus Files). This allows someone working with some of these specific resources to access the correct citation format even more quickly.

Cartographic Citations is truly valuable to libraries, schools, and individuals. As cartographic materials continue to become an increasingly used resource, scholars need to know how to cite them. This guide
John Charles Fremont; Character as Destiny.
Andrew Rolle.

John Charles Fremont, the Pathfinder: Explorer, Soldier, Politician, mapmaker. Despite several full length biographies and the inevitable TV miniseries starring Richard Chamberlain, Fremont remains an enigmatic and controversial figure in American history.

His career as an explorer of the American west in the 1840's is probably familiar to most historians of cartography. He also played a still controversial role in California during the Mexican War, in 1856 was the first Republican Presidential candidate, served as one of four Major Generals (the highest rank at the time) in the Union Army during the Civil War, and was Governor of Arizona.

Fremont was controversial in his own day. He evoked fierce hatred in some, fierce loyalty and admiration in others. His biographers have been equally mixed in their feelings. Rolle seems to take a fairly neutral stance on his subject. The work is well done. A wealth of original sources were investigated, some for the first time, as well as the vast secondary literature. The narrative of Fremont's career is straightforward with no obvious tilt towards making the man either a hero or a charlatan (both popular views in the 19th century).

Rolle does depart from traditional historical writing in that he takes what is described as “a cautious psychiatric approach” in analyzing his topic. In Rolle's view Fremont's career can be better understood if he is seen as compensating for being left fatherless at an early age. Rolle maintains, without belaboring the point, that Fremont's struggles were partially the result of seeking support from, yet simultaneously rebelling against, various authority figures he substituted for his missing parent.

Your reviewer is rather skeptical of the entire psycho-history approach essayed by some in the last 20 or so years. The past is enough of a foreign
The past is enough of a foreign country even when solid primary evidence is available... without trying to retroactively psychoanalyze a long dead subject.

Later aspects of Fremont's career were never as successful. He constantly skirted financial disaster, failed as a politician, failed as a General (although he earned at least some respect from his main opponent, Stonewall Jackson), and never duplicated the glory of his early explorations. He claimed to be a friend of Native Americans, but apparently condoned what can only be described as a program of extermination by his scout and ally, Kit Carson.

Rolle's book is well researched and well written. He is neither hero-worshipping nor muckraking and that is history as it should be. The University of Oklahoma Press has done their usual excellent job of book production, including printing on alkali paper meeting Council on Library Resources guidelines for book longevity. The price, in this day and age, seems eminently reasonable. The illustrations, except for a lamentable lack of maps for either context or as evidence, are well chosen and nicely reproduced. One cannot help notice that in the color portrait on the dust jacket Fremont bears a startling resemblance to the Kevin Kline character in the movie Silverado. The work is recommended for all but the smallest libraries.

Charles A. Seavey
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Automap

Automap is an electronic road atlas that runs on IBM PC or compatible computers having at least 512K of free memory running MS-DOS 2.2 or higher and hard disk with at least 4Mb of free space. Monitor support requires one of the following: Super VGA, VGA, EGA, CGA, or Hercules. Automap configures with HP Laserjet,
This program has the advantage of being a combination of a Rand McNally road atlas and a AAA trip tick all in one.

One of the main features is being able to plan out a trip by using the menu options with either the arrow keys or a mouse. Enter the town or city that begins and ends your journey with the option of picking four additional cities to visit along the way. After entering the information the program will display multiple routes to the final destination. The system then gives directions and route numbers to follow from one city to the next. This can then be printed out and used during the trip. The program will also display a map of the specified region with the particular route in a flashing mode visually showing where it is. The map can then be printed out for use on the trip. Displaying one of the alternative route choices will produce a new set of directions and map. Avoiding certain cities or driving on different types of roads and at various speeds are other choices that can be selected from the menu options.

After a map has been displayed pointing and clicking on one of the icons or going into the pull down menus will allow one to window up, down, left or right or zoom in and out on the displayed map. A nice feature that enlarges a small area immediately is done with the arrow keys or the mouse by creating a small window and then pressing the F6 key. The area within the window will be the next map drawn on the screen. When enlarging portions of the map a number of times cartographic errors are more noticeable in some areas. An example is route 61 along the north shore of Lake Superior in Minnesota. It looks as though the road is veering out into the lake. One glaring error in the parks listing is the omission of Yellowstone National Park. It shows up on the map but isn't found in any of the databases! In Pennsylvania, Presque Isle State Park on Lake Erie doesn't show any signs of the bay that's supposed to be there. Maps displaying a small area showing rivers, there's no indication of any size differential. Small tributaries are the same size as the larger river they flow into. It's also hard to distinguish between certain roads and rivers because they've been given the same color and line width.

Regional and state maps displayed on screen are exceptional. For print-out versions of a map it's best to use a laser printer if you have one but using a color inkjet or a 24 pin printer will produce quite acceptable results. It's best to have a fast computer because the time it takes to display a map that has a number of overlays takes a while to draw on screen.

A fun and educational feature of Automap is the geography quiz game that's included as one of the menu options which can be played at a national, regional or state level.
understand in case trouble occurs and the manual isn’t close at hand. This package has a few small bugs but these shouldn’t deter anyone from creating any travel plans or using Automap as an electronic atlas. It’s a fine package that every business with traveling representatives should consider. Libraries and individuals will want to discover Automap too.

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Shedding the Veil: Mapping the European Discovery of America and the World Based on Selected Works from the Sidney R. Knafel Collection of Early Maps, Atlases, and Globes, 1434-1865
Thomas Suarez.

All of the above leads to the hard questions: what is the purpose of this book? Is the collection to be made available for consultation by scholars? After reading the book and looking at the reproductions carefully, it seems better to forget questions and just enjoy it. Assume the title refers to the revelation of the collection of maps assembled by Mr. Knafel. What a collection it is. And, in these days of great cooperative exhibits of major collections of great age, it is wonderful that a single collector could put together such treasures! The author provides readers with good information in a spritely manner. The enthusiasm of the map dealer is obvious in the tone of the descriptions, which is a compliment to the author. The reproductions taken from the Knafel Collection begin with a gorgeous 1434 portolan (shown on the book jacket also) to an 1865 map showing the Massachusetts coast by George Eldridge. In discussing maps between these dates the text is divided into sections as follows: I. “A World called Europe” (the Isidore of Seville map of 1472 to the 1513 Ptolemy map by Martin Waldseemuller); II. “A New World” (from a portolan chart of 1434...
According to David Jolly... it will be sought after by collectors and dealers. In my opinion scholars could learn much from it as well.

commenting on the Atlantic islands to a world map of 1655 from the Atlas marin of Arnold Colom); III. “Early Colonization” (map dated 1583 of Drake’s circumnavigation to the 1865 map noted above). The book is physically attractive, and the sixty-five illustrations (40 black and white; 25 color) are good. Naturally, sometimes the author writes about details in the maps which are difficult to see on the eight and a half by eleven reproductions.

The advantage of working with one collection is that the maps in it are automatically the focus. That fact also removes any criticism of the choice of subject. Describing relationships between the maps is important and here the writer is adept, even lyrical. Sometimes the emphasis on “firsts” strains the writing; for example, in the text about the Waldseemuller map in Ptolemy’s Geographia of 1513, Suarez says that if the map was “conceived prior to 1507, it would represent the earliest depiction of North America as separate from Asia, and if prior to 1506 it would be the earliest printed map to show the New World at all.” Then he concludes: “By 1513, however, this Waldseemuller map was a dated work, of interest only because of the scarcity of maps from the early post-Columbian period.”

According to David Jolly in the flyer about the book, it will be sought after by collectors and dealers. In my opinion scholars could learn much from it as well. The book is a fine example of what can be accomplished by the joint efforts of a collector and a dealer. It is essentially the product of two people, and even though scholars will find points to criticize, they will also find much of great value. The book offers a lively text about some very interesting and rare maps.

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NACIS Annual Meeting 1992

The North American Cartographic Information Society (NACIS) will hold its twelfth annual meeting at the Ramada Inn in St. Paul, Minnesota, October 14–17, 1992. The Society is a young, interdisciplinary organization whose goal is to promote communication, coordination, and cooperation among the producers, disseminators, curators, and users of cartographic information. The NACIS membership includes professionals from government, academic and private organizations in Canada, the United States, Mexico, the Caribbean, and Central American Nations.

The program for this year’s meeting will include such topics as cartographic activities in Latin America and Canada, spatial development in children, cartographic education, design, mapping software, geographic information systems, navigation, and map library technology. There will be a mixture of contributed papers, invited papers, keynote speakers, poster displays, panel discussions, exhibits, and field trips. In addition a full day workshop on animated cartography will be offered (registration for this workshop is limited).

For program and registration information contact Dr. Jeffrey C. Patton, Program Chair for NACIS XII, Department of Geography, University of North Carolina at Greensboro, Greensboro, NC 27412. Telephone: (919) 334-5388.
In Memoriam — John Brian Harley, 1932-1991

On December 20, 1991 the cartographic community lost one of its most brilliant lights and I lost a good friend and teacher. As Brian Harley was driving to his office in the Geography Department of the University of Wisconsin-Milwaukee, he suffered a massive heart attack and died at the wheel of his car.

John Brian Harley was born in Bristol, England, grew up in Staffordshire and attended the University of Birmingham where he received a B.A. (Honours) degree studying geography and history. He went on to receive his Ph.D. there in 1960. Most of his professional career was in academe, beginning at the University of Liverpool, then to the University of Exeter, and finally, the University of Wisconsin-Milwaukee. Before moving to Milwaukee, Brian achieved eminence in his field and was awarded a D.Litt. degree by the University of Birmingham in 1985 for “published contributions to the history of cartography and historical geography.” His move to the University of Wisconsin-Milwaukee in 1986 was made possible by several factors, chief of which were the existence of the American Geographical Society Collection at UWM and the proximity of David Woodward in Madison. With the move of the distinguished AGS Collection to Milwaukee in 1978, the University sought a world-class scholar who could supervise research in the collection. When the position was finally approved, Brian Harley became the obvious first choice, and, the attractiveness of this position for him was greatly enhanced by the prospect of being closely situated to his co-editor of the immense History of Cartography project which he and David Woodward conceived in 1977.

With his arrival in Milwaukee, Brian established the Office for Map History on the UWM Campus to administer the grant funded projects which he would undertake in the years to come. The most formidable of these was the (still) travelling exhibition “Maps and the Columbian Encounter” which has been seen by thousands of people across the country. His interest in the cartography of the Native Americans shown in the Columbus exhibition was to be expanded in the “Indian and Inuit Maps Project” for which a planning grant was provided by NEH in 1991. In addition to the major projects, the Office also administered a Visiting Fellowship Program which brought many interesting scholars from around the world to pursue research interests in the AGS Collection, and the “Maps and America” lecture series.

Brian once remarked to me that he liked always to have “something in the hopper,” and, indeed, his scholarly output was truly remarkable, both in quantity and significance. His life was his work and during his work day he rarely strayed far from his desk which was evidenced by the fact that he almost always answered the phone on the first ring. Those who got to know Brian knew that he had, as well, a wonderful sense of humor and a great capacity for enjoying life. We always looked forward to the parties he held at his home at least twice a year. The interdisciplinary approach so evident in his writings was likewise reflected in his guest list—thus, in addition to historians of cartography and other geographers, one was as likely to encounter art historians, philosophers, architects and historians. I shall never forget that Brian’s death occurred the day before he planned to give a large holiday party in his new house.

The same facility with language found in his articles was also to be found in his oral presentations. Here he displayed a highly developed rhetorical style combined with a natural sense of theater. This resulted in his being widely sought as a speaker in Europe and North America. His hallmark trait was the manner in which used his glasses for emphasis as he alternated between his text and liberally interspersed freehand comments. His glasses would be torn from their moorings and vigorously deployed in one dramatic stance or another, soon to be thrust back in place to allow his continuation with the text. It was often anticipated that sometime he would let go and the glasses would go sailing across the room, but this never did happen.

With the news of his passing, friends worldwide paid tribute to his memory, and memorial services were held both in Milwaukee and in England. The one in Milwaukee attracted friends from as far away as New York State. As a student of his, I greatly treasured the privilege of having been able to work with him, and will sorely miss his wise counsel now that he is gone.

Christopher Baruth
American Geographical Society Collection
University of Wisconsin-Milwaukee
The Final Word
Jenny Marie Johnson

Libraries are an environment full of materials and procedures which "meet standards." Standards have two purposes, to assure quality and to ease barriers created by differences. From the paper that maps are printed on, through the accuracy of data depiction, to the materials used to preserve maps, everything aspires to equal or exceed established criteria. Some, but not all, of these standards have been established by members of the library profession. Others have been handed down by international or federal agencies.

Libraries revolve around sets of standards entitled MARC and AACR2. Written by libraries for libraries, they are the structure through which metadata about holdings and contents is constructed. Data can be shared worldwide without the need for fluency in dozens of languages because of rules governing fields, subfields, and punctuation. The new Map Cataloging Manual from the Library of Congress will assist catalogers in interpreting both the accepted set of standards and how the standards have been applied by the creator of a large proportion of catalog base data.

Map library organizations are creating standards, too. In 1987 the Special Libraries Association Geography and Map Division published its "Standard for University Map Collections" after seven years of committee work. This set of standards provides definitions with commentary and a bibliography but, unfortunately, does not provide specifics such as number of square feet required for patron use or appropriate percentage to determine when drawer space is overly full.

The American Library Association's Map and Geography Round Table (MAGERT) followed up on its publication of Guide to U.S. Map Resources in 1986 by forming the Cartographic Statistics Task Force. This group created a suggested statistics keeping form, which has appeared in base line and Documents to the People, to assist map libraries in tracking their growth and also to improve the quality of statistics reported on surveys such as that for the Guide or the survey distributed by Charles Seavey early in 1992.

MAGERT has tackled standards on another front. Cartographic Citations: A Style Guide was designed to work hand-in-hand with standard guides to citation styles such as The Chicago Manual of Style and The MLA Handbook for Writers of Research Papers.

Charles Seavey (1992) used the statistics found in Guide to U.S. Map Resources, second edition, to generate rankings of Association of Research Libraries (ARL) map collections. Using standard performance measures and statistical techniques, he showed that map collections do not receive support in a proportion equitable with the support for the rest of the library. Seavey intends to continue this work by distributing annual surveys to ARL map collections and then compiling the results as ARL does not collect information on cartographic formats. By collecting concrete statistics, creating ways to cite cartographic resources similar to the citations for books, and providing examples of quantifiable need, map collections will become stronger participants in a library world full of books.

There is other work needing to be done. As pointed out in "The Map Cataloging Manual: Autobiography or Leadership Manual" a standard format for cataloging digital spatially referenced data must be developed. Map collections are either receiving
this kind of material as depository items or are purchasing digital information; just as with any other library item, these materials must appear in the library catalog. Because of current and probable future involvement in GIS, librarians should also consider working with generators of data to provide accurate and meaningful metadata describing data sets, their collection parameters, and techniques used for data manipulation. Looking toward tomorrow or the next century, standards will continue to evolve as needs are defined and solutions to problems are found.

LITERATURE CITED
