Library Influence on Museum Information Work

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Abstract

Contemporary literature on the divergence of libraries, archives, and museums over the course of the twentieth century credits the rise of distinct professional practices required to handle different physical forms. This paper explores the extent that librarianship influenced museum information practices in a predigital era. Instead of divergence, I find examples where museums adapted library methods to fit their needs instead of developing their own set of professional practices. Because museum professionalization placed an emphasis on discipline-based university training, information work in museums has been incorporated into nonuniversity technical education and on-the-job training programs. That this divergence of information work from academic preparation has fallen along gender lines requires additional attention.

The rise of digital media has encouraged a reexamination of the distinct roles that libraries, archives, and museums have to play in our cultural landscape. A common narrative argues that these institutions emerged from a shared past and diverged because of the necessities of managing different kinds of materials for different audiences (Given & McTavish, 2010; Rayward, 1998). The divergent paths were further reified through the process of professionalization over the course of the twentieth century. Because digital media can be managed in a more universal way, Rayward (1998) suggested that it could facilitate a reintegration of libraries, archives, and museums (LAM)—at least from the perspective of users and researchers. While individual projects such as the Digital Public Library of America and Europeana demonstrate the feasibility of integrating LAM collections, a wide gulf still exists in the training and preparation of professionals in each field (Marty, 2007b; Trant, 2009). The emergence of

digital environments has created a new recognition of the importance of information in all LAM sectors and the need to train professionals who can address information problems (Marty, 2007a, 2007b).

In this paper, I have narrowed the focus to look more closely at information organization practices (cataloging and classification) and how libraries influenced the development of museum practice.[1] Other treatments of LAM convergence often look broadly at libraries, archives, and museums as memory institutions and find ontological and epistemological distinctions that suggest a divergence of practice. The process of professionalization itself is also credited with dividing museums from libraries. By looking specifically at information organization practices, I find that museums frequently used libraries to reflect on their practice and supply inspiration to solve information organization problems. Because librarians began developing an independent sense of information organization principles prior to museum professionalization efforts, they were able to shape museum professionals' understanding of their information problems and solutions. Because information problems remained outside of the areas considered important for museum training, libraries, librarians, and librarianship would continue to play an influential role despite the divergence of libraries and museums as cultural organizations. Librarians were also well situated to play this role because they began to develop a sense of themselves as a "meta-field" that dealt with information problems, regardless of the content or the context (Bates, 1999).

In order to understand how libraries had a far-reaching impact on museum practice, I present two trajectories of development. The first trajectory leads from informal incorporation of library techniques into museum information management practices during the early twentieth century. In particular, Melvil Dewey directly and indirectly shaped the development of classification systems used for historical/ethnographic museum collections. As these kinds of collections grew rapidly in the post–World War II era, the development of computerized classification and information retrieval systems would draw on the expertise of library and information science. Rather than divergence, I find an ongoing dialog between museum and library professionals about these information practices.

The second trajectory examines the impact of John Cotton Dana's Newark Museum apprenticeship program. As museum workers debated how to organize educational and training programs, Dana developed a program that tightly wove curatorial, educational, and library practices together. Graduates of the Newark program would establish the guidelines for the documentation of museum collections used throughout the country. The strength of these systems at the Metropolitan Museum of Art and Museum of Modern Art would help initiate major efforts to develop museum automation efforts.

If museums and libraries shared information organization expertise

throughout the twentieth century, how then do we explain the sense that these are divergent practices that need to be converged? Perhaps, it is not a question of divergence of libraries from museums but rather of the stratification of information workers that came about as part of the professionalization process. Both museums and libraries faced pressures to create university-based educational programs that would garner respect from other professions. However, this emphasis on elite education labeled certain kinds of information work (i.e., cataloging and other technical practices) as subprofessional. Museums embraced this division to emphasize disciplinary training in art, history, or the sciences for curators, but left information problems to on-the-job training or other nonacademic educational efforts. The extent to which information problems in museums are rooted in internal professional divergence (i.e., the divergence of professional/subprofessional roles) rather than a divergence from other professional groups deserves additional attention.

Museum Information Practices at the Turn of the Century

At the close of the nineteenth and beginning of the twentieth century, libraries and museums experienced rapid growth throughout the United States. Although libraries began establishing a professional infrastructure in 1876, with the founding of the American Library Association (ALA), museums were still in the process of developing a professional identity. As museums grew in size and number, the challenges of managing their collections, and information about their collections, also increased. In response to this challenge, museums could have looked to corporate information systems or other innovations outside of the cultural arena. Instead, museums turned toward their colleagues in libraries for inspiration. The influence of libraries on museum practice is documented in many of the new publications that appeared at the turn of the century.

G. Brown Goode (1895), Assistant Secretary of the Smithsonian Institution, situated the museum as an institution of learning alongside the university, the scholarly society, and the public libraries. "The Museum," he wrote, "is more closely in touch with the masses than the university and learned society, and quite much so as the public library, while even more than the last, it is a recent outgrowth of modern tendencies of thought" (p. 7). Goode argued that museums were not just public places for exhibition and programming but also "bureaus of information" where interested citizens could conduct research (p. 9). A museum's ability to fulfill this particular function was dependent on its ability to manage information about its collections. "The value of a collection depends on the highest degree upon the accuracy and fullness of the records of the history of the objects which it contains" (p. 54).

To establish such good practices, museums needed accession ledgers

to register new additions to a collection, object files to interpret them, and a card catalog to organize the information in usable ways. However, Goode also devoted much time to discussing published museum catalogs that could disseminate information about a museum's collections to distant scholars.

Card catalog systems in American museums also drew the attention of A. B. Meyer, sent by the city of Dresden on a U.S. tour of museums, libraries, and other educational institutions (Meyer, 1905). Although Meyer found accession ledgers still the dominant form of museum information, he noted that catalogs based on Melvil Dewey's standards appeared in both museums and libraries. Notably, the Field Columbian Museum (now the Field Museum) used a well-designed card catalog system that arranged collections by department using differently colored cards.

Detailed accounts of museum catalogs suggested that while museums used library technology (i.e., a card catalog), they also adapted the system to define modes of access that better fit a specific museum collection (Hoyle, 1891, 1901; Waite, 1900). For example, museums did not directly use the same access points useful for bibliographic collections; instead they defined their own based on the features of their collection (e.g., specimen types, formats, etc.). Several museum catalogs held up as exemplars resulted from the direct involvement of the museum librarian (Waite, 1900; Walton, 1907). Hoyle's (1891, 1901) system for the Manchester Museum explicitly extended the Dewey Decimal System in order to classify natural science specimens. Although library systems were central to the discussion, several authors acknowledge that corporations were also adopting "card indexes" for the management of large amounts of data (Sanderson, 1904; Walton, 1904).

A Trajectory of Museum/Library Information Practices

An example of how library expertise diffused into museum practice can be observed through the interactions of Melvil Dewey with the museum community. Dewey was recognized as a leader in the library field and could be consulted about information problems in museums. Dewey also influenced the development of museum classification systems through his interactions with Arthur C. Parker.

As Secretary of the New York Board of Regents, Dewey oversaw both the State Library and State Museum (Wiegand, 1996). In 1906, Dewey hired Arthur C. Parker, an anthropologist and archeologist, onto the staff of the New York State Museum. "It was undoubtedly Harriett Maxwell Converse who brought Parker to the attention of Melvil Dewey" (Fenton, 1968, p. 11). Converse had worked closely with Dewey to acquire an Iroquois wampum belt for the State Museum and was also acquainted with Parker's great-uncle, Ely S. Parker. While Arthur worked for the American Mu-

seum of Natural History in New York City, he attended open houses that
Converse held for the Friends of the American Indian (Fenton, 1968).
With Dewey's support, Parker was hired by the State Museum to collect
materials and information from New York's Native American residents.

Parker would play a leading role in the development of archeological
and museological practice, as director of the Rochester Museum of Arts
and Sciences, president of the Society of American Archeology, vice-pres-
ident of the American Association of Museums, and director of a WPA
American Indian program. Parker's interests shifted toward the develop-
ment of good museum practices after assuming the directorship of the
Rochester Museum. Parker's understanding of what a museum should
be stood firmly among other Progressive advocates of "public museums,"
such as G. Brown Goode and John Cotton Dana of the Newark Museum
(Porter, 2000).

In addition to adopting new and exciting methods for display of the
Rochester Museum's collections and the development of innovative
educational programs, Parker also took an interest in museum record-
keeping. In "Catalog Problems of Museums," Parker (1934) identifies the
three principles of a museum catalog:

- Serve as a means to identify the object
- To give the object's history & significance
- Provide Classification

Parker outlines several methods of classification used across the country,
noting that "few museums have identical cataloging systems" and that lo-
cal needs dictated variations in practice. With support of the New York
State Historical Association and the Carnegie Foundation, Parker later
published *A Manual for History Museums* that included a chapter on mu-
seum record keeping, a classification system for historical collections,
and a chapter about the importance of a museum library (1935; Thomas,
1955).

Parker's biographer, William N. Fenton, also worked closely with the
New York Iroquois at the New York State Museum. While Fenton com-
pleted his graduate studies, he spent time with Parker conducting re-
search at the Rochester Museum of Arts and Sciences. Fenton would edit
the republication of several of Parker's Iroquois manuscripts in addition
to providing the biographical introduction that linked Parker and Dewey
(Fenton, 1968).

Fenton would continue Parker's leadership in the area of museum in-
formation through the Committee on Anthropological Research in Muse-
ums (CARM). CARM, with funding from the Wenner–Gren Foundation,
provided research scholarships for young anthropologists. During this pe-
riod, the fields of anthropology and archeology changed under the influ-

ence of quantitative methods found in social science. These techniques became increasingly important for archeologists working in salvage archeology, documenting sites disturbed by rapid modern development and highway construction. During the 1950s and early 1960s, archeologists refined their use of quantitative and statistical methods in search of "lawlike generalizations" that could contribute to larger anthropological studies (Clark, 1982). But many of the scholars supported by CARM faced a significant information need because it was difficult to learn about many of the growing collections. In response, CARM organized the first nationwide survey of ethnographic collections in the United States. The difficulty in assembling this information led to the development of some of the first museum computerization projects (Becker, 2006; Freed, Collier, & Fenton, 1977).

The need to identify and describe ethnographic, anthropological, and archeological collections in the United States provided opportunities for the development of new information systems. One young scholar who was drawn to these problems was Robert G. Chenhall. After an early career in corporate computing, Chenhall earned a degree in archeology (Clark, 1982). Chenhall combined his expertise by leading the development of computer systems for archeological collections, first at the National Park Service's Southwest Archeological Research Center and later at the Arkansas Archeological Survey (AAS).

In his work on museum cataloging problems, Chenhall exhibited what Bates identified as "a transformation, wherein they shift their primary focus of attention from the information content to the information form, organization, and structure. The Ph.D. art historian who gets a job working with art history information out of a love of the subject matter eventually finds him or herself working with the core questions of information science, not of art history" (Bates, 1999, p. 1044). For example:

> Because libraries are the principal repositories of the knowledge man has discovered and recorded, investigations of information retrieval techniques have been closely associated with library sciences. However, this is not a necessary application, and we should consider the concepts of information retrieval as having at least potential application to photographs, to magnetic tapes, and to *any other class of objects that convey some materialized representation of man's knowledge.* The association of information retrieval with museums of all types is therefore, quite logical. (Chenhall, 1968, p. 59; emphasis in original)

By bringing a deep understanding of both the field of archeology and the theoretical grounding of information science, Chenhall took a leadership role in advancing awareness and understanding of these concepts within the museum community. With the support of the Wenner–Gren Foundation, Chenhall organized the Archeological Data Bank Confer-

ence and published an introduction to information retrieval and organization problems (1975). In *Museum Cataloging in the Computer Age*, Chenhall notes:

> The simplest form of museum catalog is not significantly different from the 3-by-5 card catalog which is used by most libraries. . . . The problems in creating and using a card file museum catalog are also similar to the problems that libraries encounter with such systems, namely (1) deciding upon the best classification system to use in filing the cards so as to meet the multiple (and often unknown) objectives of multiple users when they eventually search the file, and (2) maintaining reasonable consistency, both interpersonal and intrapersonal. . . . (1975, pp. 9–10)

Chenhall drew an important distinction between *catalog* data and general *documentation* about museum collections by articulating the goals of an information retrieval system. Often the implementation of museums systems was caught between the needs of registrars and the needs of curatorial staff looking for new ways to conduct research on their collections. As Chenhall (1975) wrote: "Data presently contained in most computerized museum catalogs suffers from 'card catalog syndrome.' An attempt is usually made to place all the information that is available about each object into the computer file . . . this, of course, defeats the purpose of the catalog as a finding device" (p. 242–243).

In 1974, Chenhall moved to the Margaret Woodbury Strong Museum in Rochester, New York, to begin work on a new classification system to be used for historical museum collections. Published by the American Association for State and Local History in 1978, *Nomenclature for Museum Cataloging: A System for Cataloging Man-Made Objects* became the main controlled vocabulary used by history museums in the United States. Interestingly, Chenhall grounds *Nomenclature* on both NISO standards for thesauri and a Linnean approach to developing a hierarchy of species. Instead of species, however, *Nomenclature* is organized around the functional role of an object—for example, Tools & Equipment, Personal Artifacts, etc. In constructing *Nomenclature's* hierarchical terms, Chenhall gathered many domain-specific dictionaries, terminology lists, and product catalogs.

Although museums had not articulated their own set of theories about how to organize collection information, from the development of the earliest museums through modern computer systems, museums found answers to problems in library science. In many cases, museum catalogs emulated those found in libraries without a strong theoretical grounding. However in the progression from Parker to Chenhall, we can also see the development of information science as "meta-field" that was able to cut across disciplinary or content-based boundaries (Bates, 1999). The relationships among Dewey, Parker, Fenton, and Chenhall explicitly identified in the secondary literature are at times tenuous and circumstantial. However, they are also suggestive that additional details could

emerge from looking for discussions about cataloging and libraries found in manuscript collections. To date, the authors who have consulted these primary resources had concerns other than information organization practices in mind.

PROFESSIONALIZATION AND MUSEUM INFORMATION PRACTICES

In the early twentieth century, the main route into museum work was through academic training in a specific discipline. The limitations of this approach was that few academic programs provided instruction on the practical business of preparing specimens, developing collections, or organizing exhibitions and public programming. Two newly formed professional organizations, the American Association of Museums (founded 1906) and the College Art Association (founded 1911), began to identify the needs for training "museum workers" (Abbot, Rowe, & Gilman, 1917; Abbot, 1916). Even at an early stage, debates arose about who required training, what kind of training was required, and whether it should take place within a museum or university setting (Schwarzer, 2009).

These debates were not unfamiliar to those involved in library professionalization, especially as the Carnegie Corporation shifted its focus from funding library buildings toward professional education efforts. This shift was partly reflective of changing attitudes about Carnegie's building program and partly the development of Progressive ideas about the role of professionals and expertise (Lagemann, 1989). The nature of the change in Carnegie funding was shaped by several surveys. The first report came from Alvin Johnson in 1914, who recommend that better training and education of librarians would better further the Carnegie's mission instead of the construction of more library buildings managed by amateurs (Lagemann, 1989). Williamson's (1923) *Training for Library Service* further defined what the professionalization of the library field should look like. Williamson's report recommended a two-tier system of professionals and subprofessionals. The professionals would receive graduate training in a university in order to prepare them to be experts in a broad range of topics and library management techniques. Subprofessionals requiring "instruction in cataloguing, in classification, in . . . record-keeping topics" required an undergraduate education, already provided by many library training programs (Williamson, 1923, p. 7). Williamson's recommendations mirrored the bifurcation found in other professions that separated members (often along gender lines, i.e., doctors and nurses, administrators and teachers, etc.). This emphasis on university training was reflected in Williamson's choice to limit his survey to the existing college-based programs to the exclusion of programs outside of academic settings (Lagemann, 1989).

The Carnegie's shift in focus also benefited the emerging museum

field. In the 1920s, Carnegie provided underwriting that would help the American Association of Museums take a stronger leadership role. Carnegie funding helped to move the AAM's headquarters from New York to Washington DC, where it could be more influential. Carnegie support also led to several comprehensive surveys (using modern psychological techniques) seeking to understand how visitors used museums (Schwarzer, 2009). Like the foundation's support of library surveys, Carnegie also funded some of the first comprehensive surveys of American museums and training programs. Many of these studies were initiated under the direction of Fredrick Keppel, who had grown up the son of an art dealer. Keppel, to a large extent, reflected the attitudes of the foundation toward elite professional training and tastes. Therefore the Carnegie Corporation supported training programs at elite universities, such as Paul Sach's museum training program at Harvard.

Leadership for the AAM during this period came from Lawrence Vail Coleman. Coleman had previously served as director of the American Museum of Natural History and the Museum of Safety. With support from Carnegie, Coleman would publish numerous works during the interwar period that provided guidance on museum practices. Coleman's role put him on the front lines of defining what the museum profession should be. Not everyone supported the idea of museum professionalization as a distinct field, however. Alexander Ruthven, a scientist and curator at the University of Michigan, held that museum workers were members of some other discipline performing technical activities in a museum setting (Teather, 1990). Coleman addressed these concerns in the work that culminated this period, *The Museum in America: A Critical Study* (1939). Here Coleman finds that museums lacked a coherent professional identity, in part because of the lack of strong museum training programs. In contrast, Coleman clearly identifies librarians as a "separate professional group . . . that owes [its] solidarity to special training at library school, whence they come with traditions of their own, as well as technique. Theirs is the position in museums most often outlined in vocational discussions" (1939, p. 410). Coleman argues that this lack of coherence among museum workers is partly due to their diverse educational backgrounds in art or science. Many academic programs that prepared curators to be knowledgeable about their field failed to prepare them for the actual work required of organizing exhibits, public programming, or museum publications. Conversely, Coleman argued, this work should not be left to mere technicians with no educational background or training. Again, Coleman turns to libraries as a model:

> Library history—which museum history frequently repeats—may seem to indicate this outcome. Thirty years ago librarians were trained, here at a university and there at a library, without standards—as museum workers are trained at present. Now librarians are trained, as well as

educated, at universities where there are library schools in conjunc-
tion with strong university libraries. . . . The university museums ought
to have all they can do to lay an adequate educational background
in both museum subject matter and museum economy. (1939, pp.
425–426)

Coleman also advocated that museum training programs adopt the tiers
of accreditation recommended by Williamson's report and later adapted
by the American Library Association for accrediting library programs
(1939; Lagemann, 1989).

Unfortunately Coleman's study appeared on the eve of World War II.
For the duration of the war, many of the existing museum training pro-
grams were suspended and the development of new programs would have
to wait until after the war (Schwarzer, 2009). Even when more formal-
ized approaches to museum education (increasingly known as "museum
studies") began to emerge, these programs frequently maintained tight
ties with disciplinary backgrounds. Although these programs did include
some increased commonality for training of specialized roles within a mu-
seum (i.e., curators, conservators, educators, etc.), addressing museum
information problems would be left to others.

The Newark Museum Apprenticeship Program

A key figure in the discussion of museum training programs was John Cot-
ton Dana. At this time, Dana had extensive experience as a librarian, both
at the Denver Public Library and at the Newark Public Library. However,
Dana always imagined the library as an institution that provided the pub-
lic with more than books. In Denver, Dana established a large collection
of photographs and prints. In 1898, Dana accepted a position as director
of the Springfield, Massachusetts, City Library Association that also placed
him in charge of the Springfield Art Museum (Duncan, 2009). This also
brought him in contact with Henry Watson Kent, director of the Peck
Library and Slater Museum of Art in Norwich, Connecticut. Like Dana,
Kent was primarily a librarian that had studied under Dewey at Columbia
(and briefly worked at the Columbia Library). When Dana published *A
Library Primer* in 1899, he included a chapter by Kent that described a
card catalog system for photographs, paintings, sculptures, and other "an-
tiquities." Dana continued to encourage the convergence of library and
museum practice after accepting the directorship of the Newark Public
Library in 1902 (Duncan, 2009).

At the 1917 AAM meeting, the Committee on Training presented its
report, which recommended the development of museum training pro-
grams and the beginning of publications for museum workers. In re-
sponse, Dana produced a sample publication, *The Museum*, in which he
drew a direct connection between museum and library training (1917,
p. 7):

1. Library Training emphasizes fundamental business principles of promptness, neatness, and accuracy. It includes learning the legible hand.
2. It gives some knowledge of general business methods.
3. It teaches cooperation with fellow-workers and gives the student a view of the general problems of institutional management.
4. It teaches the use and value of written records, the most approved methods of recording and cataloging, many kinds of filing and classifying, and the orderly arrangement of material.
5. It provides systematic training in the use of books as tools and knowledge of the sources of information, thus furnishing a basis for specialization.
6. It trains workers to put away personal bias when meeting the public, and gives some hints of the capacities and limitations of the public mind.
7. The modern library exists for those who use it, not for those who manage it; of the new museum the same is true. A worker imbued with the feeling for public service which work in a library will give, fits readily into the public service activities of the modern museum.
8. A worker with library training understands the value of connection between book and the object. She disapproves of the contemplation of one without broadening and enlivening the influence of the other, and she stands ready to make this connection whenever possible.

Encouraged by discussions about the need for professional training programs at AAM, Dana established a museum apprenticeship program at the Newark Museum in 1923. Because of the museum's educational mission, Dana had attracted a former supervisor from Newark's public school system, Louise Connelly, to manage the museum and eventually the apprenticeship program (Duncan, 2009; Hein, 2012). After taking charge of the Newark Museum, Connelly went on a whirlwind tour across the United States to study practices in museums and libraries. Although her focus remained primarily on museums' educational function, Connelly also was responsible for the Newark Museum's apprenticeship program. Unlike other elite academic programs that primarily admitted men, students at the Newark program were primarily women. Some of these women would go on to serve as directors and curators at museums, but many others became the core of museum support staff (Schwarzer, 2009).

Two graduates of the Newark program would have a far-reaching impact on the information practices of museums: Irma Bezold (later Wilkinson) and Dorothy Dudley. Dudley was a member of the first class of graduates from the Newark apprentice program and served as registrar for the Newark Museum before joining the Museum of Modern Art (MoMA) (Museum of Modern Art, n.d.; Schwarzer, 2009). Bezold joined the staff of the Metropolitan Museum of Art as Registrar. At the Met, she inherited a card catalog system that had been established by Dana's old friend, Henry Watson Kent. "He initiated the museum registration meth-

ods by which works of art are today accessioned and cataloged by simply adapting what he had learned from the Dewey decimal system of library registration" (Parsons, 1984, p. 6). Implementation of this plan was given to Margaret A. Gash, a graduate of Melvil Dewey's Albany Library School (Vilček, Harrison, & Hecht, 1970; Wiegand, 1996).

In 1952, Bezold and Dudley were charged by the American Association of Museums to begin work on documenting contemporary museum practices for registrars. This work was presented at the 1954 meeting and led to the publication of the definitive manual used by museums to this day, *Museum Registration Methods (MRM)* (Dudley & Bezold, 1958). *MRM* included instructions on a wide variety of record-keeping topics but also included several chapters on the use of card catalogs and classification systems, many based in practices established at the Met or MoMA and adopted elsewhere (Harty, Vil ek, & Rhyne, 1979; Harty, 1958; Kennedy, 1958).

The reach of the Metropolitan's information practices extends into the digital realm. In the late 1960s, the director of the Metropolitan's *Bulletin* invited Jack Heller to discuss the feasibility of creating a computer-based index of the *Bulletin*. Heller was a faculty member of the Computer Science department at the New York University and director of the Institute for Computer Research in the Humanities (ICRH), a "unique interdisciplinary center" (Institute for Computer Research in the Humanities, 1966). ICRH worked with staff of the Gould Memorial Library to create a new service that informed faculty members about new acquisitions. Using Library of Congress classifications associated with a faculty member's area of interest, ICRH programs would generate a set of cards that would be distributed to each faculty member (Institute for Computer Research in the Humanities, 1966). One of ICRH's specializations was the development of computerized indexes, including the *Répertoire International de Littérature Musicale (RILM)* and the ERIC Clearinghouse (Institute for Computer Research in the Humanities, 1966, 1967). ICRH also had a role in international documentation projects through a project indexing UN documentation at the Dag Hammerskold Library (Institute for Computer Research in the Humanities, 1967).

In 1966 the work of ICRH came to the attention of Charles C. Dauterman at the Metropolitan Museum. Dauterman was interested in conducting an analysis of marks on Sèvres porcelain in the Met's collection. Because of the value of this particular kind of porcelain, it had often been forged, and careful analysis of makers' marks was one way to detect fraudulent copies. ICRH agreed to assist Duaterman with the technical issues necessary to conduct an analysis of marks using computers. The progress of this research would be part of ICRH's colloquium held in the spring of 1967. Joining Dauterman at the colloquium was James Humphrey III, librarian at the Met, who announced plans to index the *Bulletin* using

software developed by ICRH (Institute for Computer Research in the Humanities, 1967).

The synergy that had been developing between ICRH and the Met continued to grow during the spring of 1967. At a meeting hosted by the Whitney Museum, fifteen museums in the New York City area agreed to explore how they might build a shared computer cataloging system. Beginning in the summer of 1967, representatives from the Met, MoMA, and ICRH met to develop a theoretical data model for a shared computer catalog. This catalog and the systems that supported it would be the basis of a new organization, the Museum Computer Network (MCN) (Misunas & Urban, 2010). The Met would play host to the first public conference on museum computing topics. Held April 15–17, 1968, *Computers and their Potential Applications in Museums* (*CPAM*) brought together researchers from the digital humanities, computer archeology, library and information science, and computer science (Metropolitan Museum of Art, 1968).

The Museum Computer Network would attempt to create a compelling argument for a national-level catalog of museum collections. However, even the attempts by the New York members to rationalize the information revealed fundamental weaknesses in the information practices of museums. Although individual museums, like the Met, may have implemented information organization systems for their own collections, each museum's (and in some cases, each department's or curator's) approach to their information organization problems differed in significant ways (Bearman, 2008; Parry, 2007). Because shared computer resources also meant shared information models, tensions among partners also revealed disagreements about the objectives of a museum catalog. Often curators sought to introduce features that reflected curatorial needs and practices that better aligned with humanities computing. These needs were often in conflict with the information organization/inventory capabilities needed by registrars and collection managers (Chenhall, 1975). Despite the efforts of MCN and others, by the late 1970s there were few examples of successful museum automation projects available (Sarasan & Neuner, 1983; Sarasan, 1981). Again, Chenhall reflected on these problems from the perspective of library and information science:

> If libraries have been so successful . . . why have museums been so slow to adopt more modern technology? The basic reason for maintaining library catalog files and museum artifact catalog files is the same: to assist in locating physical objects by providing written records that represent the objects. By contrast [to library practice], those who use museum collections (not the visiting public, but museum registrars, conservators, curators, and scientists) differ among themselves in what they consider important attributes of an artifact or specimen. . . . Library science is a discipline ideally suited to the adoption of this [networking] advanced technique, whereas among museums there is still no common acceptance of the benefits that museums could derive from networks. (Chenhall & Vance, 1988)

The museum community recognized librarianship as a valuable profession that could make contributions to both museum functions and serve as a model for training museum workers. Library-aware training of museum staff, at the Met and at MoMA, resulted in the development of important museum information practices and methods. However, although the approaches to the problems were shared, the specific nature of how they were implemented from museum to museum, department to department varied. In a predigital environment, these systems could operate independently of one another. However, the same leading museum information projects gave rise to the first attempts to network and coordinate museum information. It is at this junction that the unique approaches employed across the museum field create friction that prevents the success of early museum projects.

CONCLUSION

From the earliest period of museum development, the museum community has turned to libraries for inspiration to solve their information problems. As museums began to develop a sense of professionalism in the 1920s, libraries and librarians continued to play this supporting role. Leading journals and publications about museum practice during this period found value in library methods and library training. However, despite the respect that museums held for libraries as a kindred profession, a coherent set of information practices did not become part of museum training. In practice, museums borrowed as needed from libraries, resulting in a diversity in the ways that library concepts were implemented across the museum community.

There is also a subtext present in this narrative that has not been explored here. The Newark Museum apprenticeship program was distinctive not only because it integrated library training with museum training but also because of its primarily female student body. Although museum information problems are often cast as differences among kinds of collections and the information needs of curators working within a research domain, another narrative is suggested by the way that museum information work began to emerge as a specialization within museums. In the tensions between the information needs of curators and the information needs of registrars, there was often a division of labor along gendered lines. Although the feminization of the library profession has received much attention, little work has been done to discuss the gendering of invisible information work in museums. Although many women paid significant roles in the organization of AAM and in the development of important museum collections, museum professionalization may have also introduced gendered divisions among the museum's functional roles.

In general, women in museums frequently assumed "domestic" roles within the organization, as educators, docents, and clerical staff (Taylor, 1994). "Historically the role of museum registrar has been cast as a female

one. It was molded early on by the Newark Museum and further encouraged by the customary decision of museum directors to extend the duties of secretaries and librarians to meet the management needs of growing collections" (Hoachlander, 1979, p. 14). At the time that Hoachlander conducted her research (closely corresponding to the early museum automation efforts), seventy-eight percent of museum registrars were women. Despite their central role in the management of a museum's information resources, the majority of registrars received on-the-job training, with only fifteen percent holding a library science degree (Hoachlander, 1979, p. 19).

Rather than looking for a divergence between libraries and museums, it may be helpful in the future to look at the similarities between museum and library information work, particularly at feminized para/subprofessional activities such as cataloging. How these activities fit into the overall power structure of a museum may also reveal important aspects of how information practices developed. In many cases, information system requirements were caught between the research needs of curators and the information retrieval and management functions of collection managers and registrars. How these tensions were resolved may help us understand the information landscape that museums inherited as they entered the digital era.

Note
1. Museums never adopted Dewey's spelling reforms for "cataloguing." Here "catalog" and "cataloging" will refer to information organization practices (card-catalog, cataloging, etc.), and "catalogue" will refer to the print publications that describe a museum's collections.

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