

**Arbitrary Borders? New Partnerships for Cultural Heritage Siblings – Libraries,  
Archives and Museums: Creating Integrated Descriptive Systems**

by

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## Abstract

This thesis explores the topic of convergence of descriptive systems between different types of cultural heritage institutions — specifically libraries, archives and museums. The primary purpose for creating integrated descriptive systems is to enable researchers to enjoy “one-stop-shopping” for information, being able to access information about cultural heritage resources through one portal, whether the resources reside in libraries, archives or museums. Beginning with definitions of each type of cultural heritage institution and a historical overview of the evolution of libraries, archives and museums and their respective professions, the thesis then provides an analysis of similarities and differences between these institutions with respect to purpose, procedures, and perspective. This analysis serves to clarify the relationship between them. Following these introductory sections, the latter half of the thesis first provides a historical overview of the evolution of each discipline’s descriptive practices with a brief comparative analysis before providing an overview of various methods by which these institutions can create integrated descriptive systems. While differences between the institutions are addressed in the thesis, the overall emphasis is on the complementary similarities between the institutions and the potential for cross-sectoral collaboration that these similarities enable. The overall conclusion of the thesis is that creating integrated descriptive systems between libraries, archives and museums is desirable and well within current technological capabilities. This is demonstrated in part by the systems, methods, and projects that have already been developed, which indicate how interest continues to increase in this area of development.

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## Introduction

This thesis explores the topic of integration of descriptive systems between different types of cultural heritage institution – specifically, libraries, archives and museums. All three institutions have taken great strides to standardize and automate their own descriptive systems internally, but much of the potential for linking these systems has yet to be realized. Why would linking the descriptive systems of these institutions be desirable? Creating descriptions for cultural resources such as books, records, and artifacts is done only partly for internal administrative or managerial purposes; in fact, the primary purpose of description is to enable users to search, find, access, and retrieve such resources. A user would benefit from being able to perform these tasks across institutional boundaries as this would avoid redundancy by streamlining the research process.

By examining the current descriptive systems of libraries, archives and museums, as well as how these institutions are defined and demarcated, this thesis will also demonstrate how arbitrary the divisions between these institutions can be. These institutions have evolved separately because of several factors, including the perceived differences in purpose and function as well as differences in the primary media to which each type of institution caters. Archives and museums differ from libraries in that they deal largely, though not exclusively, with historical artifacts and documentation. However, there is evidence of cross-institutional commonalities in relation to types of their holdings as well as the tendency of these institutions to share physical spaces,

among other things. Currently in some cases, even if items are related by subject or provenance within different branches of the same cultural heritage institution (i.e., an archives and a museum of one particular organization), there are no provisions for linking the descriptions of them. This thesis proposes some solutions for various situations in which having integrated access to descriptive information would be of benefit, particularly with respect to improving access to information for the public.

The first chapter begins by defining each of the three types of cultural heritage institutions – libraries, museums and archives. This is followed by an historical overview of the development of all three institutions. This is discussed jointly, demonstrating how each institution has been influenced by similar forces and trends over time, and additionally how they occupy shared space in the cultural heritage sector of society. In a similar vein, the chapter concludes with an introduction to the historical evolution of the library, archives, and museum professions. This chapter provides important contextual information to help explain how the institutions and their professions have evolved over time to become what they are today.

The second chapter builds upon the contextual information provided in the first chapter by comparatively analyzing the three institutions. This chapter seeks to clarify the relationships between these cultural heritage institutions. How are they similar and different with respect to external purpose and function within society? How do their internal functions and activities compare? How are they perceived by society and how does this affect how professionals in each of these sectors view themselves? This chapter will introduce some ways by which these institutions inadvertently overlap as

well as ways by which they could intentionally converge or collaborate, with significant benefits.

The third chapter discusses the nature of the descriptive practices of each type of cultural heritage institution from a historical viewpoint. It begins by defining what descriptive activities typically entail in each type of institution. Following this, an historical overview is provided, detailing the evolution of descriptive practices in libraries, archives and museums, from ancient times to the present day. The chapter concludes that although there are significant differences between modern descriptive practices in each of the cultural heritage institutions, there are enough similarities to warrant exploring collaborative ventures in descriptive systems, especially in light of fulfilling the overall purpose of these institutions, which is to provide good service to the information-hungry public.

The final chapter explores potential options for creating integrated descriptive systems between libraries, archives and museums. The options are enabled through the management and manipulation of metadata, or the data about the origin or creation of the document, publication or artifact in question. After having provided background information about the nature of metadata and two underlying concepts related to creating integrated systems — semantic and technological interoperability – this chapter provides a discussion of several possible ways to develop integrated systems. These include federated systems, metadata aggregation systems, a collection description method and hybridized versions of these options. The concluding portion of this chapter identifies how these methods have conceptual and procedural similarities as well as introduces

other non-technical considerations related to creating integrated systems and some of the implications of creating integrated systems.

The purpose of this thesis is not to provide comprehensive coverage of any of these topics. Rather, it provides an overview of the most relevant information as an invitation to the reader to become better acquainted with this issue. The issues are explored in a general way with an emphasis on the commonalities between the three institutions and professions, and with due respect for the significant differences between them. The aim is to support potential future partnerships and working relationships. Further, this study does not purport to provide brand new information for the most part, but instead is largely a newly organized and assembled overview of this important issue, to provide a framework for contemplation, and perhaps to inspire keeping an open mind with regard to cross-sectoral collaborative relationships.

Part of the reason why similarities are emphasized in this paper is to help foster a positive attitude among these cultural siblings about such collaborative relationships, since some of this issue's contentiousness is attitudinal. It is hoped that this study will provide a comprehensive introduction to the institutions, their respective professions, and their descriptive practices from a perspective that is supportive of collaboration between the three sectors. Greater collaboration between the three domains can only serve to strengthen the cultural heritage sector overall, as providing an innovative and improved service to the public will only help to emphasize the continued relevance of these institutions in the digital age.

## **Chapter 1**

### **Introducing Libraries, Archives and Museums and their Respective Professions in a Historical Context**

#### **Introduction**

This chapter will introduce the reader to definitions of the three types of cultural heritage institution that are the focus of this study, namely, libraries, archives, and museums. As a corollary to this discussion, the development of the library, archives, and museum professions will be explored. The chapter aims to provide general responses to the following questions. How have these cultural institutions formed over time? What is their purpose now? What type of work do archivists, librarians, and curators do? How have these professions evolved over time? This discussion will provide important contextual information to help the reader to understand these institutions and professions. It will also serve as the starting point of the illustration throughout this study of the commonalities in origin, practice, and purpose that these institutions and professions share.

This chapter will begin with a general definition of each of the institutions. Following these definitions, the historical development of the institutions from ancient times until the present day will be outlined. Lastly, an overview of the development of each of the professions that work in them, predominantly from the late nineteenth century to the present day, will be provided. In so doing, this chapter will identify how

differences between the three institutions and their respective professions came to be stressed over time, particularly in the twentieth century.<sup>1</sup> This will stand in contrast with current opportunities to bring the institutions closer together by capitalizing upon their similarities. Analysis of these similarities will be provided in the second chapter of this study.

### **Defining Libraries**

A library can be seen as “a collection of graphic materials arranged for relatively easy use, cared for by an individual or individuals familiar with that arrangement, and accessible to at least a limited number of persons.”<sup>2</sup> This definition has three important elements: collection, arrangement, and access. Other definitions mention additional aspects of libraries, including how they fulfill an educational function within society, how they engage in information storage and retrieval, how they transmit knowledge, and how they offer a range of additional services above and beyond providing access to publications.<sup>3</sup> Libraries can be further defined as belonging to one of five distinct sectors: national libraries, academic libraries, public libraries, school libraries, and

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<sup>1</sup> It is possible that focusing on the differences between archives, libraries and museums was part of their pursuit of recognition of strong professional traditions and identities. A struggle to establish one’s own identity can often be pursued by posing oneself in opposition to other similar entities. Such opinions were often strongly stated in articles such as: Elio Lodolini, “The War of Independence of Archivists,” *Archivaria* 28 (Summer 1989): 36-47. Lodolini strongly advocates for a separate archival profession, emphasizing the differences between archivists and librarians. A further discussion of how professions are defined in general and with respect to the professions associated with libraries, archives and museums will be presented later in this chapter.

<sup>2</sup> Michael H. Harris, *History of Libraries in the Western World*, 4<sup>th</sup> ed. (Lanham, Md.: Scarecrow Press, 1995): 3.

<sup>3</sup> Peter Brophy, *The Library in the Twenty-First Century: New Services for the Information Age* (London: Library Association Publishing, 2001): 14.

workplace or “special” libraries. Each library has its own dynamic, purpose, and user group.

A national library has several specific functions including collecting and conserving national literature (often through a depository system), producing national and specialist bibliographies, acting as a centre for research, operating a lending service, and providing leadership for other libraries.<sup>4</sup> An academic library is intended to service the scholarly community by providing published materials for the purpose of scholarly research activities. It has come to be known as the “heart of the university.”<sup>5</sup> Although education may be part of the function of a national library, clearly educational pursuits are the core function of academic libraries. The same could be said for both public and school libraries, although mainly for different user groups.

Public libraries have three interconnected roles: education, information and entertainment.<sup>6</sup> Education in this context refers primarily to life-long learning, as public libraries offer informational materials that can appeal to people of any age. Public libraries provide entertainment through the lending of fiction and audio-visual resources and also by offering numerous other types of cultural activities and services including storytelling and exhibitions.<sup>7</sup> Public libraries also help contribute to democracy by providing open access to all kinds of information to all audiences.<sup>8</sup> School libraries are considered to be “intrinsic to the purposes of the school and... a basic service for which

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<sup>4</sup> *Ibid.*, 17.

<sup>5</sup> *Ibid.*, 21-22.

<sup>6</sup> *Ibid.*, 26.

<sup>7</sup> *Ibid.*, 26-27.

<sup>8</sup> For more information about libraries and their role in democracy, see Alex Byrne, “Libraries and Democracy” (presentation, Stockholm, Sweden, November 4, 1999).  
<http://www.ifla.org/faife/papers/others/byrne3.htm> (last accessed August 6, 2007).

the board of education is responsible.”<sup>9</sup> Not only are they important in supporting the educational activities of the curriculum, but are also essential to help foster and promote the literacy skills of the children, helping them to develop a strong appetite for reading.<sup>10</sup>

The last type of library is the workplace or “special” library. These libraries differ in scope and size and include medical, legal, and corporate libraries. They are geared toward a certain profession or institution rather than the broader public. Their purpose is not only to provide information and services to support the activities of such professions or institutions, but they also have a role in the analysis of such information, and thus create new informational materials for use by their clients.<sup>11</sup>

One important point to take from these descriptions of different libraries is that they illustrate how books and other materials are organized together for various purposes for specific audiences. Therefore, libraries are artificial constructs developed and maintained for service to specific portions of the population. This point is significant to consider when comparing libraries to other cultural heritage institutions, namely museums and archives.

A final important component of defining libraries is to explain why they develop in society. As Harris states, libraries have been utilized as mechanisms of social control – they have “frequently been deployed by powerful classes in society in an attempt to represent the world in ways that serve their interests” and “[t]hroughout history powerful religious, political, and social ideologies have motivated individuals and groups to aggressively support the development of libraries as means to some desirable religious,

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<sup>9</sup> *Ibid.*, 31.

<sup>10</sup> *Ibid.*, 33.

<sup>11</sup> *Ibid.*, 34-35.

political or social end.”<sup>12</sup> Harris also posits that libraries have been a means to preserve the cultural memory of a society. They have both stood as symbols of cultural achievement and have acted as a means to extend and further develop that cultural achievement.<sup>13</sup> Gorman, too, discusses this role of libraries in terms of stewardship. He states that libraries must preserve human records and transmit them to future generations.<sup>14</sup> Libraries are also valuable as special markets for printed and written materials. In fact, throughout history there has been a strong belief that libraries should be sustained by the state to support the creation of scholarly and literary works.<sup>15</sup>

### **Defining Museums**

A museum can be defined as “a non-profit making, permanent institution in the service of society and of its development, and open to the public, which acquires, conserves, researches, communicates and exhibits, for purposes of study, education and enjoyment, material evidence of people and their environment.”<sup>16</sup> Thus, the core functions of museums are collection, preservation, study, education, and exhibition. Collecting, in particular, lies at the heart of the museum, as all other functions pertain to managing and utilizing the benefits of a museum’s collections.<sup>17</sup> Like libraries, there are

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<sup>12</sup> Harris, 5-6.

<sup>13</sup> *Ibid.*, 6-7.

<sup>14</sup> Michael Gorman, *Our Enduring Values: Librarianship in the 21<sup>st</sup> Century* (Chicago: American Library Association, 2000): 58-59.

<sup>15</sup> Harris, 7.

<sup>16</sup> International Council of Museums, “ICOM Definition of a Museum,” <http://icom.museum/definition.html> (last accessed May 13, 2007).

<sup>17</sup> Hilde S. Hein, *The Museum in Transition: A Philosophical Perspective* (Washington, D.C.: Smithsonian Institution Press, 2000): 4.

several different types of museums, depending on the type of collection. More specifically, some primarily collect art, while others collect natural history specimens, or artifacts relating to science and technology, or other historical artifacts. In addition, since the definition of museums includes mention of evidence of man's natural environment, collections of living animals and plants also qualify. In other words, zoos and botanical gardens are also types of museums.<sup>18</sup>

In addition, museums share a relationship with fairs and exhibitions, as “each of these institutions [is] involved in the practice of ‘showing and telling’: that is, of exhibiting artifacts and/or persons in a manner calculated to embody and communicate specific cultural meanings and values.”<sup>19</sup> A significant level of interpretation is necessary when deciding exactly how to “show and tell” anything – that is, the act of collecting and exhibiting objects inherently requires making decisions about what to collect and how to exhibit it. Thus, museums, like libraries, are not neutral institutions, but instead are subject to bias that arises from decisions that are made about what to collect and exhibit. In other words, “[a]ny museum or exhibition is, in effect, a statement of position. It is a theory: a suggested way of seeing the world.”<sup>20</sup> Because of this lack of objectivity, museums can be used to shape society according to the dominant interpretations of history, causing alternate interpretations to be in danger of being forgotten or misrepresented.

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<sup>18</sup> *Ibid.*, 3. Including zoos and gardens in the definition of a museum has been a contentious point and is subject to personal preference when interpreting the museum concept.

<sup>19</sup> Tony Bennett, *The Birth of the Museum: History, Theory, Politics* (London: Routledge, 1995): 6.

<sup>20</sup> Sharon Macdonald, “Introduction,” in *Theorizing Museums*, ed. Sharon Macdonald and Gordon Fyfe (Oxford: Blackwell Publishers and The Sociological Review, 1996): 14.

It is important to consider, however, that many modern museums attempt to employ a variety of perspectives and appeal to a variety of audiences. Because of growing awareness of the subjective nature of one's experiences with museum objects, some museum theorists argue that museums should attempt to elicit thoughts and experiences rather than dictate one truth or interpretation.<sup>21</sup> Stated another way, “[v]iewed in a contemporary light, it seems that the museum’s function has become largely catalytic, to render experiences available to visitors without overdetermining the actual nature of those experiences.”<sup>22</sup>

There are three other important aspects of the conceptualization of museums that should be addressed. First, another key component of the idea of an interpreted display is that of performativity. Museum objects are arranged (whether consciously or not) in such a manner as to relay a story or performance about the past. Urry states that “[t]o reminisce is collectively to effect a performance.”<sup>23</sup> Second, it should be acknowledged that museums are inter-disciplinary spaces that can involve aspects of different disciplines including anthropology, sociology, cultural studies, media studies, and others.<sup>24</sup> Thus, museums provide intellectual meeting points for various disciplines as well as physical places for cultural expression amongst culture, study, and entertainment. Last, exploring museums is a method of exploring one's identity: “[m]useums are one medium through which selves and others may be defined – through which the detailed

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<sup>21</sup> Hein, 8, 142.

<sup>22</sup> *Ibid.*, 101.

<sup>23</sup> John Urry, “How Societies Remember the Past,” in *Theorizing Museums*, ed. Sharon Macdonald and Gordon Fyfe (Oxford: Blackwell Publishers and The Sociological Review, 1996): 55.

<sup>24</sup> Macdonald, 6.

identity contest of everyday life may be waged.”<sup>25</sup>

To summarize, a museum is more than a physical space filled with artifacts or relics, “... a museum is a process as well as a structure, it is a creative agency as well as a ‘contested terrain’.”<sup>26</sup> The process that is undertaken is to engage with culture and to interact with a performance of the past as a means of exploring one’s self and the broader societal identity. Given that choices are made with respect to what is collected and how it is displayed, museums are not neutral spaces. A museum is a multi-disciplinary meeting place wherein history and culture are investigated, interpreted, and displayed, and ultimately where one has the opportunity to question and understand one’s individual and collective past.

### **Defining Archives**

According to the Association of Canadian Archivists (ACA), “[a]n archives works to acquire, preserve, and make available material collected under the terms of a particular mandate - whether that be to document a community or business, to reflect government policies, or many other reasons. Archival evidence is based around the concept of a record - which can be a paper document, a photograph, a map, a film, sound recordings, an electronic diskette, documentary art, or an architectural drawing.”<sup>27</sup> What

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<sup>25</sup> *Ibid.*, 11-12.

<sup>26</sup> S.D. Lavine and I. Karp, “Introduction: Museums and Multiculturalism,” in Exhibiting Cultures: The Poetics and Politics of Museum Display, ed. I. Karp and S.D. Lavine (Washington, D.C.: Smithsonian Institution, 1990): 1.

<sup>27</sup> Association of Canadian Archivists, “What is an Archives?,” 2005, <http://www.archivists.ca> (last accessed May 13, 2007).

is missing from this definition is the core tenet that archives preserve records that have been determined to have lasting value; active and semi-active records are the purview of records managers and are located and managed separately. The core functions of archives, then, are to identify, preserve, and make available the recorded evidence of society that has been deemed to have enduring value. Without archives, the historical record of society would be incomplete or otherwise compromised. In performing these functions, archives also fulfill the greater societal function of providing a means by which society's memory can be preserved and providing a means of social accountability.

There are several different types of archives, including public or government-sponsored archives (at the municipal, provincial and national levels), business or corporate archives (i.e., those at banks and other businesses), other institutional archives (i.e., those at universities and hospitals), and cultural community archives, or those of aboriginal persons or other distinct cultural groups, among others. These various types of archives serve a broad variety of users for numerous purposes ranging from personal genealogical research to land claims research and many others.

Like museums, the act of identifying records for archives necessitates that choices be made when making selections and building holdings. Thus, archives, too, are not neutral. The choices made concerning what to acquire and preserve affect the version of history that prevails. Archives typically acquire only a fraction of what is created, largely because of limited resources. Subjectivity affects all aspects of the history of a record. Subjective decisions are made about which records are created in the first place and how they are created. Contrary to traditional archival assumptions, archival records are not

the “natural residue” of daily affairs.<sup>28</sup> Human subjectivity affects records from the time of their creation until their ultimate disposition, which may or may not involve acquisition by an archives. The archivist is also an active force shaping the records, as s/he determines not only what is kept, but how it is described and accessed. Indeed, the meaning of recorded information continually evolves over time within the context of changing societal perceptions, beliefs, and knowledge. Viewed in this way, records are not static entities but rather, as Canadian archival educator Tom Nesmith has suggested, they are “evolving mediation[s] of understanding about some phenomena – ... mediation[s] created by social and technical processes of inscription, transmission and contextualization.”<sup>29</sup>

Archives, therefore, are institutions that preserve and provide access to the segment of society’s documentary heritage that is deemed to have lasting value. The context of the records’ creation, the appraisal process, and the methods by which the records are described and exhibited affects the meaning of the records, which is fluid and constantly evolving over time. Archives are far from neutral playing fields; they maintain a multi-layered version of history that can be interpreted and understood in more than one way.

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Now that libraries, museums, and archives have been defined in general terms, an

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<sup>28</sup> This view originated with modernist thinkers such as Sir Hilary Jenkinson and T.R. Schellenberg, as cited and explained in: Tom Nesmith, “Hugh Taylor’s Contextual Idea for Archives and the Foundation of Graduate Education in Archival Studies,” in The Archival Imagination: Essays in Honour of Hugh A. Taylor, ed. Barbara L. Craig (Ottawa: Association of Canadian Archivists, 1992): 16.

<sup>29</sup> Tom Nesmith, “Still Fuzzy, But More Accurate: Some Thoughts on the ‘Ghosts’ of Archival Theory,” Archivaria 47 (Spring 1999): 145.

overview of their historical development from ancient times to the present day will be discussed. This will serve to enhance the aforementioned definitions of the institutions to illuminate their place and purpose in society, both in past and present times. The historical development of libraries, archives, and museums can be discussed conjointly because, in fact, the reasons underlying the development of these three institutions are often similar, and significant changes or developments in the historical development of each type of institution have often occurred concurrently.

### **The Historical Development of Libraries, Archives and Museums**

The earliest forms of libraries were nearly indistinguishable from archives. Harris posits that the form of early libraries developed out of four different types of graphic collections, namely temple collections, governmental archives, organized business records, and family or genealogical papers.<sup>30</sup> Essentially, these collections of records gradually grew into libraries when other materials of historical, literary, or informative nature were incorporated. Organized archives existed in Egypt and Babylonia before 3000 BCE, and many of these archives developed into what could be considered as libraries before 2000 BCE.<sup>31</sup>

Probably the best-known library/archives of antiquity was the institution founded at Alexandria by Ptolemy Soter around 300 BCE, which consisted largely of papyrus rolls. However, this institution also had a collection of objects consisting of statues,

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<sup>30</sup> Harris, 7.

<sup>31</sup> Ibid., 14.

astronomical and surgical instruments, animal skins, and a botanical and zoological park, which were intended to complement the heart of the research collection, the papyrus rolls and other writings collected by Alexander the Great.<sup>32</sup> This library was established during a period of prosperity and political stability, and was destroyed during a period of instability, specifically during Julius Caesar's Alexandrian War of 48 BCE.<sup>33</sup>

Libraries changed in nature from the relatively large public and private collections of the Roman Empire to the monastic collections of the Dark Ages and the Middle Ages (ca. 400 to 1400 CE).<sup>34</sup> Monastic collections tended to be small and focused on works of religious significance.<sup>35</sup> Whereas libraries of antiquity tended to be for the purpose of preserving literature and knowledge, for enhancing the stature of the state,<sup>36</sup> and for use by literate inhabitants,<sup>37</sup> monastic libraries were cloistered and intended primarily as support for the religious needs of the monks.<sup>38</sup> During this time, too, museum collections tended to be connected to the endeavors of Churches, cathedrals, and monasteries; these institutions collected religious relics, notably through the efforts of religious crusaders abroad.<sup>39</sup> Other collections were privately owned by the wealthy and ruling classes. As

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<sup>32</sup> Edward P. Alexander, Museums in Motion: An Introduction to the History and Functions of Museums (Nashville, Tenn.: American Association for State and Local History, 1979): 6-7.

<sup>33</sup> Fred Lerner, The Story of Libraries: From the Invention of Writing to the Computer Age (New York: Continuum, 1998): 26, 29.

<sup>34</sup> Harris, 57, 89.

<sup>35</sup> Kathryn McChesney, "History of Libraries, Librarianship, and Library Education," in The Library in Society, ed. A. Robert Rogers and Kathryn McChesney (Littleton, Colo.: Libraries Unlimited, 1984): 41.

<sup>36</sup> Sidney Jackson, Libraries and Librarianship in the West: A Brief History (New York: McGraw-Hill, 1974): 10, 19.

<sup>37</sup> For example, in Rome public libraries could be used by literate slaves and noblemen alike. See Elmer D. Johnson, Communication: An Introduction to the History of Writing, Printing, Books, and Libraries (Metuchen, N.J.: Scarecrow Press, 1973): 35.

<sup>38</sup> Lerner, 37, 46

<sup>39</sup> Alexander, 7.

such, access to the collections and scholarship related to the collections was limited.<sup>40</sup>

European universities began to develop in the High Middle Ages, but it took some time for centralized university libraries to develop. They were formed largely through bequest or donation by kings, nobles, bishops, or merchant collectors. Books were not an integral part of the educational process at this time and access was usually severely restricted (i.e., chained libraries).<sup>41</sup> The Protestant Reformation in the sixteenth century helped contribute to the downfall of monastic libraries, many of which were destroyed or dispersed.<sup>42</sup> Private collections were very important during this period as they were highly cared for and developed.<sup>43</sup> Often such collections formed the basis for other libraries such as governmental libraries.<sup>44</sup>

Some national libraries were present during this period. For instance, the royal collections that founded the French Bibliothèque Nationale can be traced back to the fourteenth century under the reign of Charles V.<sup>45</sup> Smaller parochial libraries also developed to support the needs of clergymen.<sup>46</sup> Academic libraries continued to develop especially because of the impact of Enlightenment thinking. There was an increased emphasis on the pursuit of knowledge, and university libraries came to be of greater importance to the academic community.<sup>47</sup> The growth of all of these libraries was also precipitated by the development of the printing press which meant that collection size

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<sup>40</sup> Michael M. Ames, Cannibal Tours and Glass Boxes: The Anthropology of Museums (Vancouver: UBC Press, 1992), 15.

<sup>41</sup> Harris, 107-113.

<sup>42</sup> McChesney, 46.

<sup>43</sup> Lerner, 100.

<sup>44</sup> Harris, 116.

<sup>45</sup> Lerner, 114.

<sup>46</sup> McChesney, 47.

<sup>47</sup> Ibid.

could grow rapidly.<sup>48</sup> Information could be mass-produced and widely distributed, and as a result, the rate and scope of changes in libraries intensified over the years into the late eighteenth century.

Throughout the Middle Ages and Renaissance, museum collections remained largely in the hands of the wealthy private individuals who had created them. These collections — often characterized as “cabinets of curiosities” — tended to consist of exotic and strange objects and specimens from abroad and there was little systematic management applied to care for the collections.<sup>49</sup> With the spread of literacy and the increase in interest among the middle classes in educating themselves, several significant museum collections entered the public domain in the late eighteenth century. A prime example of one such museum was the British Museum which opened in 1753 and was formed from a donation by Sir Hans Sloane.<sup>50</sup>

Early archives like that at Alexandria and others throughout Ancient Greece and Rome were largely destroyed during the Great Invasions of the fifth through seventh centuries. Thus, few documents dating prior to 1000 A.D. survive. European archives began to revive in the eleventh and twelfth centuries due to new political and religious organization including the formation of monarchies and the Christian church as well as a movement from oral to written records for use as evidence. Some kingdoms had archival repositories that primarily contained documents relating to land property and other economic interests. As the administrative structure surrounding the monarchies grew in the sixteenth and seventeenth centuries, the production and maintenance of records

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<sup>48</sup> Harris, 127.

<sup>49</sup> Ames, 16.

<sup>50</sup> Alexander, 8.

became more important, resulting in early proto-national archives being formed.

These developments also sparked a new profession, archival science, as specialized personnel were needed to administer these new repositories.<sup>51</sup>

The impact of the French Revolution and other revolutions of the same time period was that archives began to be seen in a new light. Since democracy and the rights of the people to participate in their governance became important and the archival records in the repositories largely documented the old regime, the historical interest of archival records and the right of the people to access these records became relevant.<sup>52</sup> Soon after, in the early and mid-nineteenth century, archival theory advanced greatly with the formulation of the concepts of respect des fonds, or provenance, original order, and related methodological instructions based on these new theories, such as rules for the arrangement and description of archival records.<sup>53</sup>

Significant societal changes occurred in the late eighteenth and early nineteenth centuries, and these changes had a significant impact upon the formulation and management of libraries, archives and museums. Mass urbanization accompanied the Industrial Revolution around the turn of the nineteenth century as people flocked to cities in search of employment in new industries. Public educational systems, which had been developing for some time before the nineteenth century, began to flourish and over time society became more literate as a result. Urbanization exacerbated the need to find a

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<sup>51</sup> Michel Duchein, "The History of European Archives and the Development of the Archival Profession in Europe," *American Archivist* 55, 1 (Winter 1992): 15-16.

<sup>52</sup> *Ibid.*, 17.

<sup>53</sup> The principle of provenance, though earlier defined by Natalis de Wailly, a French government official, in 1841, was codified in the first widely accepted statement of it in a manual pertaining to archival administration by Dutch archivists S. Muller, J.A. Feith and R. Fruin: *Handleiding voor het Ordenen en Beschrijven van Archieven* (Groningen: Erven B. Van der Kamp, 1898).

productive way to organize and administer large groups of children with free time.

Further, people living in urban environments tended to have more leisure time than people in rural environments because there were not as many duties required to care for the household and property.<sup>54</sup>

Support for the development of cultural heritage institutions was also possible due to economic growth and prosperity fostered by the Industrial Revolution. Successful industries and businesses meant that capital was available to develop social infrastructure including schools and libraries. This excess of resources blended with the Victorian moral view that the common man should be uplifted and subsequently monitored and controlled through broad societal measures.<sup>55</sup> In addition, the rise of modern business with its change in management style as well as changes in records-creation and records-keeping processes meant that there was a greater reliance on recorded communication and a greater need for its efficient management.<sup>56</sup>

Further, though the political situation in the Western world during this period was often turbulent, such as in the case of the American and French revolutions, new states emerged that sought to create national cohesion through developing strong national identities. More and more countries developed active interests in other countries, and having access to relevant information about them and interacting with them became essential. Thus, the social, economic, and political conditions of the modern era beginning in the late eighteenth century were good for promoting new developments with

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<sup>54</sup> Harris, 4-5.

<sup>55</sup> Bennett, 20.

<sup>56</sup> JoAnne Yates, Control through Communication: the Rise of System in American Management (Baltimore: John Hopkins University Press, 1989): 2, 4.

respect to libraries, archives, and museums.

These broad societal forces and developments had significant impacts on library development in the nineteenth century. One manifestation of the nationalistic or patriotic drive of various countries was the growth of national libraries, which were to help promote a sense of national identity.<sup>57</sup> This growth was also helped by the implementation of mandatory depository systems for works written by native-born authors<sup>58</sup> as well as the leadership of various prominent libraries, which helped to bring attention and support to the expansion of these libraries.<sup>59</sup>

Academic libraries, too, became more prominent and respected, especially after a shift in educational methodology whereby learning by rote was replaced with a more varied, participatory and analytical approach to learning.<sup>60</sup> The increase in support for education in connection with industrial research and development also helped to increase the stature and usability of the academic library and much library growth was enabled through the philanthropy of such notable individuals as J.D. Rockefeller.<sup>61</sup> Support for research and development endeavors was also provided via strengthened workplace libraries, the growth of which was encouraged by the development and expansion of various professions during this time period.<sup>62</sup>

One of the most significant developments in nineteenth century libraries was the

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<sup>57</sup> Alfred Hessel, *A History of Libraries*, trans. Reuben Peiss (Washington, D.C.: Scarecrow Press, 1950): 99. It is true that some national libraries had earlier roots, but it was not until the nineteenth century that this type of library blossomed and became more prevalent.

<sup>58</sup> Lerner, 122.

<sup>59</sup> For instance, Ainsworth Rand Spofford was largely responsible for helping the Library of Congress to become the *de facto* American national library (Harris, 135).

<sup>60</sup> Robert A. Seal, "Academic Branch Libraries," in *Advances in Librarianship*, vol. 14, ed. Wesley Simonton. (Orlando, Fla.: Academic Press, 1986): 178.

<sup>61</sup> Harris, 251-252

<sup>62</sup> Lerner 175.

creation of the public library system. There were many predecessors to public libraries (e.g., *athenaeums*, mechanics' institutes' libraries, etc.) but these usually required the payment of a subscription fee.<sup>63</sup> The nineteenth-century public library was the first type of library to be intended for the common public and utterly free for all to use. These libraries were to fulfill both an educational and a recreational role and were seen as part of the democratic process whereby ordinary citizenry could enlighten and educate themselves as well as a mechanism whereby new immigrants could be assimilated into the dominant culture.<sup>64</sup> Philanthropy also played a prominent role in the development of these libraries, particularly by such notable people as Andrew Carnegie, who gave millions of dollars for the creation of public libraries in England and across North America.<sup>65</sup>

Another component of the ideology behind the development of public libraries related to the ideas of democracy and assimilation is the idea of social reform. Along with public libraries, museums came to be seen as “necessary for the mental and moral health of the citizens” and as an integral component of the cultural governance of the populace.<sup>66</sup> Museums were viewed as part of the societal infrastructure that would help enable people to “improve” themselves, and thereby better society as a whole. Museums therefore became more focused on providing an educational service rather than just entertaining or amusing people with collections of curiosities. The movement to create public libraries and museums in the nineteenth century was certainly significant, as today

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<sup>63</sup> Harris, 182-188.

<sup>64</sup> Harris, 242-243; Battles, 199.

<sup>65</sup> Hessel, 105, 108; Bruce Peel, “Librarianship in Canada before 1952,” *Archivaria* 15 (Winter 1982-1983): 80.

<sup>66</sup> Bennett, 18, 21.

it is unlikely to find a city or town without at least one of these cultural heritage institutions.

The twentieth century was a time for proliferation, expansion and significant developments in archives, libraries, and museums. Support for all three types of institution continued and they became more prevalent in society. Automation and digitization were probably the most significant developments in the twentieth century that touched all three institutions and their practices. For libraries, networking and sharing collections information via MARC records and later via the Internet had a monumental impact in that information management practices, specifically cataloguing, became standardized and redundancies were reduced.<sup>67</sup> Developments in the standardization and automation of cataloguing and classification also occurred in the archival and museological sectors, though not exactly with the same effect. Since archival records and museum artifacts are generally unique objects, sharing cataloguing records is not possible in the same manner as in the library sector. Still, the availability of networked collections information for libraries, archives and museums has meant that more people can remotely access and use the information. These developments are part and parcel of the information revolution or explosion in the late twentieth century.

Another significant development of the last century that had particular effect on the museum and archival domains was the advent of postmodern thinking, which was briefly addressed earlier in this chapter when these two types of institutions were defined. To briefly reiterate, museums were no longer viewed as neutral terrains, but rather as

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<sup>67</sup> Copy or shared cataloguing became possible through the sharing of MARC records; in this way redundancy in practice was reduced. For more information on the development of MARC formats, see: Katharine D. Morton, "The MARC Formats: An Overview," *American Archivist* 49, 1 (Winter 1986): 22.

subjective and artificial creations; the museum was recognized to have a key role in how its collections were interpreted, rather than just accepting the collections at face value.<sup>68</sup> Similarly, archives were no longer seen as neutral by-products of daily activities, but rather as ever-evolving mediated and interpreted creations.<sup>69</sup> These re-conceptualizations of museums and archives have been significant in that these institutions are now viewed with some skepticism as contested terrains, and scholars, theorists and researchers have a more sophisticated understanding of their nature and place within society.

### **An Overview of the Development of Library, Archival and Museum-related Professions**

As society's interest in using these institutions for reasons of education or entertainment grew, so did the methods by which access by the public to these institutions could be offered. What good was a library or archive in which one could not locate a book or group of records? What purpose would a disorganized museum serve? Significant advancements in the areas of cataloguing and classification, organizational management, and methods by which to provide access to the resources by the public were initiated in the nineteenth century. As these institutions grew in number, size, and scope, it became necessary to have well-educated and competent staff to manage and run them. Thus, another significant development in the nineteenth century was the growth of archivy, librarianship, and museum curatorship as *bona fide* professions.

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<sup>68</sup> S.D. Levine and I. Karp, 1.

<sup>69</sup> Nesmith, "Still Fuzzy," 145.

A profession can be defined as a “calling requiring specialized knowledge and often long and intensive academic preparation.”<sup>70</sup> Professions are traditionally understood to require a foundation of theoretical knowledge which is developed through academic research. Professions also have been sanctioned by greater society to independently govern themselves and control their own educational system, often through accreditation or certification. Members of professions are linked through associations in which they participate, and there is a sense of exclusivity and specialization in a profession that contributes to and helps to define a particular culture or dynamic that is unique to it.<sup>71</sup> All of these characteristics help to differentiate professions from mere occupations, which do not necessarily require specialized knowledge, intensive academic preparation, or membership and participation in professional associations.

The traditional professions are those of divinity, the military, medicine, and the law.<sup>72</sup> Progress toward including librarianship, archivy and museum curatorship in the sphere of the professional world was initiated in the nineteenth century and continues to the present day. As libraries expanded and became more complex, so did the duties of the librarian. Mevil Dewey, a library pioneer, created the first American library school at Columbia University in 1887. The impetus for creating formalized library education was part of the larger movement towards the systematization of libraries in an effort to reduce idiosyncrasies among librarians. It was also intended to produce a greater number of

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<sup>70</sup> Merriam-Webster OnLine, s.v. “Profession,” <http://www.m-w.com> (last accessed May 13, 2007).

<sup>71</sup> Richard J. Cox, “Professionalism and Archivists in the United States,” American Archivist 49 (Summer 1986): 232-233.

<sup>72</sup> Wikipedia, s.v. “Profession,” <http://en.wikipedia.org/> (last accessed May 13, 2007).

librarians to meet society's new needs than the previous apprenticeship programme could. Other schools soon developed after Dewey's and librarian education advanced to the graduate level at the University of Chicago in 1928.<sup>73</sup>

Also, in the late nineteenth and early twentieth centuries, national and international library associations were created, including the American Librarian Association (ALA) in 1876, the Library Association (LA) in Britain in 1877,<sup>74</sup> and the International Federation of Library Associations and Institutions (IFLA), which was founded in Scotland in 1927.<sup>75</sup> The Canadian Library Association (CLA) was not created until 1946 — prior to that, there was a Canadian division of ALA.<sup>76</sup> The creation of such associations demonstrated that librarians, as professionals, wished to unite as a collective group and, in so doing, be able to enact changes that could be applied to all librarians. Annual conferences enabled librarians everywhere to work collectively to develop the profession. In addition, professional library journals, such as Library Journal, were founded.<sup>77</sup> This provided a forum for librarians to share their research and, again, to help further the profession.

In the nineteenth century, most archivists were trained first as historians. Archival skills were learned on the job rather than through formal training. Significant tenets of archival theory – such as the principles of provenance and *respect des fonds* – were first developed in the nineteenth century and these significantly impacted upon the

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<sup>73</sup> Harris, 291-292.

<sup>74</sup> Lerner, 188.

<sup>75</sup> International Federation of Library Associations and Institutions, "About IFLA," March 28, 2007, <http://www.ifla.org/III/index.htm> (last accessed May 13, 2007).

<sup>76</sup> Peel, 82.

<sup>77</sup> Harris, 246. The Library Journal was created in 1876.

development of archival theory and methodology.<sup>78</sup> The impact of these theoretical underpinnings continued to increase throughout the twentieth century during which time archival theory and professional practice underwent significant changes, including new ways of thinking about records (i.e., postmodernism) and new ways of performing the archival functions of appraisal, arrangement and description, and public programming.

Graduate-level training specifically in archives and archival administration began to appear in North America in the 1970s.<sup>79</sup> Also, professional organizations such as the Society of American Archivists (SAA), the Society of Archivists (SA), and the Association of Canadian Archivists (ACA) were created in 1936, 1947, and 1975 respectively. The International Council on Archives (ICA) was formed in 1948.<sup>80</sup> Each of the national organizations also publishes a peer-reviewed journal and holds annual conferences as well as workshops and other training activities to help expand the profession's knowledge-base.

Education for museum professionals was typically provided through college courses and professional development opportunities provided by various professional associations. For example, the British Museums Association offered a diploma

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<sup>78</sup> See Peter Horsman, "The Last Dance of the Phoenix, or The De-discovery of the Archival Fonds," *Archivaria* 54 (Fall 2002): 6-7. The first significant codification of archival theory was the aforementioned Dutch manual for archival arrangement and description published by S.Muller Fz, J.A. Feith, and R.Fruin in 1898.

<sup>79</sup> James O'Toole, *Understanding Archives and Manuscripts* (Chicago: Society of American Archivists, 1990): 44. The three leading Canadian English-speaking archival education programs are at the University of British Columbia, University of Manitoba, and University of Toronto, and were founded in 1981, 1991 and 1995 respectively. It is also common for archival courses to be offered in library science programmes at various American Library Association accredited institutions.

<sup>80</sup> Founding dates were noted on each of the Associations' websites: "Society of American Archivists: Description and Brief History," 2003, <http://www.archivists.org/history.asp> (last accessed May 13, 2007); "The Society," <http://www.archives.org.uk/thesociety.html> (last accessed May 13, 2007); "The Association of Canadian Archivists: History & Facts," <http://www.archivists.ca/about/history.aspx> (last accessed May 13, 2007); and "International Council on Archives: ICA history," 2007, <http://www.ica.org/en/node/37327> (last accessed May 13, 2007).

programme in the 1930s.<sup>81</sup> Full-fledged museum studies programmes did not emerge until the mid- to late twentieth century. For example, museums studies programs were founded at New York State University and the University of Toronto in 1965 and 1969, respectively.<sup>82</sup> Traditionally there has been a divide between practitioners and theorists as well as inadequate recognition of museology as an actual discipline. However, current museology students are instructed in both the theoretical and practical matters of museological work and the progress toward gaining acceptance of museology as a professional discipline continues.<sup>83</sup>

Like the library and archival sectors, the concern to improve museological education to ensure a higher level of competency in museum professionals has been on-going. For instance, the newly formed International Council of Museums (ICOM) held its first interim conference in 1947 in Mexico, a full session of which was devoted to the issue of proper training for museum personnel.<sup>84</sup> Also like the libraries and archives, professional associations – in addition to ICOM – and professional publications developed in the museum sector particularly in the late nineteenth century and throughout the twentieth century.<sup>85</sup> More specifically, the Museums Association was founded in Great Britain in 1889, the American Association of Museums was formed in 1906, and the Canadian Museums Association was established in 1947. Each association also

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<sup>81</sup> J. Lynne Teather, "Museum Studies: Reflecting on Reflective Practice," Journal of Museum Management and Curatorship 10 (1991): 403.

<sup>82</sup> Ibid.

<sup>83</sup> Ibid., 404, 408.

<sup>84</sup> For more about this session and ICOM's long-term interest in the education of museum personnel, see: Patrick J. Boylan, "The Training of Museum Personnel: A Major Concern of ICOM and UNESCO for Forty Years," Museum 156 (1987), <http://www.city.ac.uk/ictop/boylan-1987.html> (last accessed May 13, 2007).

<sup>85</sup> ICOM was first formed in 1946. See its website for more information: <<http://icom.museum>>.

produces several publications including, Museums Journal, Museum News, and Muse.<sup>86</sup>

Thus, particularly since the late nineteenth century, librarianship, archivy and museology have developed into full-blown professions or disciplines, particularly due to the development of professional education programmes, professional associations and various professionally-sanctioned publications. Although these professions still do not have the social clout of medicine or law with respect to their professional identities, but in accordance with the definition of a profession that was given at the beginning of this section, it is clear that librarianship, archivy and museology can make strong arguments for being *bona fide* professions and the practitioners of each discipline would certainly strongly support this argument.

### **Conclusion**

The trends that began in the nineteenth century to better organize the collections of archives, libraries and museums, independently administer these institutions, and foster independent professional growth continued throughout the twentieth century and up to the present day. These institutions are firmly grounded as part of society's infrastructure with respect to education and recreation. Access to these institutions and their resources has been supported not only through the development of more sophisticated information management techniques, which have enabled the creation of flexible and responsive catalogues and finding aids, but also through exhibits and other

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<sup>86</sup> See each association's website for more information: <<http://www.museumsassociation.org>>, <<http://www.aam-us.org>>, and <<http://www.museums.ca>>.

public programming measures.

Theoretical development has also occurred in all three disciplines.

Postmodernism has touched the archival sphere, with records being re-conceptualized as ever evolving entities mediated by the archivist, among others. Museums have been recognized to be anything but neutral objective places, but rather as significant cultural commentators, mediators and interpreters of peoples and their cultures. Library science has delved not only into how information functions within society and the many facets that this incorporates, but also into higher-level conceptualizations of bibliographic works (e.g., the development of the Functional Requirements of Bibliographic Records (FRBR))<sup>87</sup> and the information-seeking habits and capacities of people (e.g., folksonomies).<sup>88</sup>

The professions have also grown from fledgling states to maturity through numerous graduate-level educational programs, national and international conferences, peer-reviewed journals, and substantial ongoing research into every aspect of the nature of these institutions from their internal and external functions, to their history, their purpose, and their interaction or relationship with each other as well as with the larger society. There is no doubt that each of these institutions and their accompanying

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<sup>87</sup> In brief, the FRBR is a functional model for how bibliographic catalogues might be structured, particularly focusing on the relationships between works and their attributes and how these impact on the behaviour of those that seek out the entities. For more information on FRBR, see: IFLA Study Group on the Functional Requirements of Bibliographic Records, Functional Requirements for Bibliographic Records: Final Report (The Hague, Netherlands: International Federation of Library Associations and Institutions: 1998), <http://www.ifla.org/VII/s13/frbr/frbr.htm> (last accessed May 13, 2007).

<sup>88</sup> Wikipedia defines a folksonomie as “an Internet-based information retrieval methodology consisting of collaboratively generated, open-ended labels that categorize content such as Web pages, online photographs, and Web links. A folksonomy is most notably contrasted from a taxonomy in that the authors of the labeling system are often the main users (and sometimes originators) of the content to which the labels are applied.” See: Wikipedia, s.v. “Folksonomie,” <http://en.wikipedia.org/wiki/Folksonomie> (last accessed May 13, 2007).

professions will continue to grow and evolve in the twenty-first century.

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Having broadly introduced the nature of these institutions, their histories, and some basic aspects of their function and dynamic, given that one of the threads of the thesis of this study is to support collaborative work between these sibling institutions and professions, it is now time to move onward to a discussion of the nature of the similarities and differences between these three areas as well as to an introduction to the capacity for collaboration among them.

## Chapter 2

### **Comparing Libraries, Archives and Museums: The Potential for Cross-sectoral Collaboration**

#### **Introduction**

The first chapter of this study explored the history, nature, and purpose of libraries, archives, and museums in a brief and largely general sense. Having done so, this chapter will delve more deeply into some of the issues stated or implied in the first chapter. Having common beginnings and intertwined existences throughout history, how similar are libraries, archives, and museums really? This chapter will begin by investigating the similarities between these institutions that exist on a broad conceptual level with respect to their historical evolution, their purpose and their place within society as well as with respect to their internal and external functions or activities. This discussion will also include highlights of equally significant differences that exist between these institutions in relation to these same areas of interest.

The next portion of this chapter will address how these institutions and professions are perceived by society. How does society seem to view the place and function of these institutions? How do these perceptions affect how these institutions are managed and how the professions have come to view themselves?

Following this, how these institutions and their respective professions inter-relate and complement one another will be explored, along with how, in many instances, the domains of the institutions overlap. In other words, it is not uncommon for any one of

these institutions to possess holdings that usually are administered by another type of institution. For example, an archives can have artifactual or bibliographic materials. This phenomenon can be considered a type of unacknowledged convergence in that it is usually not acknowledged or treated as a type of cross-sectoral event.

This chapter will conclude with a preliminary investigation of cross-sectoral collaboration or convergence. Several issues will be discussed, particularly what collaboration or convergence can entail and why it is desirable and relevant to pursue.

### **Comparing Archives, Libraries and Museums**

One significant common thread joining these institutions, which should not be ignored, is that they all belong to the cultural heritage family.<sup>1</sup> The role of such institutions is to “identify, collect, preserve, describe and make available the artifactual, intellectual and artistic products of the past and present in order that current and future generations may benefit from them.”<sup>2</sup> These institutions have also been described as memory institutions, in that they contain, and therefore inherently are, the collected

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<sup>1</sup> Other institutions aside from archives, libraries and museums that belong to this family include art galleries and historical sites. It should be noted that although archives do fit within the cultural heritage sector as described in this chapter, alliances with records management programmes and freedom of information and protection of privacy offices are also of import, particularly in relation to other values of archives aside from strictly historical or cultural heritage values, specifically legal and administrative values. This chapter focuses on archives’ cultural heritage values because it is an area of commonality between archives, libraries, and museums, and issues of evidence, public accountability, and privacy legislation are not necessarily as relevant to library and museum sectors. While this chapter supports collaboration between libraries, archives and museums due to their common cultural heritage-related roles and identities, other partnerships and collaborations between archives and various records and information management professions may also be relevant for archives to pursue. A discussion of these additional partnerships is outside of the scope of this study.

<sup>2</sup> Nancy Elkington, “Cultural Heritage,” in Archives, Libraries and Museums Convergence : 24th Library Systems Seminar [Paris, 12-14 April 2000] (Paris: Cite des sciences et de l’industrie, 2001): 207.

memory of humanity and society. What is cultural heritage and how has the concept of memory institution been defined?

Cultural heritage no longer refers only to the monumental remains of cultures, but has been expanded as a concept to “include categories such as the intangible, ethnographic or industrial heritage ... due to the fact that closer attention is now being paid to humankind, the dramatic arts, languages and traditional music, as well as to the informational, spiritual and philosophical systems upon which creations are based.”<sup>3</sup> In other words, attention is devoted to more than just the end results of the cultural process (i.e., the book, record or artifact), but also to the processes which drove the creation of the end product. Cultural heritage institutions house tangible culture but are also engaged with intangible aspects of culture through their acts of interpretation, analysis and research.<sup>4</sup>

Merriam-Webster’s online dictionary defines culture as “the integrated pattern of human knowledge, belief, and behavior that depends upon man's capacity for learning and transmitting knowledge to succeeding generations.”<sup>5</sup> This definition reflects on the necessity of passing knowledge to succeeding generations as being intrinsically part of culture. Learning culture is active, not passive, and it is inherited and absorbed over

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<sup>3</sup> UNESCO, “Culture,” May 11, 2007, [http://portal.unesco.org/culture/en/ev.php-URL\\_ID=2185&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/culture/en/ev.php-URL_ID=2185&URL_DO=DO_TOPIC&URL_SECTION=201.html) (last accessed May 13, 2007).

<sup>4</sup> Examples of this are the postmodern interest in researching the context surrounding archival records in a comprehensive fashion, museological interpretation of exhibits and the recognition of and reflection on museums as subjective places, and international research projects regarding the history of the book, both as an evolving technology and in relation to the socio-political and cultural issues arising from that history. See the following examples of each of these research areas: for a discussion of the “new museology”, which pertains to examining museums as social constructions, see Hein, 98-102; for a theoretical discussion of postmodernism and archival science see Terry Cook, “Archival Science and Postmodernism: New Formulations for old Concepts,” *Archival Science* 1 (2001): 3-24 ; see the History of the Book in Canada website at <<http://www.hbic.library.utoronto.ca>>.

<sup>5</sup> *Merriam-Webster OnLine*, s.v. “Culture,” [www.m-w.com](http://www.m-w.com) (last accessed May 14, 2007).

time. By housing the tangible products of culture and by being engaged with the intangible, historical and analytical aspects of culture, cultural heritage institutions are very much an integral part of the cultural process. Through them people are able to interact with cultural products, intellectually engage with the historical interpretation and analysis that may be provided by the institutions and thus learn about culture and be a part of the ongoing cultural transmission process.

With respect to the concept of memory institution, according to one definition, archives, libraries and museums are memory institutions that

organize the ... cultural and intellectual record. Their collections contain the memory of people, communities, institutions and individuals, the scientific and cultural heritage, and the products throughout time of our imagination, craft and learning. They join us to our ancestors and are our legacy to future generations. They are used by the child, the scholar, and the citizen, by the business person, the tourist and the learner. These in turn are creating the heritage of the future. Memory institutions contribute directly and indirectly to prosperity through support for learning, commerce, tourism, and personal fulfillment.<sup>6</sup>

This definition introduces the similarity of purpose and function within society that archives, libraries and museums share, more specifically, that they are loci of cultural knowledge, learning, propagation and transmission.

A second definition of the concept of memory institution refers to a digitized amalgamation of the collections of archives, libraries, and museums:

a memory institution combines digital surrogates of the collections of archives, libraries and museums in rich interactive environments and allows access to the content regardless of the nature of the institution. The goal of the memory institution is to preserve this content for future generations and

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<sup>6</sup> Lorcan Dempsey, "Scientific, Industrial, and Cultural Heritage: A Shared Approach: A Research Framework for Digital Libraries, Museums and Archives," *Ariadne* 22 (12 January 2000), <http://www.ariadne.ac.uk/issue22/dempsey> (last accessed May 13, 2007).

support its use and management over time.<sup>7</sup>

In this instance, while the physical institutions may keep their individual identities, they unite in the digital environment and become a new identity with the sole purpose of providing access to cultural heritage content. This definition treats the concept of memory institution as a digital evolution of the three traditional institutions, which have come to exist in an environment where their traditional differences have become less relevant and their focus is on preserving and providing access to cultural heritage resources over time.

After reviewing these definitions, it is evident how libraries, archives and museums all fit within the umbrella of the cultural heritage concept as memory institutions, either in the sense that one of their primary purposes is to preserve and provide access to the collected memory of humanity, but also, in accordance with the ICOM definition, to unite together to create a new digital institution, whereby their traditional boundaries become fairly irrelevant. Therefore, these three types of institution, as memory institutions, preserve and provide access to the collected memory of humanity and are all collecting institutions that gather and hold the material evidence, or tangible culture, of man and society.

Aside from all of these institutions being united in the primary purpose of preserving society's memory, they are also united with respect to other core purposes or functions: education, research, and entertainment. Each type of institution caters to all of these functions, with varying degrees of emphasis, varying shades of interpretation, and

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<sup>7</sup> Werner Schweibenz, "The Development of Virtual Museums," *ICOM News* 3 (2004): 3, [http://www.museum.or.jp/icom-J/pdf/E\\_news2004/p3\\_2004-3.pdf](http://www.museum.or.jp/icom-J/pdf/E_news2004/p3_2004-3.pdf) (last accessed May 13, 2007).

with different approaches. As one type of institution may be perceived to emphasize one particular area, another type of institution may emphasize another area.<sup>8</sup> Putting these cultural heritage puzzle pieces together as a whole makes the cultural heritage picture complete.

To elaborate, museums lead the way in the areas of public programming and exhibits. Due to the public appeal of museums' collections with their strong visual and interactive qualities, public programming and exhibits are perhaps the most important functions or activities of museums and are arguably the most visible functions.<sup>9</sup> Of course, the collection of artifacts is necessary in order to form a museum and the management of these artifacts, information about them, and the preservation of them for future use are also important and necessary. However, museum collections are mass-marketed with more of a "one-exhibit-fits-all" approach, albeit with some variation for groups of different ages or cultures. In contrast, interaction with library and archival materials is generally more on an individualized basis, depending on one's own research or recreational information interests.

Because of the museum world's focus on exhibits and public programming, perhaps it has less interest in providing access to collections' information by means of databases and catalogues, or at least not to the same extent as libraries and archives. One only has to compare the relative dearth of detailed collections information that is

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<sup>8</sup> For example, museums may be perceived to emphasize education and recreation over research while archives cater primarily to research and preservation. Libraries are perhaps perceived in a more balanced fashion as whole-heartedly belonging to both the research and recreation camps.

<sup>9</sup> When museums stopped being merely the collections of the wealthy and were seen as social instruments to better the average man, the focus shifted from merely collecting to exhibiting such collections. For a discussion of the social reform function of modern museums see Bennett, 17-58.

provided on many museums' websites with library online public access catalogues (OPACs) and archival finding aids or networks. It should be noted that Artefacts Canada is a fine example of museological collections information that is available to the public,<sup>10</sup> but where are the links to this resource on various museum websites such as the Royal Ontario Museum and New Brunswick Museum?<sup>11</sup> Many museums may contribute information to Artefacts Canada, but how would a user easily understand how to move from the Artefacts Canada website to find such information elsewhere if a direct link is absent? In contrast, public libraries, university libraries and many archival repositories regularly have access to databases or other types of electronic catalogues provided on their website. Multi-repository databases also exist such as WorldCat and Archives Canada.<sup>12</sup>

Another indicator that museums focus on their exhibits and public programming is in how they are organized and how one interacts with the artifacts. Select artifacts are displayed and interpreted for visitors who navigate the museum by traversing delineated paths much like what one does in a shopping mall environment.<sup>13</sup> This is quite different from the often less colorful and selective display of library materials and the closed-stacks approach to physically organizing and displaying the bulk of an archival

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<sup>10</sup> Visit Artefacts Canada at: [http://www.chin.gc.ca/English/Artefacts\\_Canada/index.html](http://www.chin.gc.ca/English/Artefacts_Canada/index.html). On this webpage there are links to both the humanities and natural sciences artifacts databases.

<sup>11</sup> Visit the collections information portion of the Royal Ontario Museum's website at: <http://www.rom.on.ca/collections/index.php>. Visit the collections information portion of the New Brunswick Museum at: <http://www.gnb.ca/0130/english/00aa.html>. Both of these museums are the provincial museums for Ontario and New Brunswick, respectively.

<sup>12</sup> See <http://www.oclc.org/worldcat> and <http://www.archivescanada.ca/english/index.html>, respectively.

<sup>13</sup> For a discussion of the similarities between museums and department stores, see: Bennett, 30.

repository's records. Thus, the aspect of public display is comparatively more important in museums than in libraries and archives, generally speaking.

Aside from these differences in focus or emphasis between archives, libraries, and museums, it is still true that all three types perform similar functions and activities. More specifically, all three types of institution perform some version of the following functions: collecting new materials (i.e., appraisal and accessioning including acquisition through donation or purchase); organization and arrangement of the collections (i.e., archival arrangement and description, or cataloguing and classification of books and artifacts); the provision of access (i.e., publicly accessible catalogues or finding aids, public programming and exhibits, reference services and information literacy or educational sessions); and preservation and conservation. Thus, not only can they be defined along similar lines and share similar purposes and functions within society, but in fact, they also share similar internal operating functions.

Of course, there are significant differences in the methods by which these functions are fulfilled. A brief example to demonstrate this is the method by which archives, libraries and museums appraise or select new materials for their collections.<sup>14</sup> Archival appraisal entails determining whether or not records have permanent value. It can be performed at any level of archival hierarchical arrangement and can take place prior to donation or after accession. Various factors form the basis of archival appraisal decisions. Above all, are the records' often complex provenance and context (as records

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<sup>14</sup> An in-depth exploration and explanation of appraisal or selection processes and theories for all three disciplines as well as a comparative analysis of similarities or differences between the disciplines is well beyond the scope of this study. The example that I provide here is merely for illustrative purposes at a generalized level.

are primarily selected indirectly, by a research-based assessment of the significance of the functions they document), their authenticity and reliability, their order and degree of completeness, their condition and related preservation costs, and their intrinsic value as well as with due consideration given to how the records fit within the collecting institution's mandate.<sup>15</sup>

Library collections development involves “the identification, selection, acquisition, and evaluation of a collection of library resources for a community of users.” To do so, not only must the institutional mandate be addressed, but also the needs of the user community need to be analyzed and understood. These needs must be balanced against the library's budget, and what are deemed to be the best materials available in the vast sea of informational resources must be selected.<sup>16</sup> For mainstream bibliographic collections development then, the needs of the users are of paramount importance.<sup>17</sup>

In museological appraisal, too, the mandate of the institution must be considered when considering what to collect. First, however, the basis of any collection decision for a museum is whether or not the object has historical significance, or in other words is an object that “contributes to a clearer understanding or interpretation of some former custom, activity, episode, or personality.”<sup>18</sup> If an object has historical significance, fits within the collecting mandate of the museum (i.e., its topical areas of interest), and can be

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<sup>15</sup> Society of American Archivists, *Glossary of Archival and Records Terminology*, s.v. “Appraisal,” <http://www.archivists.org/glossary> (last accessed May 13, 2007).

<sup>16</sup> Arizona State Library, Archives, and Public Records, *Overview of Collection Development*, <http://www.lib.az.us/cdt/collman.htm> (last accessed May 13, 2007).

<sup>17</sup> That is, mainstream bibliographic collections development is unlike collections development for special collections materials or rare books, in which other considerations such as long-term preservation and overall historical value also become relevant. It should also be mentioned that national libraries also acquire publications through depository systems that mandate the collection of locally-published works.

<sup>18</sup> Carle E. Guthe, *The Management of Small History Museums*, (Nashville : American Association for State and Local History, 1964): 27.

properly preserved and cared for, then it is desirable for acquisition.<sup>19</sup>

As these explanations make clear, there are significant differences in selection or appraisal methodologies between archives, libraries and museums. For instance, libraries very much base their selection criteria on the needs of their users. Archival appraisal does not take the users' needs into account because this could compromise the archives ability to effectively document society in an accountable and responsible way; one cannot predict the needs of users decades or centuries in the future.<sup>20</sup> Museological appraisal differs, too, in that items are deemed desirable to collect if they have authentic historical value, if they are relevant to the collections mandate, and if it is financially feasible to acquire and preserve them. Thus, the users are not really a large consideration in this context.

This example demonstrates how the function of appraisal or selection — though the basic activity may be functionally comparable — the methods by which it is undertaken and the theoretical considerations surrounding the decision-making process and the desired outcome of the acquisition activity are different. Another example of a superficially similar but deeply different function or activity is that of description or cataloguing of the collections. This topic will be addressed in the third and fourth chapters of this study. Reasons why the activities related to any particular function are

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<sup>19</sup> Ontario Ministry of Culture, "Writing a Collections Management Policy for the Museum," August 2, 2002, <http://www.culture.gov.on.ca/english/culdiv/heritage/munote3.htm> (last retrieved May 13, 2007).

<sup>20</sup> Schellenberg's appraisal methodology was primarily concerned with what he deemed to be secondary informational value or, in other words, how the informational content could be important to and utilized by future researchers. Before Schellenberg, Jenkinson maintained that the creator should determine which records are kept, and that the primary responsibility of archivists was not to select records, only to keep them. See: Terry Cook, "What is Past is Prologue: A History of Archival Ideas Since 1898, and the Future Paradigm Shift," *Archivaria* 43 (Spring 1997): 23-29.

different in the three institutions relate to several factors including the differences in the type of materials being acquired as well as varying reasons for acquiring them, and, due to these differences, the practices of the institutions diverged over time.<sup>21</sup>

To summarize this section, archives, libraries and museums share similar external and internal functions within society. Their primary purpose is to function as society's memory institutions. Although, on the surface, their internal functions seem comparable, there are significant differences by which these institutions operate as well as the concepts and methods they use to undertake their operating procedures and activities. The next section will investigate the place of these institutions within society and the differences in perceptions that exist with respect to each of the three institutional types.

### **Perception of Archives, Libraries and Museums within Society**

The three sectors are managed and relate to one another differently, and they are also viewed differently by society. There is tremendous variety with respect to how different archives, libraries and museums are managed. It is not uncommon for these institutions to be jointly administered, for example, for an archives to be situated within a university library setting. In addition, municipal governments may administer all three types of institution locally. In some instances, umbrella bodies have been created to jointly administer multiple sectors. The Museums, Libraries and Archives Council (MLA) in England and the Institute of Museum and Library Services (IMLS) in the

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<sup>21</sup> Boyd Rayward, "Electronic Information and the Functional Integration of Libraries, Museums and Archive," in *History and Electronic Artifacts*, ed. Edward Higgs, ¶12 (Oxford: Clarendon Press, 1998), available online at <http://people.lis.uiuc.edu/~wrayward/museumslibs.html> (last accessed May 13, 2007).

United States are two prime examples of this phenomenon.<sup>22</sup> More commonly, these sectors are administered separately, though at times, as previously mentioned, institutions comprised of more than one sector can be jointly administered.

It seems likely that archives, libraries and museums are perceived differently by the public, at the very least by the differences in foci that each type of institution upholds. In catering first to public programming, museums demonstrate that the public has come to expect that this is the primary way to interact with this type of institution. Thus, while museums are valued educational institutions, they are likely valued as recreational institutions more than are libraries and, even more so, than archives.<sup>23</sup> Likewise, the public interacts with libraries in a way that demands that they be relatively omnipresent, a basic component of the infrastructure of any lively and healthy community.<sup>24</sup> Museums

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<sup>22</sup> The Museums, Libraries and Archives Council (MLA) in the United Kingdom, a non-departmental agency sponsored by the British government, helps coordinate, fund, and promote growth in the archives, library and museum sectors. It was established in 2000 and replaced the former organizations of the Museums and Galleries Commission (MGC) and the Library and Information Commission (LIC). See <<http://www.mla.gov.uk>>. The Institute of Museum and Library Services is the primary federally-sponsored funding body for the museum and library sectors in the United States. Even though archives are not currently part of its mandate, evidence exists that it realizes the inter-relatedness of archival concerns with those in the library and museum sectors as well as how archives fit into the cultural heritage family. For instance, it recently granted significant scholarship funds for new professionals to attend the Rare Books and Manuscripts Section of the Association of College and Research Libraries of the American Library Association's annual pre-conference in Texas in June 2006. See <<http://www.ims.gov>>.

<sup>23</sup> For a discussion of Canadians' perceptions of their museums, see: TeleResearch, Inc., Canadians and their Museums: A Survey of Canadians and their Views about the Country's Museums: Report of Findings Prepared for Canadian Museums Association, (Toronto: TeleReserach, 2003), available online at [www.museums.ca/Cma1/ReportsDownloads/surveyanalysis2003.pdf](http://www.museums.ca/Cma1/ReportsDownloads/surveyanalysis2003.pdf) (last accessed May 13, 2007). This report states that 68% of Canadians see their museums as fulfilling predominantly recreational and educational functions (p. [3]).

<sup>24</sup> A few examples of public perception of the worth of libraries and their place in society are that at least 94% of Norwegians see it as their democratic right to have access to public libraries (see: Haga Leikny Indergaard, "Cheers for the Public Library!," Scandinavian Public Library Quarterly 32, 2 (2005), [http://www.splq.info/issues/vol38\\_2/01.htm](http://www.splq.info/issues/vol38_2/01.htm) (last accessed May 13, 2007), and how 75-90% of the population of such countries as the United Kingdom, the United States, and others make use of hybrid libraries (i.e., those that provide access to both digital and traditional resources). See: Lisa Krolak, "The Role of Libraries in the Creation of Literate Environments," 2005, paper commissioned for the EFA Global Monitoring Report 2006, Literacy for Life, available online at <http://unesdoc.unesco.org/images/0014/001460/146057e.pdf> (last accessed May 15, 2007). These

and libraries thus share very public recognition of their benefits, though archives have traditionally been the more hidden member of the cultural heritage group.<sup>25</sup> Traditionally archives have tended to have been used by a select few – historians, academic researchers and in recent decades, genealogists – as well as, of course, by employees of the institutions to whom the records belong, when applicable.<sup>26</sup>

How the public views these institutions is related to how these institutions and sectors are managed and funded. Perhaps the better visibility of museums and libraries over archives somewhat explains how archives have often been the most underfunded of the three types of institution.<sup>27</sup> Funding is a particularly sticky point which has often, among other reasons, pitted various cultural heritage partners against each other in a form of rivalry, which may not be appropriate. Perhaps a more productive way of supporting the cultural heritage sector overall would be to create alliances and pool current resources

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examples demonstrate how the public values the library system and expects that it be there for their use or, in other words, view it as part of society's infrastructure.

<sup>25</sup> For example, according to the results of a survey conducted by Richard Barry about the view of archives and archivists by society, most people either do not have a formed view of the role and value of archives and archivists in society, or are mostly cognizant only of such secondary value of archives, that is, the values associated with historical research, but not with evidentiary value. See: Richard E. Barry, "Report on the Society and Archivists Survey," January 29, 2003, <http://www.mybestdocs.com/barry-r-soc-arc-survey-report-030129toc.htm> (last accessed May 13, 2007).

<sup>26</sup> This has been changing in recent years due to the ever increasing marketability of history as well as via public programming efforts that, for instance, encourage use of archives in classrooms and genealogy. Historical television programming and films are popular and historical materials such as photographs continue to be staples in books and other types of media. For more information about the use of archival materials in television productions, see: Kathleen Epp, "Telling Stories Around the 'Electronic Campfire': The Use of Archives in Television Productions," *Archivaria* 49 (Spring 2000): 53-83.

<sup>27</sup> In Canada, it is estimated that libraries, along with broadcasting, get the most financial support in the cultural sector. Libraries receive 40% and 80% respectively of provincial/territorial and municipal expenditures on culture. Museums, archives and other cultural heritage centres receive approximately 62% of their funding from governmental sources, though clearly, if at least 40% of these source monies are devoted to libraries alone, less money is available for museums or archives with the plethora of other cultural programs in need of financial support. This one statistical example shows how public priorities lie first with libraries over the other two types of cultural heritage institutions. However, it should also be noted that libraries and archives do not have the option of raising money by charging admittance fees, as do museums. See: Jocelyn Harvey, *The Canadian Encyclopedia*, s.v. "Arts, Heritage and Cultural Industries Funding," <http://www.thecanadianencyclopedia.com/PrinterFriendly.cfm?Params=A1ARTA0000341> (last accessed May 15, 2007).

to help secure more support for increased resources and funding for the cultural heritage sector overall — for archives, libraries and museums all.

Investigating the area of professional identity for each of the three professions also illuminates how the professions view themselves, view each other, and are viewed by society. Although all three professions require significant educational and experiential training, it is fair to observe that all three professions are somewhat on the underbelly of society's attention. Culture and heritage are widely valued, appreciated, and respected, but are perhaps perceived more as belonging to the area of hobbies or leisure and are not always recognized as important societal infrastructure, at least when placed in comparison with other professions such as law, medicine and business. As a result, the cultural heritage professions often suffer from inferiority complexes. There are stereotypical portrayals of both librarians and archivists which characterize them as old, quiet folks with hair-in-buns or with beards and spectacles, constantly shushing people or spending their entire time in dusty stacks of old records. Museum professionals are perhaps even more mysterious in that there does not seem to be a stereotype for them or a dominant perception of them, making them somewhat invisible, from a common point of view.<sup>28</sup>

Because of these inferiority complexes and lack of adequate or appropriate public

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<sup>28</sup> Some discussion has taken place regarding the public's perception of museums and museum professionals. Museums have been favoured locations featured in various types of mass media, including novels and movies (e.g., Indiana Jones). Curators, when portrayed at all, have commonly been portrayed as members of the elite, well-respected, and very knowledgeable. Examples of this include the curator in Richard Brown's *The Da Vinci Code*, among others. For more information see: Romina Mancuso Melisenda, "Communicating the Museum: Literature, Cinema, Art Expression – an Inexpensive Way to do PR" (presentation, Tampere, Finland, on August 29, 2005) <http://www.museumsnett.no/icommp/html-files/papers/2005-mancuso.htm> (last accessed May 13, 2007).

awareness and recognition of what it means to be a librarian, an archivist, or a museum curator, along with other social and related challenges that these professions face, there is some resistance to approaching collaboration between the three disciplines. There is a sense that a long battle continues to be fought to gain respect and recognition as well as for the resources that are necessary to stay afloat as archives, libraries and museums. Since all three sectors often compete for attention and resources, an environment with some rivalry is created. This makes it challenging to promote collaborative work.

When viewed from an anthropological standpoint, this adversarial tension, though undesirable and counterproductive, is understandable. It has been observed that

entities which co-exist in proximity with each other often develop symbiotic relationships; or else one moves into dominance over the other and ultimately destroys it consciously, or simply dominates it so completely that the smaller of the two ceases as an independent unit. It is absorbed, or so transmuted by the overpowering influence of the dominant party, that it can no longer be recognized for what it once was.<sup>29</sup>

The important aspect of this observation to keep in mind is that, although the potential for being subsumed by an entity that appears to be dominant exists, there is equal opportunity to create a symbiotic relationship. Also, as previously mentioned, the library sectors and museum sectors **on the whole** are perceived in a similar light; that is, they are not accredited, generally, with as much importance as politics or big business. Thus, it is essential to keep in mind that the overall cultural heritage sector would best be served if sibling cultural heritage professionals would treat each other as partners rather than adversaries. Professionals in these three disciplines need to “transcend the limitations that their highly developed professional ‘cultures’ impose upon them... [even though]

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<sup>29</sup> Lawrence J. McCrank, “Preface,” Journal of Library Administration 7, 2/3 (Summer/Fall 1986): 8.

[t]hese professional cultures have defined themselves to some extent in opposition to each other.”<sup>30</sup>

### **Relationships between Cultural Heritage Institutions: Hybridized Institutions**

As the jointly discussed historical outline in the previous chapter demonstrated, libraries, archives and museums share a common beginning as exemplified in institutions such as that at ancient Alexandria. These three institutions began strongly to diverge when their growth in size and complexity in the Enlightenment through to the nineteenth century required specialized management techniques for each type of collection. The paths of these institutions continued along separate ways, divided largely by the type of format to which they primarily catered. This “media myopia” underlined the divergence of these three types of institution into the twentieth century, while at the same time, specialization and professionalization continued to increase and become better defined.<sup>31</sup>

The idea of an institution being a hybrid or having hybrid collections can refer to institutions that hold both traditional paper-based materials as well as digital collections. In the context of this study, hybrid could also be used to refer to such aforementioned institutions that administer different types of cultural heritage collections in a variety of situations. Thus, do “double hybrid” institutions exist? In conjunction with this, it is also

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<sup>30</sup> Boyd Rayward, “Electronic Information and the Functional Integration of Libraries, Museums and Archives,” ¶45.

<sup>31</sup> “Media myopia” was a term coined by Terry Cook in his article of the same name and was initially used as a means of describing the problematic manner in which archival materials of different media were given differing levels of attention and care in various archival repositories. This article was published in *Archivaria* 12 (1981): 146-157.

interesting to reflect on what constitutes a record or artifact. If a map or photo is framed or appears on a cookie tin, does it become an artifact? Is a commercial film an archival record or publication? Is a rare book just a book or also an artifact? Which designation takes precedence and why? Although attempting to answer these and many similar questions must be saved for another study, they draw attention to the issue that divisions between and within these institutions and the traditional materials that they house are not always sharply drawn.

Figure 1 illustrates the relationship between archives, libraries and museums with respect to the conceptualization of double-hybrid institutions. Potential overlap between the three cultural heritage institutions has been illustrated. The central circle represents an area of unacknowledged convergence between these institutions. Overlapping all three sectors is the additional layer of holding traditional physical materials as well as having holdings of digital objects. This illustration draws attention to the cross-over between the three sectors, prompting reflection as to how this conglomerate cultural heritage mega-institution or super-structure can best be managed and utilized. The next section of this chapter will begin to contemplate this issue.

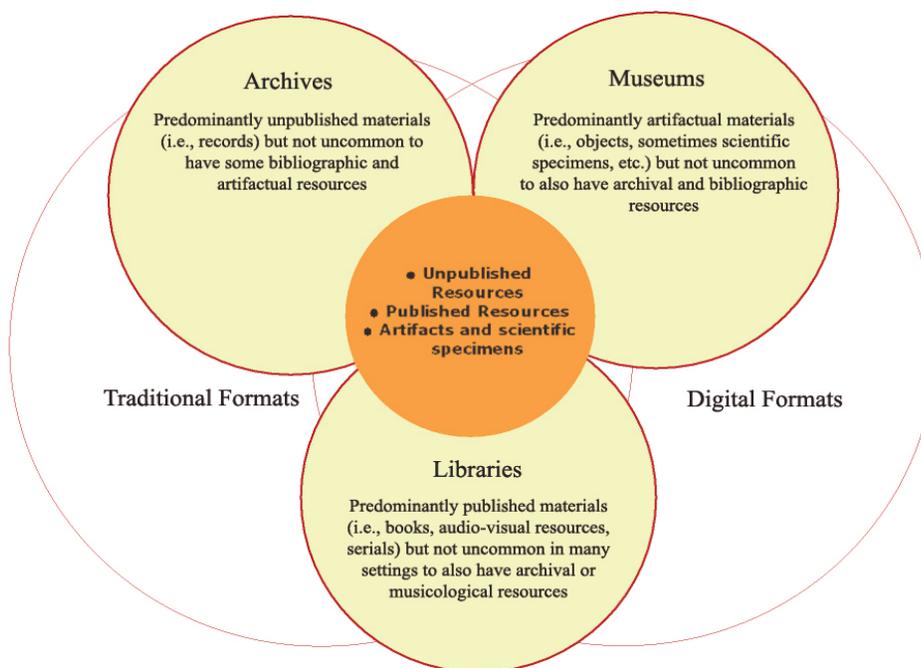


Figure 1. Visualizing the Double-hybrid Cultural Heritage Complex.

## Introducing Convergence or Collaboration between Cultural Heritage Institutions

Having compared the nature of archives, libraries and museums, highlighting similarities and differences between them, as well as having introduced the concept of unacknowledged convergence or hybridization of these institutions, a more focused introduction to the concept of convergence or collaboration between these three types of cultural heritage institution will now be provided. The question needs to be asked: how can we capitalize on the similarities between archives, libraries and museums, and why would we choose to do so?

To converge is to “come together and unite in a common interest or focus” and convergence is “the act of converging and especially moving toward union or

uniformity.”<sup>32</sup> As the discussion earlier in this chapter has demonstrated, there has been tension surrounding convergence versus divergence between the archives, libraries, and museums as well as their respective professions. However, it is important to remember that convergence in the cultural heritage context does not necessarily entail institutional amalgamation, though that is possible.<sup>33</sup>

Part of the tension regarding convergence or collaboration is related to the issue of professional identity. It is important to remember, however, that changing identities is part of professional evolution. Librarians, archivists, and museum professionals are not the same types of people that they were a century ago. Although the professional momentum is not necessarily moving toward having a single information profession, recent research has determined that information professionals from these three areas share common skills and core competencies and could benefit from learning more about one another during their training years.<sup>34</sup> Having this kind of background knowledge and understanding about one’s sibling professions can only help when trying to work together

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<sup>32</sup> Merriam-Webster OnLine, s.v. “Converge” <http://www.m-w.com> (last accessed May 15, 2007). Merriam-Webster OnLine, s.v. “Convergence” <http://www.m-w.com> (last accessed May 15, 2007).

<sup>33</sup> Several prominent Canadian examples of institutional amalgamation are: Library and Archives Canada, formerly the National Library of Canada and the National Archives of Canada, which formally amalgamated in 2004; The Rooms, the former provincial museum, archives, and art gallery of Newfoundland and Labrador, which amalgamated in 2005; Bibliothèque et Archives nationales du Québec was created as the result of the 2006 merger of the former Bibliothèque du Québec and Archives nationales du Québec; and the Royal British Columbia Museum and British Columbia Archives, which were brought together in 2003 under the Royal BC Museum Corporation. However, it is important to remember that convergence in the cultural heritage context does not necessarily entail institutional amalgamation, though that is possible.

<sup>34</sup> For example, see Zinaida Manžuch, Isto Huvila and Tatjana Aparac-Jelusic, “Digitization of Cultural Heritage,” in *European Curriculum Reflections on Library and Information Science Education*, eds. Leif Kajberg and Leif Lørring, 37-64 (Copenhagen: Royal School of Library and Information Science, 2005). Available online at [www.fbi.fh-koeln.de/aktuelles/European\\_Curriculum\\_LIS.pdf](http://www.fbi.fh-koeln.de/aktuelles/European_Curriculum_LIS.pdf) (last accessed May 13, 2007).

at a later date.<sup>35</sup> It is possible and desirable to maintain distinct professions while at the same time building support measures to better enable cross-sectoral understanding and collaborative efforts.

Keeping these considerations in mind, it is helpful to remember that aside from institutional amalgamation or convergence — a type of collaboration that is not the norm, as it is atypical to have the resources, manpower, and other forms of support to enable this level of convergence and it may also not be the most sensible approach in many instances — there are several other ways for cultural heritage institutions to collaborate. These include the provision of access to the holdings of libraries, archives and museums through shared catalogues, exhibits, public programming endeavors, advocacy awareness campaigns, and others.

These various collaborative avenues relate to several aspects of interoperability. Interoperability has been defined as the “ability of a system... to work with or use the parts or equipment of another system”<sup>36</sup> and as “the ability of products, systems, or business processes to work together to accomplish a common task”.<sup>37</sup> Though traditionally defined in these technical terms, interoperability can also be considered in a broad and inclusive sense to mean the general ability to work together among different elements. In this sense, interoperability can also refer to political, interpersonal, international, and semantic contexts. As I will demonstrate in the fourth chapter of this

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<sup>35</sup> Evidence of support for this belief lies in the recent joining of the University of Toronto’s Museum Studies Programme with the Faculty of Information Studies. Noted as a news item on the Faculty of Information Studies home page (<<http://www.fis.utoronto.ca>>) on May 9, 2006 2006.

<sup>36</sup> Merriam-Webster On-Line, s.v. “Interoperability,” <http://www.m-w.com> (last accessed May 15, 2007).

<sup>37</sup> Wikipedia, s.v. “Interoperability,” [www.wikipedia.org](http://www.wikipedia.org) (last accessed May 15, 2007).

study, the technology to enable systems interoperability with respect to creating integrated descriptive systems is available in the present. No doubt this technology and its level of sophistication will continue to grow with time. Equal in importance to these technological means to collaborate are the other forms of interoperability mentioned above.

Why is this even a relevant issue? In the digital age, the traditional boundaries between various cultural heritage institutions have become blurred because, in the digital realm, bits and bytes are equal and traditional divisions along types of material become less relevant. The greatest impetus for collaboration of some kind between archives, libraries, and museums is the ever-increasing push to provide digitized content on the web and to improve upon readily available electronic services and tools. Becoming digital is more than a trend; it is a necessity. In order to stay competitive with other information providers in today's "Amazoogole" environment and to stay relevant and at the forefront of society's educational, research, and recreational service providers, cultural heritage institutions have had to tackle the digital beast.<sup>38</sup>

How do digitization opportunities relate to collaboration between different cultural heritage institutions? These institutions are all facing similar issues and challenges. What is the best way to provide digital access? What is the best way to organize digital information? What do users really want and how can they best be served? Because the issues are similar for all cultural heritage institutions, many of them

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<sup>38</sup> "Amazoogole" is a term coined by Lorcan Dempsey. It refers to how web giants like Amazon, Google, Ebay and others have an enormous impact on how the web operates and on how people expect to seek and retrieve information. In other words, consumers prefer transparent and nearly instantaneous access to what they seek. See Dempsey's blog at <http://orweblog.oclc.org/archives/000562.html>.

are now acknowledging the possibility of collaboration to create common solutions to these problems.

As noted by W. Boyd Rayward in a speech given at the 2<sup>nd</sup> National Preservation Conference in Brisbane, Australia in 1995, the “differentiating process” that worked to keep the three professional strands separate reached its high point in the 1950s and 1960s before the advent of the computer revolution. Rayward discussed how the current trend toward providing digital surrogates for objects “eliminates physical distinctions between types of records and thus, presumably, the need for organizational distinctions in the management of the systems within which these records are handled.”<sup>39</sup> This is not necessarily to say that professional theories and their resultant methodologies for each discipline should be neglected when enabling digital access to collections. Rather, the digital realm can act as a meeting point where digital collections and their descriptions from all three types of cultural heritage institutions can intersect and co-exist. In other words, the process of creating digital surrogates of various types of cultural heritage materials makes their physical differences less relevant. This also relates back to Schweibenz’s definition of memory institution, which was provided at the beginning of this chapter.<sup>40</sup>

Rayward also commented on how continuing to maintain completely separate operations in the digital environment fails to uphold one of the primary purposes of these institutions – to serve the public through the provision of informational and cultural

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<sup>39</sup> W. Boyd Rayward, “Libraries, Museums, and Archives in the Digital Future: The Blurring of Institutional Distinctions” (presentation, Brisbane, Australia, November 28-30, 1995), <http://www.nla.gov.au/niac/meetings/npo95wr.html> (last accessed May 13, 2007).

<sup>40</sup> See Chapter 2, footnote 7.

resources.<sup>41</sup> It is sensible to consider that the joint provision of access to cultural heritage resources would be of superior benefit to users over traditional disparate non-networked and non-integrated means in which all three sectors exist somewhat as islands.

Remaining separate

does not reflect the needs of the individual scholar or even the member of the educated public interested in some aspect of learning or life. For the individual the ideal is still the personal cabinet of curiosities that contains whatever is needed for a particular purpose or to respond to a particular interest, irrespective of the nature of the artifacts involved – books, objects, data, personal papers, government files.<sup>42</sup>

It is true that these institutions are not necessarily **solely** in existence for public consumption, but, ultimately, it is their purpose. There is no point in preserving heritage materials purely for abstract or ideal reasons; in the end the purpose of preserving such materials is to enable their use in the future by some person(s) for some purpose(s).

In addition to considering users' needs, there are sound practical reasons for collaborating with fellow cultural heritage partners. Given all of the external challenges that the cultural sector faces while also coping with internal changes such as continued standards development and backlog management, it makes good sense to unite with fellow professionals who are fighting similar battles to maintain or even increase funding for heritage programmes. It is sensible to consider collaborating for reasons of financial efficiency and strengthened political advocacy. Thus, cross-sectoral collaboration makes good sense as a public service measure and strategic allied move.

Some of the aforementioned administrative frameworks such as the Museums,

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<sup>41</sup> W. Boyd Rayward, "Libraries, Museums, and Archives," ¶ 17.

<sup>42</sup> Boyd Rayward, "Electronic Information and the Functional Integration of Libraries, Museums and Archives," ¶16.

Libraries and Archives Council (MLA) in England relate to other ways by which these sectors can collaborate. The MLA not only provides leadership and guidance for the three sectors, but also provides means by which to obtain funding through its grants and awards programs.<sup>43</sup> The cultural heritage sector, comprised of archives, libraries, and museums, is strengthened by having this type of “united front”.

### **Conclusion**

This chapter first explored the similarities between archives, libraries, and museums with respect to their purpose and function within society, how they are perceived by society, and how they in fact overlap or converge, in intentional and unintentional (or unacknowledged) ways. The argument has been that, although there are significant differences between the three cultural heritage institutions, there is enough commonality to support considering collaboration or convergence between the sectors, to capitalize upon their commonalities and strengthen the cultural sector overall, rather than weakening it through in-fighting and fragmentation.

It is becoming increasingly important to pursue collaboration, cooperation or even convergence among these sectors. Some of the means by which to collaborate have been briefly identified, for example, via undertaking collaborative exhibition or public programming activities and by creating integrated descriptive systems, which could

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<sup>43</sup> For information on these programs, see: Museums, Libraries and Archives Council (MLA), “Grants & Awards” Retrieved from [http://www.mla.gov.uk/webdav/harmonise?Page/@id=73&Section\[@stateId\\_eq\\_left\\_hand\\_root\]/@id=4263&Section\[@stateId\\_eq\\_selected\]/@id=4269&Session/@id=D\\_HTu9fab0orhXQ1ONNDxI](http://www.mla.gov.uk/webdav/harmonise?Page/@id=73&Section[@stateId_eq_left_hand_root]/@id=4263&Section[@stateId_eq_selected]/@id=4269&Session/@id=D_HTu9fab0orhXQ1ONNDxI) on 7 Aug. 2006.

streamline and revolutionize users' access to cultural heritage resources. The remainder of this study will focus on this particularly significant function of cultural heritage institutions – providing access to collections and collections information largely in the digital environment via automated descriptive systems.

Before addressing ways in which to create integrated automated descriptive systems, it is first necessary to trace the historical development of descriptive practices in each of the three disciplines, so that proper context for understanding issues of contention and other considerations can be properly brought to light in the discussion of creating integrated descriptive systems in the fourth and final chapter of this study.

## Chapter 3

### **An Historical Overview of Descriptive Practices in Libraries, Archives and Museums with an Introductory Comparative Analysis**

#### **Introduction**

Before delving into the heart of this study — the creation of integrated descriptive systems for archives, libraries, and museums — it is first prudent to discuss the descriptive practices of each discipline within a historical context. This chapter will outline the evolution of descriptive activities within each of these heritage sectors from ancient times until the present day. First, however, it may be helpful to identify the nature and purpose of description in these contexts. Description entails creating a surrogate or representation of an entity to allow one to learn about or locate the entity without examining the entity itself. It is a necessary activity in these institutions because people rely on descriptions to access the information within their holdings. Without it, it would be extremely difficult to find anything efficiently.

In libraries, description predominantly entails cataloguing and classification activities. There are two types of cataloguing: descriptive cataloguing and subject analysis. Descriptive cataloguing involves recording bibliographic details of publications, with author and title information constituting the dominant access points for the item. Subject analysis involves analyzing the subject content of the works, assigning subject terms to describe and provide access to the publication, and often identifying an appropriate designation within a classification system. Classification involves creating a

systematic and usually hierarchical ordering of subjects that in practical terms serves to collate publications on identical or similar subjects both intellectually in an abstract sense as well as physically on the shelves, when applicable.

In archives, description involves research into the context of the records and their creators, including identifying and documenting relationships between records and groups of records. Often archival description is based on this contextual research rather than on an examination of the physical records themselves. Records are rarely described at the item level due to their voluminous nature, especially in light of limited resources. Also, descriptions cannot be shared among archives because archival records are generally unique and different repositories do not share the same records. This contrasts with bibliographic description, in which there are many copies of the same publication held by different libraries, and the libraries can benefit from sharing descriptions. Further, records are not classified by subject because they are not really “about” subjects, but rather are created as the by-products of administrative activities or of the daily lives of individuals or families of people. As such, they may include numerous subjects within them.<sup>1</sup>

Cataloguing is but one component of a museum’s documentation system and descriptive process. As in libraries, classification is commonly part of describing collections, and different classification schemes have been created for different types of collections, including historical collections and natural science collections. As in archives, researching and recording information about the history of the objects and

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<sup>1</sup> Still, subject access points and subject-based resources such as vertical files are often created to aid in archival research.

identifying and documenting relationships between objects is important. Also like archives, many museum collections are unique, eliminating the ability to share descriptions for cataloguing purposes, although sharing collections information for other purposes such as research and education is desirable. In museums, items are usually given item-level attention and described individually, but often description at the collection-level can also be relevant. Museum classification schemes can be either subject-based or function-based and, as in library classification, one subject or function is prioritized while others are captured through other access points, such as indexing terms or subject headings.

The boundaries between the descriptive systems of libraries, archives, and museums have been flexible. More specifically, archival descriptive standards, in North America at least, have borrowed heavily from bibliographic practices. Further, museological descriptive practices have also borrowed from the library domain, adapting the Dewey Decimal Classification (DDC) system for one, and utilizing card catalogues for another.<sup>2</sup> Lastly, bibliographic description has incorporated elements of archival and museological descriptive elements, especially in the case of describing rare books, in which physical qualities of the works and their history of creation are relevant considerations.<sup>3</sup>

This chapter is not intended to be an in-depth study of any of these developments,

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<sup>2</sup> Bernadette Gabrielle Callery, "Evolutionary Change in the Accession Record in Three American Natural History Museums," (PhD diss., University of Pittsburg, 2002), 51-52.

<sup>3</sup> For more information about rare book cataloguing see: John E. Alden, "Cataloging and Classification," in *Rare Book Collections*, ed. H. Richard Archer, ACRL Monograph Number 27, 65-73 (Chicago: American Library Association, 1970), and Beth M. Russell, "Description and Access in Rare Books Cataloging: a Historical Survey," *Cataloging & Classification Quarterly* 35, 3/4 (2003): 491-253.

but rather to survey some key aspects of the evolution of descriptive practices in libraries, archives and museums over time, beginning with practices in the ancient world and ending with the present day. To begin, an account of the history of descriptive practices in the library world will be provided, followed by a similar account of the evolution of descriptive activities in both the archival and museological worlds. The chapter will conclude with some key points of comparison and contrast between bibliographic, archival and museological descriptive practices. This concluding analysis will serve as the final piece of the foundation to the fourth chapter, in which the potential of creating integrated descriptive systems will be described and explored.

### **An Overview of the History of Descriptive Practices in Libraries**

Ancient catalogues were essentially inventory lists of books. Examples of these date from ancient Egypt, Babylonia and Sumeria circa 2000 years B.C.E. Similar lists existed in ancient Greece and Rome, some serving both as bibliographies as well as inventories. Early cataloguing notions include the ancient Greeks' idea that a book should be catalogued by its author.<sup>4</sup> Roman library lists tended to focus on providing information regarding the fixed physical location of the books which were organized roughly by subject.<sup>5</sup>

Little had changed by the Medieval period, when libraries were usually arranged

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<sup>4</sup> Ruth French Strout, "The Development of the Catalog and Cataloging Codes," The Library Quarterly XXVI, 4 (October 1956): 255-257.

<sup>5</sup> Richard Joseph Hyman, Information Access: Capabilities and Limitations of Printed and Computerized Sources (Chicago: American Library Association, 1989): 4.

according to broad subject categories and made use of shelf lists to keep track of the physical location of books.<sup>6</sup> Cataloguing practices tended to be idiosyncratic and sporadically undertaken because it was felt that not all libraries were in need of catalogues due to the small size of their collections.<sup>7</sup> During the Renaissance, however, some advances were made in providing analytical entries for books and several classification schemes were introduced that recognized the importance of providing access points to works like author or title.<sup>8</sup> Further, the appearance of early publications on the management of bibliographic cataloguing demonstrates how bibliographic practitioners were beginning to recognize the need for a uniform cataloguing system. As a result, published rules for cataloguing became more commonplace over time. The first such code appeared in the preface to the 1674 edition of the catalogue for the Bodleian library by Thomas Hyde.<sup>9</sup> Some cataloguing codes, like Hyde's Bodleian code, favoured organizing works alphabetically by author, while others supported classifying works by subject, and tension between cataloguing styles was common up until the end of the nineteenth century. However, subject classification schemes did not fall by the wayside during the seventeenth century; several were formulated, including one by Francis Bacon. The development of classification schemes in general reached its height in the nineteenth century with the creation of 85 schemes in that century alone compared to 69 created in

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<sup>6</sup> *Ibid.*

<sup>7</sup> Strout, 259.

<sup>8</sup> *Ibid.*, 263-264. Examples include Conrad Gesner's 1548 publication the Pandectarium and the Catalogue of English Printed Books, by English bookseller Andrew Maunsell.

<sup>9</sup> Dorothy May Norris, A History of Cataloguing and Cataloguing Methods 1100-1850: With an Introductory Survey of Ancient Times (London: Grafton, 1939): 151-152. These rules pertained to several cataloguing issues including the formatting of names, the transcription of information from books, and the provision of access by subjects.

all preceding centuries.<sup>10</sup>

In the eighteenth century, catalogues continued to be a mixture of either author-alphabetical or subject-classed.<sup>11</sup> Aside from the growth in interest in the development of classification schemes, this century was also notable for an important shift in the physical format of catalogues. The first national cataloguing code originated in France at the time of the French Revolution (1791) and part of this code entailed the compilation of card catalogues.<sup>12</sup> Catalogues prior to that time were either in manuscript or printed form.<sup>13</sup>

Thus, by the nineteenth century, catalogues had developed beyond being mere inventories like their ancient predecessors due to their inclusion of bibliographic and subject information. Indexing and cross-referencing were also common. Multiple access points using both author and subject information were incorporated and a more economical and flexible catalogue format, the card catalogue, had been introduced. However, there was still a great deal of inconsistency among catalogues generally — sometimes they were classified, and other times they were alphabetical. When they were alphabetical, many still followed the older convention of entry under forename. Also, titles were not always transcribed verbatim.<sup>14</sup> Clearly there was much still to be done to improve upon library catalogues and make them more useful to their users.

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<sup>10</sup> *Ibid.*, 6, 11. Bacon's classification scheme, based on the medieval curriculum divisions of the trivium and quadrivium, was not originally intended for library purposes, but librarians absorbed much of the general scientific classificatory mindset of their time and applied such logic to the classification schemes that they themselves produced.

<sup>11</sup> *Ibid.*, 196.

<sup>12</sup> *Ibid.*, 195. Although Abbé Rozier may have been the true inventor of the card catalogue with his proposal for a card index for the Paris Académie des Sciences publications in 1775, the French national code implemented the practice of using such catalogue cards —inscribed on playing cards no less! — on a larger and more influential scale. See: Hyman, 7.

<sup>13</sup> Norris, 195, 197.

<sup>14</sup> Strout, 266.

The nineteenth century was a pivotal time for library cataloguing rules and procedures. Part of the reason for the significant changes that cataloguing underwent at that time was the unprecedented growth of library collections, which was a reflection of the increased number of subjects being published upon and greater access to public education.<sup>15</sup> The old methods of cataloguing — which were recognized as insufficient even for the needs of users prior to that time<sup>16</sup> — required a significant overhaul in order to adequately serve the needs of the collections and their users in the nineteenth century.

To help address this issue, several cataloguing codes were developed at the time, including the “Rules for the Compilation of the Catalogue” — a code of 91 cataloguing rules created by Antonio Panizzi and a committee of librarians at the British Museum in 1841.<sup>17</sup> Panizzi advocated the alphabetical catalogue over the classified catalogue — he did not support classified catalogues because he felt that classification schemes were highly mutable, being subject to continuous change.<sup>18</sup> Cataloguing codes produced by American librarians include Charles Coffin Jewett’s On the Construction of Catalogues of Libraries and of a General Catalogue (1852), a code of 39 rules heavily based on Panizzi’s rules and incorporating an alphabetical approach with supplemental subject listings,<sup>19</sup> and Charles Ammi Cutter’s Rules for a Printed Dictionary Catalogue (1875), which emphasized the importance of utilizing multiple access points as well as being able

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<sup>15</sup> Hyman, 9.

<sup>16</sup> Strout, 266.

<sup>17</sup> Virgil L.P. Blake, “Forging the Anglo-American Cataloging Alliance: Descriptive Cataloging, 1830-1908,” Cataloging & Classification Quarterly 35, 1/2 (2002): 5-6. These rules came about as a result of complaints about the severe inadequacies of former museum catalogues

<sup>18</sup> K.G.B. Bakewell, A Manual of Cataloging Practice (Oxford: Pergamon Press, 1972): 20. However, his dictionary catalogue approach was certainly not free of problems — not only was it intellectually cumbersome, but he chose to produce it in manuscript form, which resulted in 1895 being the estimated date of publication, at which time the catalogue would be 50 years out of date!

<sup>19</sup> Hyman, 14.

to distinguish between different editions of the same work.<sup>20</sup>

During this time frame subject classification systems were also created, notably Melvil Dewey's system, the Dewey Decimal Classification (DDC), which he published in 1876 and which remains a viable classification scheme to the present day.<sup>21</sup> Cutter's short lived and ultimately defective system known as Expansive Classification (EC) became the chief model for the Library of Congress Classification (LCC) system which began development in 1897.<sup>22</sup> However, even with the work done on classification systems, by the turn of the twentieth century, libraries generally favoured subject access via alphabetical subject headings, though this eventually changed as it became completely unwieldy.

Several lists of subject headings were developed, most notably the Library of Congress Subject Headings (LCSH) in 1897 which became the authority for all libraries.<sup>23</sup> The Library of Congress — which became the *de facto* national library of the United States — itself became a leader in library cataloguing and classification endeavors with its development of a system of distribution of its catalogue cards, which began in 1901,<sup>24</sup> and its start of the development of its classification system (LCC) in 1897.<sup>25</sup> The distribution of catalogue cards enabled both the uniformity of catalogue entries for a particular work and also reduced redundancy of cataloguing — librarians could copy the

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<sup>20</sup> Rosalind E. Miller and Jane C. Terwilligar, Commonsense Cataloging: A Cataloger's Manual, 3<sup>rd</sup> ed. (New York: H.W. Wilson, 1983): 21.

<sup>21</sup> Hyman, 12, 16-20.

<sup>22</sup> Lois Mai Chan, "Library of Congress Classification in a New Setting: Beyond Shelfmarks," <http://www.loc.gov/cds/chanarticle.html> (last accessed January 14, 2007).

<sup>23</sup> *Ibid.*, 23.

<sup>24</sup> Blake, 16.

<sup>25</sup> Chan.

Library of Congress catalogue record rather than create original records.<sup>26</sup>

Even with all of these developments, cataloguing practices were still idiosyncratic by the turn of the twentieth century. However, because a cooperative system of cataloguing was recognized as being of benefit to libraries as a whole, because it would enforce uniformity of practice,<sup>27</sup> the Library Associations of both the United States and the United Kingdom<sup>28</sup> collaborated and produced the first joint Anglo-American cataloguing rules in 1908, which were influenced by all of the previous codes. However, although this was a significant step towards the standardization of cataloguing practices, further efforts toward standardization were still required.<sup>29</sup>

Cataloguing in the twentieth century was characterized by several notable developments centering around the revision of cataloguing codes, including the forging of a new Anglo-American code called the Anglo-American Cataloguing Code (AACR) in 1967, the formulation of international standards in relation to publications, and the introduction of automated cataloguing systems. Through a concerted international effort that culminated with the International Conference on Cataloguing Principles (ICCP) in Paris in 1961, a revised set of cataloguing principles thereafter known as the “Paris Principles” was established.<sup>30</sup> The resultant cataloguing code, AACR, became a standard manual of cataloguing practice in the English-speaking world.<sup>31</sup> AACR contains rules

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<sup>26</sup> *Ibid.* LCC functions both as a subject classificatory device as well as a location device (i.e., call numbers). DDC has generally been implemented by public libraries, but due to its relative lack of ability to handle highly complex subjects, most university and research libraries employ LCC.

<sup>27</sup> Bakewell, 25, 30.

<sup>28</sup> Specifically, the Library Association., UK, and the American Library Association (ALA).

<sup>29</sup> Bakewell., 30-31.

<sup>30</sup> *Ibid.*, 38.

<sup>31</sup> Eric J. Hunter and K.G.B. Bakewell, *Cataloguing* (London: Clive Bingley, 1983): 23-25. This code has since undergone several revisions, the first of which in 1978. It is due to be published in 2008

for both descriptive cataloguing and the formation of authority headings and access points.<sup>32</sup> Also stemming from the formation of AACR was the creation of an International Standard Book Description (ISBD) complete with a new type of identifier for books and serials, International Standard Book Numbers (ISBNs) and International Standard Serial Numbers (ISSNs), respectively.<sup>33</sup> Standards creation did not end with descriptive codes and numberings, but also extended into the area of automation, a relatively new phenomenon of the mid-twentieth century.

Before continuing, it may be helpful to explain what standards are and how they are important to the area of descriptive practices generally. Standards have been defined as “benchmarks which are established for the measure of quantity, weight, extent, value, or quality.”<sup>34</sup> Standards can be local, national, or international in scope. They must be constantly monitored and revised as needed in relation to the changing environment in which they operate. Sometimes standards can be *pseudo* or *de facto*, the former referring to those that seem to be standards but in fact are not, and the latter referring to standards that arise during common practice but were not agreed upon through group consensus.<sup>35</sup>

Three types of standards that are particularly relevant to descriptive systems are data content standards, which prescribe the type of content that should be included in the description, data structure standards, which mandate how the content should be formatted

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under the new title of Resource Description and Access (RDA). See the Joint Steering Committee for the Revision of Anglo-American Cataloguing Rules' website at <http://www.collectionscanada.ca/jsc/rdapropectus.html>.

<sup>32</sup> Miller and Terwillegar, 24.

<sup>33</sup> Hunter and Bakewell, 25.

<sup>34</sup> Bureau of Canadian Archivists, Toward Descriptive Standards: Report and Recommendations of the Canadian Working Group on Archival Descriptive Standards ([Ottawa]: Bureau of Canadian Archivists, 1985): 15.

<sup>35</sup> Lisa B. Weber, “Archival Description Standards: Concepts, Principles, and Methodologies,” American Archivist 52 (Fall 1989): 505.

within the descriptive record, and data value standards, which help determine the preferred terms to use to describe specific concepts.<sup>36</sup> These three types of standards are metadata standards, or those that specify the structure and content of metadata, which is “structured data about data”, to be used in descriptive records.<sup>37</sup> Additionally, data interchange standards or protocols are also relevant; they enable and regulate how information systems communicate and exchange data with one another. More information about various standards pertaining to bibliographic, archival and museological descriptive records will be introduced in the remainder of this chapter.

One such standard that was developed in relation to automation was Machine-Readable Catalog (MARC) technology, first introduced by the Library of Congress in the mid-1960s, an effort on its part to increase the distribution and sharing of its catalogue records.<sup>38</sup> MARC is a data structure standard that provides a standardized and structured container to hold bibliographic information, but it does not dictate the structure of the data that it contains — that is the realm of AACR, a data content standard.<sup>39</sup> Like AACR, MARC has also undergone significant revisions as well as expansion through the creation of different MARC formats for different types of sources, including one for

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<sup>36</sup> Suzanne Quigley, ed., “Documentation Standards: Computerized Systems,” in The New Museum Registration Methods, ed. Rebecca A. Buck and Jean Allman Gilmore, 28-29 (Washington D.C.: American Association of Museums, 1998).

<sup>37</sup> Dublin Core Metadata Initiative (DCMI), “DCMI Frequently Asked Questions: What is Metadata?,” 2007, <http://dublincore.org/resources/faq/#whatismetadata> (last accessed April 30, 2007). Metadata within the cultural heritage context and its various descriptive systems will be discussed in more detail in the next and final chapter.

<sup>38</sup> Katharine D. Morton, “The MARC Formats: An Overview,” American Archivist 49, 1 (Winter 1986): 22.

<sup>39</sup> Refer to Appendix A for examples of typical bibliographic descriptions using AACR2 in a MARC record.

archival records.<sup>40</sup> MARC enabled regional, national, and even international sharing of descriptive records through library networks including via two prominent and well-known networks in the United States, OCLC (Online Computer Library Center) and RLIN (the Research Library Information Network).<sup>41</sup> Automation has significantly increased access to cataloguing information in other ways as well, including the creation of Online Public Access Catalogues (OPACs), which have gradually replaced card catalogues during the last few decades.<sup>42</sup>

Lastly, one of the most significant developments in bibliographic cataloguing in recent years is the Functional Requirements of Bibliographic Records (FRBR). In brief, the FRBR is a functional model for how bibliographic catalogues might be structured, particularly focusing on the relationships between works and their attributes and how these impact on the behaviour of those that seek out the entities. It is intended to be used to help make automated systems more sophisticated and intuitive for users.<sup>43</sup>

### **An Overview of the Historical Development of Archival Descriptive Practices**

The oldest known archival description dates from 1500 BCE — it consisted of a list of documents inscribed on clay tablets that belonged to Yorgan Tepe of Assyria.

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<sup>40</sup> For more information about MARC (AMC), or the MARC format for Archival and Manuscript Control, see the subsequent section on the evolution of archival descriptive standards.

<sup>41</sup> Morton, 27.

<sup>42</sup> North Carolina A&T State University, “Online Public Access Catalogs,” [http://www.library.ncat.edu/ref/information\\_literacy/course/libsys/lim5p4.htm](http://www.library.ncat.edu/ref/information_literacy/course/libsys/lim5p4.htm) (last accessed April 8, 2007).

<sup>43</sup> Refer to Chapter 3, footnote 86. As previously noted, for more information on FRBR, see: IFLA Study Group on the Functional Requirements of Bibliographic Records, Functional Requirements for Bibliographic Records: Final Report, Sept. 1997, accessed at <<http://www.ifla.org/VII/s13/frbr/frbr.htm>> on 1 Oct.2006.

Archives at that time were preserved by their creators for administrative purposes and were not used by researchers. Thus the descriptions were simple inventories intended to enable intellectual access to the records without consulting the records themselves.

Description advanced little during Classical Greece and Rome; it consisted only of rote copying of documents.<sup>44</sup> The next true advancement in descriptive practices came in the Mediaeval Era.

From the twelfth to fifteenth centuries, descriptions of records served two purposes: firstly, inventories or guides of this era functioned similarly to their ancient counterparts by enabling archivists to know the contents of the archives without having to consult the records directly; and secondly, they served a juridical purpose, standing as evidence of the existence of the records. This juridical concept remained important through to the eighteenth century, as the main purpose of records and the descriptions of them during this period was to serve as evidence of transactions that had occurred.<sup>45</sup>

However, a secondary purpose for records and their descriptions also developed during the period of the Middle Ages to the Enlightenment — historians began to use archival records for research purposes. To better serve the needs of the historians — who, incidentally were often hired to create archival descriptions — the records were both arranged and described according to subject or chronology, and this type of finding

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<sup>44</sup> Luciana Duranti, “Origin and Development of the Concept of Archival Description,” *Archivaria* 35 (Spring 1993): 48. This is not to say that a representation of records cannot serve as a type of surrogate, but it is generally more acknowledged in modern day archival arrangement and description more so than bibliographic description, for example, that archival arrangement and description involves some form of interpretation.

<sup>45</sup> *Ibid.*, 49.

aid was known as a calendar.<sup>46</sup>

European archives up until the French Revolution were also highly decentralized — every government office kept its own archives. Further, it was not uncommon for administrations to burn old documents. However, with the coming of democracy by way of the French Revolution, not only were the records centralized, but the state also accepted responsibility for caring for archival records, acknowledging their historical significance and recognizing that archives should be made available to the public. Similar trends occurred elsewhere in Europe.<sup>47</sup> The gathering and preservation of large amounts of documents from increasingly complex administrative structures in one location along with the necessity to make them accessible for public use eventually instigated the need for a shift in the conceptualization of archival arrangement and descriptive practices. This re-conceptualization also affected the practice of classifying records by subject, a practice that had been popular both due to the Enlightenment mindset of the time, which mandated that everything known to man could and should be ordered and classified, as well as for the convenience of historical researchers. But as the volume of records continued to grow, rearrangement, classification and description based on subject content became untenable given the available resources. The re-conceptualization of archival arrangement and description began with the codification of the principles of *respect des fonds* and provenance.

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<sup>46</sup> *Ibid.*, 49-50. Calendaring was common at many institutions including the Public Archives of Canada (PAC) until the mid-twentieth century. The PAC adopted the record and manuscript group system of description in 1950. For more information, see Terry Cook's article "W. Kaye Lamb and the Transformation of the Archival Profession" in *Archivaria* 60 (Fall 2005): 185-234.

<sup>47</sup> Ernst Posner, "Some Aspects of Archival Development Since the French Revolution," *American Archivist* 3, 2 (April 1940): 160-163.

The concept of *fonds d'archives* was first articulated by Frenchman Natalis de Wailly in 1841 and its core premise was that collections of documents should be arranged according to their provenance (origin) rather than in relation to their subject content.<sup>48</sup> Since arrangement now respected the origin of the records, description not only came to succeed arrangement but also began to focus on describing the context of the creation of the records rather than their subject content. In this way arrangement and description became inextricably intertwined and description evolved from being only a surrogate for the records to also being a representation of the records.<sup>49</sup>

These ideas were not limited to France. Archivists in other European countries, including Italy and Germany, also adhered to the *fonds* principle.<sup>50</sup> The most significant codification of the archival principles of provenance and *respect des fonds* during this time period was the Manual for the Arrangement and Description of Archives (1898) published by the Dutch authors Samuel Muller, Johan Feith and Robert Fruin. This manual consisted of 100 rules that primarily concerned the arrangement and description of archives, including ones that explicitly articulated the concepts of provenance and *respect des fonds*.<sup>51</sup> The Manual was widely distributed among European countries where over many years its power of influence reached nearly dogmatic levels.<sup>52</sup>

Basing arrangement and description on *respect des fonds* and provenance remained popular during the twentieth century, though *respect des fonds* was not the only

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<sup>48</sup> Horsman, 6-7. Even though de Wailly was the first to formally articulate this concept, it is most likely that it originated out of the daily work of archivists both at that time and during several prior decades.

<sup>49</sup> Duranti, 50.

<sup>50</sup> Ibid., 50-51. Indeed, Francesco Bonaini of Italy and Max Lehmann of Germany both espoused theories concerning provenance and respecting the original order of records in 1869 and 1882 respectively.

<sup>51</sup> Cook, "What is Past is Prologue," 20-21.

<sup>52</sup> Horsman, 11.

method in practice. This was due to several theoretical and practical issues that have never completely been resolved, even to the present day. First it would be helpful to provide a definition of a *fonds*:

[it is] the whole of the documents of any nature that every administrative body, every physical or corporate entity, automatically and organically accumulates by reason of its function or of its activity ... [and] may ... encompass documents in any form or on any medium created by agencies or persons acting in a public or private capacity.<sup>53</sup>

However, in the complex environment of modern administrations, where functions often shift between organizational bodies, and where *fonds* can remain open, it becomes difficult to delineate the boundaries of the *fonds*. These problems, among others, have demonstrated that this somewhat arbitrary nature of applying the *fonds* concept, plus its lack of sufficient flexibility to cope well with multiple-creatorship situations have led several countries, notably the United States and Australia, to develop different archival arrangement traditions.

Due to confusion over the meaning of the *fonds* concept and a desire to increase the manageability of records — also in light of Jenkinson’s large and unruly “archive group” which mandated that the records from an entire administration would constitute one unit<sup>54</sup> — the national archives of the United States created the record group concept. The record group was defined as “a major archival unit established somewhat arbitrarily with a due regard for provenance and to the desirability of making the unit of convenient size and character for the work of arrangement and description and for the publication of

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<sup>53</sup> Bureau of Canadian Archivists, 7.

<sup>54</sup> Cook, “What is Past is Prologue,” 24.

inventories.”<sup>55</sup> However, this did not solve the problem of arbitrariness or the problem of how to delineate the record groups. At this point, a primary advantage to both the *fonds* and the record group concepts should be noted: aside from their faults, their incorporation of a hierarchical model of records management was important. Such a model effectively accommodates the multi-level nature of archival records and serves to illustrate the relationships between different levels or groupings of records.

The Australians also implemented a multi-level approach, but without using the *fonds* or the record group approach. First developed by Peter Scott, Australian archivists implemented a series approach in which the series (not the *fonds* or the record group) is at the uppermost level of the descriptive hierarchy. In conjunction with this, information regarding the creators of the records is separated from information about the records, the former being subject to authority control.<sup>56</sup> Series are flexible enough to accommodate frequent administrative changes, and context is maintained by linking records descriptions in the series to authority records describing the creators of the records. This approach also better accommodates open-ended series and multi-provenancial series.<sup>57</sup>

Thus, around 1970 there were several different arrangement systems in place based on *fonds*, record group, and series system concepts as well as a broad array of descriptive tools including finding aids, inventories, and guides. However, due to the advent of automation, this situation changed radically, as automation created new

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<sup>55</sup> Mario D. Fenyo, “The Record Group Concept: A Critique,” *American Archivist* 29, 2 (April 1966): 233.

<sup>56</sup> Peter J. Scott, “The Record Group Concept: A Case for Abandonment,” *American Archivist* 29, 4 (October 1966): 497-500.

<sup>57</sup> This is not to say that these systems necessarily have to function completely independently of one another either. One can combine descriptions of private records that include the *fonds* level with descriptions of public records, or those for which the series level is the highest level in the hierarchy to be included. This merely means that public records do not include a *fonds*-level description.

avenues for managing descriptions. Unlike librarians, traditionally archivists did not see inherent advantages in the sharing of descriptive information because of the relative uniqueness of each repository's records, and thus the attitude towards standardization of descriptive practices was skeptical in the late 1970s. Still, similarities of descriptive practices were not uncommon between various archival repositories, and greater commonality was seen as not only possible but highly desirable.<sup>58</sup> As such, different groups around the world began to organize efforts to create descriptive standards.

As in the library world, different descriptive standards were created for different purposes. Borrowing from the advancements made in the library sector, a special MARC format for archives and manuscripts control (MARC AMC), a data structure standard, was created in 1983. Steve Henson's Archives, Personal Papers, and Manuscripts: a Cataloging Manual for Archival Repositories, Historical Societies, and Manuscript Libraries (APPM) soon followed in 1989. MARC AMC contained more archive-sensitive data elements than regular MARC and enabled the participation of archival repositories in national bibliographic databases like OCLC and RLIN.<sup>59</sup> APPM was based on AACR2 and became a *de facto* data content standard as it was widely used but was created by an individual and was not subject to constant review.<sup>60</sup> In Canada, although a unique data structure standard was not created, a Canadian data content standard, the Rules for Archival Description (RAD) was developed under the direction of

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<sup>58</sup> Working Group on the Standards for Archival Description, "Report of the Working Group on Standards for Archival Description," American Archivist 52, 4 (Fall 1989): 444-446.

<sup>59</sup> Ibid., 448-449. Describing Archives: A Content Standard (DACS) has since replaced APPM, first published in 2004 by the Society for American Archivists.

<sup>60</sup> Marion Matters, "The Development of Common Descriptive Standards: Lessons from the Archival Community," Archivaria 34 (Summer 1992): 268.

the Planning Committee on Descriptive Standards.<sup>61</sup> Like APPM, RAD was also based on AACR2 and contained rules for the description of records within varying levels of a *fonds* as well as rules for the creation of non-subject access points and headings.<sup>62</sup> Thus archivists in both Canada and the United States relied heavily on bibliographic descriptive traditions and sought to participate in bibliographic databases.<sup>63</sup>

Interest in standardizing archival arrangement and description also reached the international level. The International Council of Archives formed an Ad Hoc Commission on Descriptive Standards in 1990 to “prepare draft standards and rules for the description of archives at the fonds/group/collection level for the consideration of the international community.”<sup>64</sup> The first draft of its rules, entitled the General International Standard Archival Description (ISAD(G)) was prepared in that same year. These rules performed similar functions to other previously formulated descriptive standards, including attention to consistency and facilitating retrieval and exchange of information — both at the record level as well as at the authority data level.<sup>65</sup> Though these rules constituted an important step in international collaboration on archival descriptive standards, they were subsequently criticized for being too vague and for taking a

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<sup>61</sup> Wendy M. Duff and Kent M. Haworth, “The Reclamation of Archival Description: The Canadian Perspective,” *Archivaria* 31 (Winter 1990-91): 31. The first two chapters of RAD were published in 1990 and the remainder in 1996.

<sup>62</sup> Wendy Duff, “Discovering Common Missions or Diverging Goals: The State of Archival Descriptive Standards in Canada and the United States,” *International Information & Library Review* 30 (1998): 230. See Appendix B for an example of a typical *fonds*-level description using RAD.

<sup>63</sup> In contrast, British archivists focused on standardizing archival finding aids within British archival repositories. To help them do so, they produced the Manual of Archival Description (MAD), which was a compilation of best practices of archival description in Great Britain; the authors rejected borrowing from bibliographic practices. See: Michael Cook, “Description Standards: The Struggle Towards the Light,” *Archivaria* 34 (Summer 1992): 53, 55, 57.

<sup>64</sup> International Council on Archives, “Statement of Principles Regarding Archival Description,” *Archivaria* 34 (Summer 1992): 8.

<sup>65</sup> *Ibid.*, “ISAD(G): General International Standard Archival Description,” *Archivaria* 34 (Summer 1992): 17-18.

perspective on archival description that precluded necessary considerations for the description of electronic records.<sup>66</sup>

Given the preponderance of automation in contemporary society, electronic records have become an issue of primary importance for archivists in several aspects including the area of arrangement and description. The nature of electronic records — their vulnerability, mutability, and great volume — has necessitated a paradigm shift in the approach to archival description of them. The focus has switched from being product-oriented (finding aids) to process-oriented in that one must capture descriptions (metadata) about the records as they are being created and used — in essence “documenting documentation.”<sup>67</sup> This has also caused archivists to begin to view archival records from a post-custodial view as opposed to the traditional custodial view, as much of the descriptive efforts take place before the time of accessioning.

There are two final developments in archival descriptive theories and practices that deserve mention: the development of Encoded Archival Description (EAD), and the influence of postmodernist thought on archival description. EAD is both a data structure standard as well as a data communication standard. It specifies data elements and their configuration and enables communication of data over networks, particularly the Internet. EAD is based on pre-existing standards, specifically SGML (Standard General Markup Language) and XML (Extensible Markup Language)<sup>68</sup> and is freely available and

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<sup>66</sup> David Bearman, “The ICA Principles Regarding Archival Description,” *Archives and Museum Informatics* 6, 1 (Spring 1992): 20.

<sup>67</sup> *Ibid.*, “Documenting Documentation,” *Archivaria* 34 (Summer 1992): 34, 39.

<sup>68</sup> XML and its parent language SGML are markup languages that provide structure for electronic records, including museological and archival descriptive records, so that they can be communicated in a consistent manner within the electronic environment. They are platform independent open standards. See:

software-independent. It was developed in part due to the restrictions of the MARC — specifically, that it could only handle brief descriptions, that it did not accommodate hierarchical information well, and that it was proprietary in nature. The beta version of EAD was made available to archivists in 1996,<sup>69</sup> and since its release, it has had a significant impact on making archival descriptions both easier to search and easier to access by a broader audience.

Lastly, postmodernist theory has impacted upon archival descriptive practices. It has re-conceptualized archival records, demonstrating that they should be recognized as ever-evolving mediations between the archivist, record, and user, and that they are influenced by the socio-cultural climate of the time of their interpretation. As such, the act of describing such records should also be viewed as a subjective activity that inherently includes the biases of the describer and of society at large. Who chooses what is described and how it is described? How does the act of description affect the meaning of the record? Archival postmodernist thinkers posit that descriptive choices should be made more readily apparent and accessible to users.<sup>70</sup>

### **An Overview of Museological Descriptive Practices**

Perhaps the earliest form of intellectual control over collections was the memory

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Robin Cover, ed., “Core Standards: Standard Generalized Markup Language (SGML),” July 12, 2002, <http://xml.coverpages.org/sgml.html> (last accessed April 14, 2007).

<sup>69</sup> Daniel V. Pitti, “Encoded Archival Description: The Development of an Encoding Standard for Archival Finding Aids,” *American Archivist* 60, 3 (Summer 1997): 268, 275, 281.

<sup>70</sup> For a discussion of postmodernism in relation to archival description see: Wendy M. Duff and Verne Harris, “Stories and Names: Archival Description as Narrating Records and Constructing Meanings,” *Archival Science* 2, 3/4 (2002): 263-285.

of the curator, and although this may have sufficed for small collections, as collection sizes increased written records became necessary.<sup>71</sup> Because early museum collections tended to be small and privately owned, there was often little need to keep orderly documentation about the collections aside from basic lists, which generally did not include description of the objects or their provenance. One example of such a catalogue is Ole Worm's *Museum Wormianum Seu Historia Rerum Rariorum*, printed in Amsterdam in 1655.<sup>72</sup> The first museum catalogue published in Britain was most likely John Tradescant's *Musaeum Tradescantianum* (1656). Most of its entries are simple listings of the objects in both Tradescant's and Elias Ashmole's collections, before they jointly formed the Ashmolean Museum at Oxford University in 1683. This catalogue was also used by Museum's administration, known as the "Visitors", to perform an accurate annual audit of the Museum's collections.<sup>73</sup>

By the eighteenth century many institutions continued to produce idiosyncratic inventory lists including, for example, the British Museum. Records of the Museum's holdings, which at the time included 80 000 objects from the collections of Sir Hans Sloane and the Cotton and Harley libraries, began in 1756 using bound ledgers known as the "Book of Presents". The British Museum and many other institutions focused on accession records like these, often to the detriment of other documentation activities, including records organization, classification, and retrieval of collections information. These activities were generally taken care of by individual departments, which resulted in

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<sup>71</sup> Elda Grobler, "Collections Management Practices at the Transvaal Museum, 1913-1964: Anthropological, Archaeological and Historical" (PhD diss., University of Pretoria, 2006), 39.

<sup>72</sup> Callery, 45.

<sup>73</sup> *Ibid.*, 46.

disparate procedures within the institution and uneven access to information.<sup>74</sup>

Accession registers like the “Book of Presents” were the primary form of documentation for tracking and organizing collections information for museums of this era. They were organized in numerical order by accession number; new things that came in were given the next sequential number. Early accession registers usually had only one access point, the accession number, and this made them difficult to use, as there was usually no indexing by subject. In these cases, early accession registers were sometimes used in conjunction with an index to provide additional access points.<sup>75</sup>

Even with this focus on accession records, as collections and the public interest in them grew, museum catalogues began to become more complex and sophisticated in the nineteenth century. They varied from traditional inventory-style lists to more sophisticated catalogues containing additional access points to the collections information. More specifically, simple lists, which were often recorded in bound ledgers or registers, continued to be effective when used in combination with the tacit knowledge and memory of museum employees. Alternatively, as demonstrated at the German National Museum in Nuremberg in 1853, systematic descriptive systems incorporating multiple access points such as name and subject were being developed. Hans von Aufsess, one of the founders of that Museum, was instrumental in ensuring that this type of system was captured in the act constituting that institution. This provided more sophisticated access to collections information than the one-dimensional accessions

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<sup>74</sup> Grobler, 41.

<sup>75</sup> Ibid., 40.

register, in which one could search only by accession number.<sup>76</sup>

Catalogue formats and various purposes for which catalogues were used in museums continued to evolve over time. As more museums were founded in the eighteenth and nineteenth centuries, public interest in them grew. Because people were not always able to travel to various institutions personally, museum catalogues became another way for cultured persons to learn about and explore their world.<sup>77</sup> Museum catalogue information was published and distributed in various public forms, including local newspapers, annual reports, minute books, and scholarly and amateur guides or booklets that listed, described, and illustrated objects.<sup>78</sup> These practices contrasted with the traditional way to manage collections information in museums, which was to keep it restricted. Collections information intended for public consumption was typically made available via labels for exhibits, the objects for which had been selected, interpreted and mediated by the curator. Museum collections information has traditionally been intended primarily for internal purposes for several reasons, including security concerns and donor privacy,<sup>79</sup> whereas catalogues in library and archival domains have primarily been intended for public use. A complementary example of the mediation of museum collections and collections information is the nineteenth-century concept of the “index” museum. In other words, what is represented to the public is merely a fraction of the museum’s holdings, and this selection serves as an index to the larger collection.<sup>80</sup>

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<sup>76</sup> Ibid.

<sup>77</sup> Callery, 48.

<sup>78</sup> Grobler, 40.

<sup>79</sup> This is with exception to some circumstances previously described, such as lists published as booklets, in newspapers, or in other public media.

<sup>80</sup> Callery, 42.

Several developments took museum description to a new level away from the bound ledger accession books common from prior centuries. Although these ledgers remained popular in the early twentieth century, new ways of managing museum collections information were introduced at that time, including some borrowed from new library technologies, including card catalogues and subject classification systems. For example, Watson Kent of the Metropolitan Museum of Art implemented the first systematic accessioning system in an American museum in 1905 by developing a numerical registration system that matched record to object as well as by adapting Melville Dewey's library unit card system to museum accession records.<sup>81</sup>

Awareness of the importance of having an accurate inventory of museum holdings was recognized at least by the nineteenth century, for example, in 1888 with the British Treasury's acknowledgement of the need for conducting a regular audit of museum holdings. However, policies and procedures for conducting such audits was slow in coming, partially because of delays caused by both World Wars. By the mid-twentieth century, museums in the United Kingdom and elsewhere had difficulty accounting for all of the objects in their collection, both with respect to locating the physical objects as well as having adequate intellectual records about them.<sup>82</sup> For many decades, collections documentation in museums had been secondary to collecting and preserving objects. Lacking a strong core of sound documentation, other museum

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<sup>81</sup> Ibid., 51-52. One potential reason why accession records remained popular was that they were more easily locked away than bulky multi-part card catalogues. Still, by the mid to late twentieth century, most museum manuals advocated card catalogue systems as the preferred method for manual documentation systems. See the following for examples: Dorothy H. Dudley and Irma Wilkinson, Museum Registration Methods (Washington, D.C.: The American Association of Museums and The Smithsonian Institute, 1968): 20-25; Daniel B. Riebel, Registration Methods for the Small Museum: A Guide for Historical Collections (Nashville: American Association for State and Local History, 1978): 79-95.

<sup>82</sup> Grobler, 42.

functions dependent on the collections faltered, such as research, education and exhibition.<sup>83</sup> As the century progressed, it became increasingly clear that new methods and procedures for adequately documenting museum collections were necessary, especially when considering the increasing need for public accountability.

Greater public accountability began to come into focus in the 1960s with an increased interest in the management and administration of publicly funded institutions by federal and corporate funders as well as by the public. Because of this new interest, public institutions had to be able to account for how they conducted their affairs and, in the case of museums how collections are cared for and documented.<sup>84</sup> In part due to several lawsuits in the 1960s against various museums, for example, Lefkowitz v. The Museum for the American Indian: Heye Foundation, in which one of the Attorney-General charges concerned the failure to keep adequate records, attention was drawn to the need to improve museum documentation standards.<sup>85</sup> In addition, museum accreditation programmes began to surface in the late 1960s, and the first 17 museums were formally accredited by the American Museums Association (AMA) in 1971.<sup>86</sup> Proper collections management practices were included as part of the accreditation process because, as later iterated by the AMA in their guidelines for collections stewardship:

[p]ossession of collections incurs legal, social, and ethical obligations to provide proper physical storage, management, and care for the collections and associated documentation, as well as proper intellectual control. Collections are held in trust

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<sup>83</sup> Callery, 57.

<sup>84</sup> Ibid., 21-22.

<sup>85</sup> Grobler, 43.

<sup>86</sup> American Museums Association, "Accreditation Program History," <http://www.aam-us.org/museumresources/accred/history.cfm> (last accessed on April 9, 2007).

for the public and made accessible for the public's benefit. Effective collections stewardship ensures that the objects the museum owns, borrows, holds in its custody, and/or uses are available and accessible to present and future generations. A museum's collections are an important means of advancing its mission and serving the public.<sup>87</sup>

Clearly strong collections management practices are important for reasons of professional integrity and public accountability as well as for practical operational concerns such as being able to regularly locate objects in the collection.

The introduction of computerization and automation to the museum sector opened up a plethora of new options for managing museum information, including the availability of various types of databases, which enabled greater sophistication of cross-referencing and access to collections information and remote networked access.

Significant projects such as the Museum Computer Network (MCN) (1967)<sup>88</sup>, the Museum Documentation Standard (MDA) (1977)<sup>89</sup>, and the Canadian Heritage Information Network (CHIN) (1972)<sup>90</sup> were founded during the early era of automation,

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<sup>87</sup> American Association of Museums, The Accreditation Commission's Expectations Regarding Collections Stewardship, December 17, 2004 [http://www.aam-us.org/museumresources/accred/upload/Collections%20Stewardship%20ACE%20\(2005\).pdf](http://www.aam-us.org/museumresources/accred/upload/Collections%20Stewardship%20ACE%20(2005).pdf) (last accessed April 9, 2007).

<sup>88</sup> MCN's original focus was to develop a prototype mainframe system for automating museum registration records. Formally incorporated as a non-profit organization in 1971 in the United States, its focus has since been to unite interested museum professionals in developing networked systems for managing and providing access to automated museum information. See: Museum Computer Network, "MCN History", 2007, <http://www.mcn.edu/about/index.asp?subkey=3> (last accessed April 9, 2007).

<sup>89</sup> The MDA, which originally stood for the Museum Documentation Association, grew out of the Information Retrieval Group of the Museums Association (IRGMA) in the United Kingdom the late 1960s, formally incorporated in 1977. Although its original focus was museum cataloguing, its focus expanded to incorporate broader issues concerning collections management in the 1980s. MDA developed cataloguing and classification systems, documentation standards (the most recent of which is the revised version of SPECTRUM, or Standard Procedures for Collections Recording Used in Museums, published in 2005), and a database for managing collections information (MODES, or the Museum Object Data Entry System). See: MDA, "History of MDA," <http://www.mda.org.uk/history.htm> (last accessed April 9, 2007).

<sup>90</sup> CHIN was formerly known as the National Inventory Programme (NIP) and was founded in 1972 to create a national inventory of public collections. It became known as CHIN in 1982. Along with creating a national network, CHIN has been involved in developing descriptive standards, including data dictionaries for specific disciplines and virtual exhibit space, notably the Virtual Museum of Canada

largely made possible due to the newly available automated systems. One impact of these new automated museum recordkeeping systems was that dependence upon staff memory and expertise was lessened. The focus became less about knowledge of the collections themselves than being knowledgeable in the general systems created to manage the collections. This proved valuable in the 1980s when, although the number of staff had increased, so had their transience.<sup>91</sup>

Because of previous problems with disorganization of collections information and the new opportunities made available via automation, the development of formal descriptive standards has been vigorously pursued since the 1960s. Many of the procedures and practices previously in place, iterated in various museums manuals of the earlier twentieth century, do not reference any particular documentation standard, implying that many practices in place were either based on *de facto* standards or simply evidence of collective institutional best practices. The Museum Documentation Standard was one of the first descriptive standards codified and published,<sup>92</sup> and it was concerned with both syntax conventions, or how information is organized within a field, and vocabulary conventions, or determining which words should be chosen to represent a

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(VMC). See: Canadian Heritage Information Network, "Canadian Heritage Information Network (CHIN) – History," July 27, 2006, [http://www.chin.gc.ca/English/About\\_Chin/history.html](http://www.chin.gc.ca/English/About_Chin/history.html) (last retrieved April 9, 2007). See Appendix C for typical examples of museological descriptive records in Artefacts Canada, Canadian Heritage's database of humanities-related collections' records ([http://www.chin.gc.ca/English/Artefacts\\_Canada/index.html](http://www.chin.gc.ca/English/Artefacts_Canada/index.html)).

<sup>91</sup> Callery, 31.

<sup>92</sup> MDA's documentation standard was first published in 1991 and expanded and re-released as a comprehensive documentation standard, SPECTRUM, in 1994, which was subsequently revised in 2005. This documentation standard addresses the documentation system of a museum as a whole from acquisition, to registration, to cataloguing, to subsequent use or display of the object, not just cataloguing and classification activities. See: MDA, "History of MDA."

certain concept.<sup>93</sup> CHIN developed several data dictionaries at that time, one each for humanities, archaeological sites and scientific collections.<sup>94</sup> Other documentation standards for museum collections developed in recent decades include the Conceptual Reference Model (CRM) of the International Committee for Documentation of the International Council of Museums (ICOM-CIDOC),<sup>95</sup> the American data structure standard, Categories for the Description of Works of Art (CDWA)<sup>96</sup> and the American data content standard, Cataloguing of Cultural Objects (CCO).<sup>97</sup> Lastly, further attempts were made to adapt descriptive practices from sibling professions, particularly the library profession, were made in the 1980s and 1990s, but this experimentation generally resulted in the recognition of the need for specialized systems and vocabularies for the museums sector.<sup>98</sup>

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<sup>93</sup> MDA, MDA Data Standard (Cambridge: MDA, 1991): 5.

<sup>94</sup> Data dictionaries define the categories of information found in databases, and thus can be used to help determine appropriate structures for databases. CHIN's data dictionaries developed from the three National Inventories of Canadian heritage collections in the 1970s. Links to each of the dictionaries are provided on: Canadian Heritage Information Network, "Collections Management," July 7, 2004, [http://www.chin.gc.ca/English/Collections\\_Management/index.html](http://www.chin.gc.ca/English/Collections_Management/index.html) (last retrieved April 9, 2007).

<sup>95</sup> The ICOM-CIDOC CRM "provides definitions and a formal structure for describing the implicit and explicit concepts and relationships used in cultural heritage documentation" and research for it began in 1996. See: Nick Crofts et al., eds., Definition of the CIDOC Conceptual Reference Model (ICOM/CIDOC Documentation Standards Group: 2003), available online at [http://cidoc.ics.forth.gr/docs/cidoc\\_crm\\_version\\_4.2.pdf](http://cidoc.ics.forth.gr/docs/cidoc_crm_version_4.2.pdf) (last accessed April 14, 2007).

<sup>96</sup> CDWA includes over 500 categories and sub-categories that provide a framework for describing and accessing art information. Work on it began in the early 1990s. See: Murtha Baca and Patricia Harpring, eds., Categories for the Description of Works of Art (Los Angeles: J. Paul Getty Trust, August 2006), available online at [http://www.getty.edu/research/conducting\\_research/standards/cdwa/index.html](http://www.getty.edu/research/conducting_research/standards/cdwa/index.html) (last accessed April 14, 2007).

<sup>97</sup> CCO pertains to cataloguing cultural works and their visual surrogates. See: Visual Resources Association, "Cataloging Cultural Objects – Brochure," 2006, <http://www.vraweb.org/ccoweb/cco/about.html> (last accessed April 14, 2007).

<sup>98</sup> For example, a MARC standards for cataloguing visual resources (MARC VM) was introduced in 1987, but proved to be less useful for collections other than photographs. For more information see: Esther Green Bierbaum, "MARC in Museums: Applicability of the Revised Visual Materials Format," Information Technology in Libraries 9, 4 (December 1990): 291-299. In addition, the possibility of implementing EAD in museum contexts was investigated. See: Richard Rinehart, "Cross-community Applications: The EAD in Museums," in Encoded Archival Description on the Internet, ed. Daniel V. Pitti and Wendy M. Duff, 169-186 (Binghamton, NY: Haworth Press, Inc., 2001).

Another prevalent trend in the early days of automation in museums was the development of classification systems and controlled vocabularies, or data value standards, including thesauri. Examples of these include Chenhall's Nomenclature for Museum Cataloging (1978),<sup>99</sup> MDA's Social History and Industrial Classification (SHIC) (1983),<sup>100</sup> and the Canadian Parks Service's Classification System for Historical Collections (1992),<sup>101</sup> among others. The ability to manage complex museums information in a flexible, expandable and linkable automated environment made developing and employing complex classification systems more desirable and manageable. Several thesauri commonly used in museological description have also been developed in the past few decades, notably those developed by the Getty Institute, including the Art and Architecture Thesaurus (AAT).<sup>102</sup>

Automated systems are ever evolving. Other organizations and projects in addition to MCN, CHIN and MDA have developed as well in recent years. The Consortium for Interchange of Museum Information (CIMI) was one such project initiated in 1990 and it was concerned with developing a standards framework for

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<sup>99</sup> Chenhall's Nomenclature (Nashville: American Association for State and Local History, 1978; revised and republished in 1995) was intended for the classification of man-made objects and was organized in relation to the original function of the objects.

<sup>100</sup> By classifying a wide variety of museum materials in accordance with the primary human activity with which they are associated, SHIC identifies relationships between objects via their context. See: Stuart A. Holm, "SHIC: A Subject Classification for Museum Cataloguing," <http://www.holm.demon.co.uk/shic/> (last accessed April 14, 2007).

<sup>101</sup> This classification system was based on Chenhall's Nomenclature but was expanded and tailored to the Canadian Parks context. For instance, it expanded the classification terms for military artifacts and costumes, which are customarily found in Canadian heritage sites, and included French translations. See: Canadian Parks Service, Classification System for Historical Collections (Ottawa: Minister of Supply and Services Canada, 1992).

<sup>102</sup> The AAT is a structured vocabulary including approximately 131,000 terms, descriptions, and other information related to art, architecture, and other material culture. See: Getty Institute, "Art & Architecture Thesaurus Online," [http://www.getty.edu/research/conducting\\_research/vocabularies/aat](http://www.getty.edu/research/conducting_research/vocabularies/aat) (last accessed April 14, 2007).

exchange of museum information both internally within museums as well as externally between museums. Its research and development included incorporation of such standards as Z39.50<sup>103</sup> and such technological structures as SGML and XML. This project also looked toward future possibilities, including opportunities for interoperability between various descriptive systems, including those from libraries and archives.<sup>104</sup> Of related interest is the development of XML schema for use with the aforementioned data content and data value standards, notably a schema for SPECTRUM, CDWA and VRA Core 4.0. These will increase opportunities for interoperability and increased accuracy of content description, with its sophisticated ability to tag data content.

### **A Brief Comparison of the Preceding Sections along with Concluding Remarks**

This historical overview has illustrated how the evolution of descriptive practices between libraries, archives and museums share some commonalities. Descriptive practices in each sector developed from basic inventory lists in ancient times to ever more sophisticated catalogues, finding aids and systems containing complex collections information distributed and made available over large and often public networks. This evolution in practice was prompted by exponential increases in the number and size of

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<sup>103</sup> Z39.50 is a protocol that regulates how information is searched and retrieved from remote databases and was originally developed for the library sector. See: Library of Congress Network Development & MARC Standards Office, "Z39.50 International Standard Maintenance Agency," May 31, 2006, <http://www.loc.gov/z3950/agency/> (last accessed April 14, 2007).

<sup>104</sup> CIMI began in the mid 1980s and ceased operations in 2003. Its website, <http://www.cimi.org> is accessible through the Wayback Engine at the Internet Archive at <http://www.archive.org>. For further information about CIMI, see: David Bearman and John Perkins, "Standards Framework for the Computer Interchange of Museum Information", 1993, <http://www.cni.org/pub/CIMI/framework.html> (last accessed April 30, 2007).

institutions, public interest, and by the availability of new technologies, especially automated systems.

In the automated environment, and responding to the demands of a global information market, various descriptive standards (content, value, structure and interchange) were developed in each sector along with increasingly sophisticated subject classification schemes, controlled vocabularies, or in the case of archives, innovative ways of dealing with challenging issues, such as electronic records. These have served to increase the consistency of the information in descriptive products as well as enable such products to be shared and distributed remotely.

Although there are significant differences in practices between these institutions, as technology continues to become more sophisticated, it will become easier to capitalize upon the similarities and compromise on the differences in descriptive practices, or at least find ways to ensure that these differences do not interfere with collaborative descriptive efforts. Appendix D summarizes the basic concepts, systems and structures of the current descriptive practices in libraries, archives and museums. All three sectors, particularly during the information revolution of the past few decades, have been finding ways to better serve their clientele in a very challenging, large, distributed global digital environment.

There are ways to meet these new demands and challenges jointly in co-operative ventures, as increasingly cultural heritage partners are recognizing the potential inherent in collaborative partnerships, especially when trying to satisfy information-hungry consumers. As the following chapter will discuss, there are ways to compromise

regarding these traditional descriptive practices in order to participate in an integrated system project. Further, the development of comparable descriptive standards serving similar functions, especially those that can be encoded in a cross-platform open source language like XML, better enables collaborative descriptive projects.

## **Chapter 4**

### **Options for Creating Integrated Descriptive Systems for Libraries, Archives and Museums**

#### **Introduction**

The previous three chapters have outlined some of the challenges and opportunities involved in the pursuit of more collaborative work among libraries, museums and archives. This chapter will examine how the challenges may be addressed and opportunities pursued in the key emerging area of collaborative work – the development of integrated descriptive systems for these institutions. Having outlined and explored the historical evolution of the three types of institution, highlighting some of the similarities and differences, and having briefly explored the development of descriptive systems within each type of heritage institution with an introductory comparative analysis, it is now time to address how integrated descriptive systems can be created.

Some aspects of why such systems would be desirable to create have already been introduced, particularly in the last section of the second chapter. To briefly reiterate, by working together to create integrated descriptive systems, archives, libraries and museums would create new and enhanced service opportunities for clients, who do not necessarily care where the resource is located, only that they have access to it. Further, creating various types of partnerships including but not limited to integrated descriptive systems between these heritage groups could serve to bolster public support, as advocacy efforts could be undertaken in a collaborative manner.

This chapter will provide information on one concrete way to work together for the purpose of enhancing user service, creating integrated descriptive systems. Such systems can exist both within single institutions as well as between different institutions. While institutional amalgamation is not commonplace, for example, with the recent amalgamation of the National Library and National Archives of Canada into Library and Archives Canada (2005), convergence in the cultural heritage sector and collaboration between sibling heritage partners does not necessitate or depend upon institutional amalgamation. In fact, much of the research in this area and the systems that have been developed as a result, has taken place in inter-institutional environments in the regional, national and international arenas. Concern for creating integrated access to cultural heritage information specifically is often just one consideration of a larger framework of interest in developing integrated information systems and infrastructure. For example, it is a component of several countries' digital information management research and development projects including Canada's National Digital Information Strategy and the United Kingdom's Common Information Environment as well as being one area of concern within the European Commission's IST research frameworks.<sup>1</sup> Interest in improving the digital information infrastructure is common to many people in many

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<sup>1</sup> Library and Archives Canada is spearheading Canada's National Digital Information Strategy. For more information, see <http://www.collectionscanada.ca/scin/index-e.html> (last accessed 28 Apr. 2007). The Museums, Libraries and Archives Council (MLA) is one sponsor of the United Kingdom's Common Information Environment project, for which more information can be found at <http://www.common-info.org.uk/> (last accessed 28 Apr. 2007). The European Union is currently funding its seventh Research Framework Program (2007-2013), and the Information and Communication Technologies (ICT) (formerly Information Society Technologies (IST)) is responsible for several projects pertaining to managing and integrating digital information. See its main website at [http://cordis.europa.eu/fp7/home\\_en.html](http://cordis.europa.eu/fp7/home_en.html) and the ICT website at <http://cordis.europa.eu/fp7/ict/> (last accessed on 28 Apr. 2007). An investigation and analysis of the larger infrastructure underlying research into integration of digital information systems, including those that specifically address integrated cultural heritage information systems is outside the scope of this chapter.

contexts.

As mentioned in previous chapters, descriptive records are created in the context of sector-specific descriptive standards, which are essentially different metadata schema. In order to understand how integrated descriptive systems are created, it will be necessary to first provide some background information on the nature of metadata and metadata schema and their interrelation. This information will be provided in relation to two fundamental concepts for creating integrated descriptive systems in the automated environment: technological interoperability and semantic interoperability. Following this, the primary technological methods for creating integrated descriptive systems will be discussed: federated systems, metadata aggregation systems, and the collection description method, as well as hybridized systems. Discussion of these methods will include reference to some projects that have been undertaken using these methods. The chapter will conclude with a discussion of the pros and cons of these various options for creating these descriptive systems, some similarities among them, and other issues that are important to consider when developing these types of systems.

### **An Introduction to Metadata, Technological Interoperability and Semantic Interoperability**

Although metadata was previously briefly defined as “structured data about data,”<sup>2</sup> a more thorough definition is that it “is data which describes the attributes of a resource... [and] supports the processes of resource discovery, selection, evaluation,

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<sup>2</sup> Refer to Chapter 3, footnote 37.

documentation and management”.<sup>3</sup> Descriptive standards were described in the last chapter as being types of metadata schema, and metadata schema can be more specifically defined as

[providing] a formal structure designed to identify the knowledge structure of a given discipline and to link that structure to the information of the discipline through the creation of an information system that will assist the identification, discovery, and use of information within that discipline.<sup>4</sup>

There are two primary components to metadata schema, or metadata elements sets: semantic definition of the meanings of their elements; and defining and providing instructions with respect to content, or how values are to be assigned to the elements.<sup>5</sup> The primary means of creating integrated descriptive systems are through the management and exchange of metadata. This is done in accordance to methods that are both technologically and semantically interoperable.

What is technological interoperability and why is it important? Technological interoperability essentially refers to the capability of different information technologies to work together.<sup>6</sup> In the context of descriptive systems within the cultural heritage context, this pertains particularly to the relationships between various metadata schemas and the systems for their management and exchange within a networked environment. There has

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<sup>3</sup> Lorcan Dempsey, “Metadata: The UK HE [Higher Education] Perspective,” in Beyond the Beginning: The Global Digital Library, ed. Marc Fresko Consultancy ([United Kingdom]: British Library Board and Joint Information Systems Committee of the Higher Education Funding Bodies, 1997), available online at <http://www.ukoln.ac.uk/services/papers/bl/blri078/content/repor~27.htm> (last accessed April 27, 2007).

<sup>4</sup> CC:DA (ALCTS/CCS/Committee on Cataloging: Description and Access), Task Force on Metadata: Final Report, June 16, 2000, available online at <http://www.libraries.psu.edu/tas/jca/ccda/tf-meta6.html> (last accessed April 27, 2007).

<sup>5</sup> Lois Mai Chan and Marcia Lei Zeng, “Metadata Interoperability and Standardization – A Study of Methodology, Part 1,” D-lib magazine 12, 6 (June 2006), <http://www.dlib.org/dlib/june06/chan/06chan.html> (last accessed April 27, 2007).

<sup>6</sup> See Chapter 2, footnotes 36 and 37 for general definitions of interoperability.

been interest in capitalizing upon commonality in metadata and using it to optimize convergence for several decades, exemplified in various projects including that of the National Library of Australia which in 1986 created a report that identified potential metadata in common between the three heritage sectors.<sup>7</sup> Some similar fields were later codified in Dublin Core, which was first introduced in 1995.<sup>8</sup>

What is semantic interoperability and how is it relevant? Semantics refers to the study of meaning as represented in language. To be semantically interoperable in the context of integrated descriptive systems for different types of cultural heritage institutions refers to how the higher meaning of language used in any of the three respective disciplines has been analyzed to reveal the core underlying concepts, and these fundamental concepts have been co-related or mapped to one another as being roughly analogous. For example, the concepts of author and creator can be considered to represent similar concepts. Technological and semantic interoperability have an inter-related role to play in the creation of integrated descriptive systems. Semantic analysis must underlie the creation of any technological interoperability solutions. In practical terms, it is most commonly used to elucidate system design especially with respect to metadata management.

One particularly notable project to help develop greater semantic interoperability in the exchange of cultural heritage information is the International Committee for

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<sup>7</sup> Warwick Cathro, "Smashing the Silos: Towards Convergence in Information Management and Resource Discovery" (presentation, Canberra, Australia, April 5, 2001).  
<http://www.nla.gov.au/nla/staffpaper/2001/cathro2.html> (last accessed May 13, 2007).

<sup>8</sup> The Dublin Core Metadata Terms created by the Dublin Core Metadata Initiative are a standardized set of 15 metadata elements used for cross-domain information resource description. For more information on Dublin Core, see <http://dublincore.org/>.

Documentation of the International Council on Museums' Conceptual Reference Model (CIDOC CRM). The CIDOC CRM is "an object-oriented domain ontology for exchanging rich cultural heritage data ... [which] employs object-oriented data modeling techniques to formalize the semantic concepts used in museum, library and archive documentation, with the aim of facilitating information interchange."<sup>9</sup> Essentially this means that the CIDOC CRM helps to specify and clarify the concepts that are needed to exchange cultural heritage information. It defines the relevant types of elements and how they interrelate within this information sector. Being expressed in an object-oriented model allows for relationships between entities to be more accurately expressed, whether they are hierarchical relationships or other types of relationships. The CIDOC CRM is not a metadata model itself, but it is intended to inform other metadata models or influence the creation of new ones. It is to act as a conceptual guideline to aid in developing integrated information systems with a higher level of semantic interoperability.<sup>10</sup> While metadata crosswalks, which will be discussed shortly, can aid in creating well functioning integrated systems, because not all fields map directly to one another, semantic slippage can occur. The use of conceptual reference models like CIDOC CRM as well as new technologies such as those related to the Semantic Web, which will be introduced shortly, will help to improve the level of semantic interoperability in integrated systems.

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<sup>9</sup> Tony Gill, "Building Semantic Bridges between Museums, Libraries and Archives: The CIDOC Conceptual Reference Model", *First Monday* 9, 5 (May 2004), [http://www.firstmonday.org/issues/issue9\\_5/gill](http://www.firstmonday.org/issues/issue9_5/gill) (last accessed April 29, 2007).

<sup>10</sup> For more information about CIDOC CRM see: Nick Crofts, Martin Doerr and Tony Gill, "The CIDOC Conceptual Reference Model: A Standard for Communicating Cultural Contents," *Cultivate Interactive* 9 (7 Feb. 2003), <http://www.cultivate-int.org/issue9/chios/> (last accessed April 29, 2007). Further, the website for the CIDOC CRM is available at <http://cidoc.ics.forth.gr> (last accessed 29 Apr. 2007).

What metadata-based options for integrated descriptive systems are available that incorporate elements of both technological and semantic interoperability? Primary options include metadata crosswalks, federated searching, metadata aggregation systems, and systems in which a common schema has been used to create new collection-level descriptions. In some contexts, combinations of these approaches have been employed. These options can be conceptualized as enabling interoperability at the schema level (e.g., mapping schemas in crosswalks), the record level (e.g., integrating records into new records after having used a metadata mapping process), and at the repository level (e.g., pooling together harvested or integrated records from various sources).<sup>11</sup> Whatever option is chosen, the desired result of building integrated descriptive systems for libraries, archives and museums to enable integrated access to their collections information is the same.

### **Metadata Crosswalks**

A metadata crosswalk is “a specification for mapping one metadata standard to another” and it “provide[s] the ability to make the contents of elements defined in one metadata standard available to communities using related metadata standards.”<sup>12</sup> As mentioned, crosswalks can be used to enable interoperability between systems, but can also be used for other purposes, including data conversion projects. Several metadata

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<sup>11</sup> Chan and Zeng.

<sup>12</sup> Margaret St. Pierre and William P. LaPlant, Jr., Issues in Crosswalking Content Metadata Standards (NISO whitepaper, October 15, 1998), available online at <http://www.niso.org/press/whitepapers/crswalk.html> (last accessed April 27, 2007).

crosswalks that are relevant for potentially creating integrated descriptive systems for libraries, archives and museums have already been developed. These include mappings of Dublin Core to USMARC,<sup>13</sup> ISAD(G) to EAD,<sup>14</sup> ISAD(G) to SPECTRUM,<sup>15</sup> and USMARC to EAD<sup>16</sup>, among others.<sup>17</sup>

The mapping process consists of several components, including harmonization to ensure consistency across metadata schema, semantic mappings of each of the elements within a specific metadata schema, the creation of rules to clarify procedures should metadata schema not map to each other in strictly one-to-one relationships, and algorithms to complete the mapping process by technically transforming the original metadata set to the other set.<sup>18</sup> The first two parts of the process are the most significant when ensuring that metadata schema are mapped consistently and accurately to one another.

Why are metadata crosswalks necessary to help enable integrated descriptive systems? By mapping metadata schema to one another, the ability to search across

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<sup>13</sup> Library of Congress, Network Development and MARC Standards Office, "Dublin Core/MARC/GILS crosswalk," December 31, 2002, <http://www.loc.gov/marc/dccross.html> (last accessed April 30, 2007).

<sup>14</sup> [Gill, Tony, Anne J. Gilliland, and Mary S. Woodley], "Metadata Standards Crosswalks – ISAD(G) to EAD," in *Introduction to Metadata – Pathways to Digital Information*, Online edition, version 2.1, ed. Murtha Baca (Los Angeles: J. Paul Getty Trust, [ca. 2000]), [http://www.getty.edu/research/conducting\\_research/standards/intrometadata/isad\\_ead.html](http://www.getty.edu/research/conducting_research/standards/intrometadata/isad_ead.html) (last accessed April 30, 2007).

<sup>15</sup> Shepherd, Elizabeth and Rachel Pringle, "Mapping Descriptive Standards Across Domains: a Comparison of ISAD(G) and SPECTRUM," *Journal of the Society of Archivists* 23, 1 (2002): 17-34.

<sup>16</sup> [Tony Gill, Anne J. Gilliland, and Mary S. Woodley], "Metadata Standards Crosswalks – USMARC to EAD," in *Introduction to Metadata – Pathways to Digital Information*, Online edition, version 2.1, ed. Murtha Baca (Los Angeles: J. Paul Getty Trust, [ca. 2000]), [http://www.getty.edu/research/conducting\\_research/standards/intrometadata/usmarc\\_ead.html](http://www.getty.edu/research/conducting_research/standards/intrometadata/usmarc_ead.html) (last accessed April 30, 2007).

<sup>17</sup> Links to metadata crosswalks can be found at <http://www.ukoln.ac.uk/metadata/interoperability/> and <http://www.slis.kent.edu/~mzeng/metadata/crosswalks.htm>.

<sup>18</sup> [Ocean Teacher], "Metadata crosswalks," 2006, [http://ioc.unesco.org/oceanteacher/OceanTeacher2/02\\_InfTchSciCmm/02\\_Meta/07\\_Crosswalks/MetadataCrosswalks.htm](http://ioc.unesco.org/oceanteacher/OceanTeacher2/02_InfTchSciCmm/02_Meta/07_Crosswalks/MetadataCrosswalks.htm) (last accessed April 27, 2007).

disparate databases is enabled. For example, if various fields have been identified as containing information about creatorship or authorship of an entity, regardless of the specific data container label, one would be able to search for creatorship or authorship information within descriptive records in various databases. This type of searching is known as federated searching, which will be discussed more in depth in the following section.

It is important to note that typically only the fields, or data containers, are mapped to one another, rather than the content contained within these fields. However, research in semantic mapping of data content is ongoing, for example, as a component of the Semantic Web and the Resource Description Framework (RDF). The Semantic Web “provides a common framework that allows data to be shared and reused across application, enterprise, and community boundaries,” enabling machines as well as people to be able to access the meaning of natural language content, and identifying semantic links between common elements.<sup>19</sup> Semantic Web technologies can be applied in a variety of contexts, including to aid in data integration, resource discovery and classification, and describing the content of web-based resources.<sup>20</sup>

One of the formal specifications of the Semantic Web is RDF. It can be defined as

an application of XML that imposes needed structural constraints to provide unambiguous methods of expressing semantics for the consistent encoding, exchange, and machine processing of metadata... [as well as providing a] means

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<sup>19</sup> Ivan Herman, “W3C Technology and Society Domain, Semantic Web Activity – Semantic Web,” May 2, 2007, <http://www.w3.org/2001/sw/> (last accessed May 13, 2007).

<sup>20</sup> Ivan Herman (Semantic Web Education and Outreach Interest Group), “W3C Semantic Web Frequently Asked Questions – W3C Semantic Web FAQ,” April 27, 2007. <http://www.w3.org/2001/sw/SW-FAQ#swgoals> (last accessed April 30, 2007).

for publishing both a human-readable and a machine-processable vocabularies designed to encourage the exchange, use and extension of metadata semantics among disparate information communities.<sup>21</sup>

Using RDF involves applying an additional set of metadata tags that qualify the nature of the content. In other words, a natural language statement like “Archives house records” could be tagged to identify the nature, meaning and function of each of the elements of that sentence. Providing this level of analysis in a way that computers understand provides the potential to enable a higher level of semantic interoperability at various levels of description, particularly with respect to data content and data value information.

Although application of Semantic Web technologies, including RDF, is currently nascent in the cultural heritage context, there is much room for growth in this area, particularly as metadata standards and metadata management continue to evolve along with the World Wide Web itself. Returning to the applicability of mapping metadata schema pertaining to data structures or containers, as previously mentioned, metadata crosswalks are a critical component for enabling federated searching.

### **Federated Searching**

Simultaneously searching multiple databases via a single interface or portal is known as federated searching or metasearching. Depending on how the interface has been designed and how the search function has been configured, users could choose which databases to query as well as potentially make use of controlled vocabularies in

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<sup>21</sup> Eric Miller, “An Introduction to the Resource Description Framework,” *D-Lib Magazine* (May 1998), <http://www.dlib.org/dlib/may98/miller/05miller.html> (last accessed April 27, 2007).

one or more of the systems while searching. Lastly, the results are generally displayed either in categories or in an integrated fashion.<sup>22</sup> The different databases would be queried using a commonly understood data exchange protocol like OAI-PMH (Open Archives Initiative – Protocol for Metadata Harvesting), which works with files encoded in XML, and Z39.50, which has traditionally been used to exchange bibliographic records in MARC, though newer applications for XML have also been developed.<sup>23</sup>

Using federated searching to access heterogeneous descriptive records as a solution to providing integrated access to collections information from libraries, archives and museums means that the original descriptive records and the traditional descriptive standards with which they were created remain unaltered. Libraries, archives and museums can each employ and maintain their unique descriptive traditions without any compromise to the quality and richness of their descriptive records. Thus, this is an appealing option for those that wish to participate in collaborative descriptive projects, but without reducing or compromising the nature and quality of their descriptive products according to their descriptive traditions. This potentially sets federated searching apart from another solution to integrated access, collection descriptions, which will be discussed in the following section.

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<sup>22</sup> Mary Woodley, “Crosswalks: The Path to Universal Access?,” In Introduction to Metadata: Pathways to Digital Information. Online edition version 2.1, ed. Murtha Baca (Los Angeles: J. Paul Getty Trust, [ca. 2000]), [http://www.getty.edu/research/conducting\\_research/standards/intrometadata/path.html](http://www.getty.edu/research/conducting_research/standards/intrometadata/path.html) (last accessed April 22, 2007). Examples of other federated search portals include: 1) Excelsior, New York State’s Library/Archives/Museum Catalog, accessible at <http://nysl.nysed.gov/uhtbin/cgisirsi/NJENoniPL0/0/0/49>; and 2) British Columbia Archives’ databases, which include various record formats as well as library items, accessible at <http://search.bcarechives.gov.bc.ca/search>.

<sup>23</sup> For more information about OAI-PMH see <http://www.openarchives.org/pmh/>. For more information about Z39.50, refer to Chapter 3, footnote 103. For information about Z39.50 for use with XML records, see: Antony Corfield and others, “Z39.50 and XML – Bridging the Old and the New” (presentation, Hawaii, United States, May 7-11, 2002). <http://www2002.org/CDROM/alternate/XS2/> (last accessed April 29, 2007).

One prominent example of a federated search system to provide integrated access to library and archival databases is Library and Archives Canada's new integrated holdings management system, AMICAN, which is an amalgamation of its former database for bibliographic records (AMICUS) and archival descriptions database (MIKAN). AMICAN provides simultaneous access to the LAC's combined holdings of published and archival collections as well as bibliographic records of Canadian libraries. The descriptive standards originally in place in AMICUS and MIKAN have remained the same as before and are accessible via a single portal.<sup>24</sup>

### **Metadata Aggregation Systems**

The basic idea underlying a metadata aggregation is that metadata, or descriptive records, are gathered and pooled together into a common repository. An Internet bot is used to search for new records at regularly specified intervals, and the records retrieved are stored in a central repository. The end user searches the records in this central repository, rather than simultaneously searching multiple databases like in a federated search. This is how AlouetteCanada has been designed; records are harvested from external databases and centrally stored in AlouetteCanada's own repository. Smaller institutions also have the option of uploading digital content directly into the repository

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<sup>24</sup> Library and Archives Canada, Digital information at Library and Archives Canada: An Overview of Progress and Issues, March 14, 2006, <http://www.collectionscanada.ca/cdis/012033-602-e.html> (last accessed April 22, 2007). This new product is currently in its field testing phase and can be directly accessed at <http://www.collectionscanada.ca/index-e.html>. The results are grouped by database, specifically, results found from the library, archives, and website databases. Further analysis and categorization of the initial search results are provided using the "show all" link for each list of results from each discrete database. For instance, archival search results can be further sorted by type of media, location within the descriptive hierarchy and date. Refer to Appendix E for sample search results using this system.

with the aid of online tools.<sup>25</sup> Essentially, AlouetteCanada serves as a meta-aggregator, as some of its sources include other aggregators like ARCHEION (the Ontario provincial archival records digital repository) and Artefacts Canada (the national museum collections database).

AlouetteCanada takes a decentralized approach, supported by co-operation between repositories, cultural heritage professional associations, and educational institutions. As mentioned, metadata is collected in a variety of ways and once the records are inputted, URLs are also attached to the records so that end-users will be able to navigate back to the host repository's website. AlouetteCanada makes use of Lucene, an open-source indexing software, various thesauri, and Canadian Gazetteer geographic names. Both item-level and collection-level records can be searched and the metadata is being gathered in such a way to support future potential to migrate to the next generation of system.<sup>26</sup>

KnowledgeOntario, formerly Ontario Digital Library, functions in a similar way to AlouetteCanada but on a provincial scale. It is a publicly funded multi-project programme that aims to expand, transform, integrate and enhance Ontario's digital information network to better enable Ontarians' access to information and education. OurOntario.ca, one of its several programs, consists of an integrated search portal that provides access to the digital content produced by Ontario's various cultural heritage

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<sup>25</sup> For more information about AlouetteCanada, see its website at <http://www.alouettecanada.ca/home-e.php> (last accessed 28 Apr. 2007). Further information about the project can be found in Katherine McColgan's presentation at the Netspeed 2006 conference in Edmonton, Alberta, entitled "AlouetteCanada: Helping Canadians to FUSE and Tell their Story", accessible at [www.thealbertalibrary.ab.ca/files/Netspeed\\_06\\_Thurs\\_Lunch.ppt](http://www.thealbertalibrary.ab.ca/files/Netspeed_06_Thurs_Lunch.ppt) (last accessed April 28, 2007).

<sup>26</sup> *Ibid.* Refer to Appendix F for sample search results using this system.

institutions including libraries, archives, museums, and historical societies. It, too, uses bots to harvest records from other databases to store them in a central repository as well as aiding other repositories to digitize and contribute their collections records to this central OurOntario.ca repository to be accessed by end users.<sup>27</sup>

There is one more important example of a metadata aggregation integrated descriptive system that deserves mention, the Cultural Materials project of the former RLG (originally known as the Research Libraries Group).<sup>28</sup> The purpose of this project was to provide integrated access to digital cultural heritage collections information not only from various types of repositories in the United States, but also from others around the world. At the time of the project's demise in May 2007, 54 separate repositories had been participants.<sup>29</sup> The project had both a paid subscription service (Cultural Materials) as well as a public access service known as Trove.net.<sup>30</sup> The aim of this project was to collaboratively enable cross-sectoral integrated access to cultural heritage information, which would help streamline research and enhance educational programming.

Negotiating and sharing rights management costs was also an important issue in this

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<sup>27</sup> For more information about Ontario.ca, see its website at [http://www.knowledgeontario.ca/OUR\\_ONTARIO/index.html](http://www.knowledgeontario.ca/OUR_ONTARIO/index.html) (last accessed April 28, 2007). Its federated search portal is available at <http://search.ourontario.ca/OurOntario/search> (last accessed April 28, 2007). Further information about the project can be found in Brian Bell's presentation to the Ontario Association of Library Technicians (OALT/ABO) in May 2006 entitled "National Information Strategy: Where Does Ontario Fit?, or, 2006: The Year of Convergence", accessible at [www.oaltabo.on.ca/Brian\\_Bell\\_presentation2006\\_v2.ppt](http://www.oaltabo.on.ca/Brian_Bell_presentation2006_v2.ppt) (last accessed April 28, 2007).

<sup>28</sup> Research Libraries Group amalgamated with OCLC in June 2006, becoming part of OCLC's Programs and Research Division. For more information see [http://www.rlg.org/en/page.php?Page\\_ID=2](http://www.rlg.org/en/page.php?Page_ID=2) (last accessed April 30, 2007).

<sup>29</sup> More information about the project's demise can be found in an OCLC product service status bulletin, accessible at <http://www.oclc.org/community/rlg/transitions/discontinued/rcm/rcm-future.pdf> (last accessed April 28, 2007).

<sup>30</sup> These can be accessed at <http://culturalmaterials.rlg.org/cmiproduct/servlet/cmi.servlets.CMIStart?ACTION=LOGON&USERID=&PASSWORD=> and <http://trove.net/>, respectively (last accessed April 28, 2007).

project.

With regard to technical aspects, RLG's Cultural Materials Alliance Description Advisory Group developed the "Descriptive metadata guidelines for RLG Cultural Materials" manual which offered detailed guidelines for metadata requirements and management when participating in the project.<sup>31</sup> RLG Cultural Materials accepted descriptive records that were constructed using a wide variety of standards and metadata formats, created according to individual repository standards, including Categories for Description of Works of Art (CDWA), Dublin Core (DC), Encoded Archival Description (EAD), MARC 21, and SPECTRUM, amongst others.<sup>32</sup> One of the basic stipulations of participation, however, was that both collection descriptions and item-level descriptions had to be submitted in order to participate.<sup>33</sup>

While RLG Cultural Materials was designed to accept records from a broad number of nationally and internationally sanctioned descriptive standards, a separate system model, database, XML DTD and XML schema were developed to manage the received records. In order to best cope with heterogeneous cultural heritage collections information, the CIDOC CRM was consulted in the design phase of the project to help insure that the database designed would be able to accommodate different kinds of collections information that were organized and labeled in different fashions. The resultant system was flexible, scalable, and able to accommodate a plethora of collections

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<sup>31</sup> This document was first released in 2005 and is accessible at [http://www.rlg.org/en/pdfs/RLG\\_desc\\_metadata.pdf](http://www.rlg.org/en/pdfs/RLG_desc_metadata.pdf) (last accessed April 28, 2007).

<sup>32</sup> RLG Cultural Materials Alliance – Description Advisory Group, Descriptive Metadata Guidelines for RLG Cultural Materials (Mountain View, Calif.: RLG, 2004), available online at [http://www.rlg.org/en/pdfs/RLG\\_desc\\_metadata.pdf](http://www.rlg.org/en/pdfs/RLG_desc_metadata.pdf) (last accessed April 28, 2007).

<sup>33</sup> Ibid, p. 4.

description information.<sup>34</sup> From a technical standpoint, this project took a comprehensive approach to managing and providing access to digital cultural heritage information, accommodating multiple descriptive standards and formats and combining the benefits of providing collections descriptions as well as more detailed item-level information.

### **Hybridized Systems**

It is important to note that these methods need not be used in exclusion of one another; hybrid systems are also possible. PictureAustralia is an example of a hybrid system that incorporates both federated searching as well as metadata aggregation, as well as serving as an example of using Dublin Core in a broader sense aside from the collection description method that will be described in the following section. This is a service hosted by the National Library of Australia that offers integrated access to hundreds of thousands of images held by over 30 repositories in Australia and New Zealand. It has a hybrid structure in that although it harvests collections metadata regularly and maintains an index of this metadata, it does not actually maintain copies of the digital images themselves. Instead, these remain with the home institution and are accessed via a federated search mechanism on demand. This way, the home institution manages its own images and metadata, avoiding potentially difficult rights management issues with sharing and distributing digital collections content.

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<sup>34</sup> More information about the technical aspects of the project can be found in Tony Gill's article: "Touring the Information Landscape: Designing the Data Model for RLG Cultural Materials," *RLG Focus* 58 (Oct. 2002), <http://www.rlg.org/legacy/r-focus/i58.html#touring> (last accessed April 28, 2007).

Further, PictureAustralia uses Dublin Core as its requisite metadata schema, and the host institution is responsible for either creating records in Dublin Core or converting their records into Dublin Core using crosswalks and other related tools. The Dublin Core metadata is then harvested using OAI-PMH or a web crawler (for smaller sites), and incorporated into the PictureAustralia metadata index on a weekly basis.<sup>35</sup>

### **Collection Description Method**

While some federated and metadata aggregation approaches involve exchanging collections descriptions, a separate specific methodology has been developed in the United Kingdom and Europe that places precedence on enabling access via collection-level description over providing integrated access to lower-level descriptive information. This is likely due to a number of factors, including how cultural heritage resources are distributed over numerous repositories and the nature of the administrative and informational infrastructure in those areas, for example, the aforementioned Museums, Libraries and Archives Council (MLA) as well as the European Commission's joint research frameworks into integrated data management systems. What is the collection description method for creating integrated access to cultural heritage information? Essentially it involves creating, pooling together and providing integrated access to collection level descriptions, some of which have been newly created for this purpose,

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<sup>35</sup> National Library of Australia, "Metadata Guide," February 1, 2007, <http://www.pictureaustralia.org/metadata.html> (last accessed April 29, 2007). The main PictureAustralia website is accessible at <http://www.pictureaustralia.org/> (last accessed April 29, 2007). Refer to Appendix G for sample search results using this system.

with an option to burrow deeper down into descriptions through links to home repositories.

While archives are regularly organized using collection-level descriptions, they are less commonly used in museums and libraries, with the exception of special collections environments in libraries and digital exhibits in both libraries and museums.<sup>36</sup> In this context, a collection is defined in a generalized and inclusive sense as an aggregation of individual items of any type including digital objects. The collection may also be of any size and level of permanence as well as being comprised of physical objects, digital objects or both. Various criteria to define and delineate collections can be identified for all three cultural heritage contexts including provenance, subject, and media, amongst others. Thus, although collection-level descriptions are not typically utilized in library and museum environments as much as they are in archival description (in which they are the primary aggregate), it is still possible to conceptualize museum and library resources at this level.<sup>37</sup>

Dublin Core, a relatively simple descriptive standard, is usable for creating collection-level descriptions in a collaborative environment. Its elements are essentially common to all three museum, library, and archives contexts and are semantically

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<sup>36</sup> Heather Dunn discusses the use of collection-level description in conjunction with museum collections in her article "Collection level description – the museum perspective," *D-Lib Magazine* 6, 9 (September 2000), <http://www.dlib.org/dlib/september00/dunn/09dunn.html> (last accessed April 20, 2007). She explains that the museum world has been working toward devising standards for such descriptions, but that broad standardization is still being developed. Although there is no standard definition, understanding, or use of the collection-level of description in museological contexts, Dunn argues that the push toward networked access and particularly toward creating integrated descriptive systems has inspired research and development in this area.

<sup>37</sup> See Peter Johnston and Bridget Robinson, "Collections and Collection Description," in *Collection Description Focus – Briefing paper 1* (Jan. 2002), available online at <http://www.ukoln.ac.uk/cd-focus/briefings/bp1/bp1.pdf> (last accessed April 20, 2007).

straightforward to understand. It has been used to create collection-level descriptions for a number of integrated description projects, some of which will be described shortly. Dublin Core can also be used in a broader way to enable integrated access. Because it can be commonly applied in all three cultural heritage sectors (libraries, archives and museums), it can also serve as the standard to which descriptions can be mapped using crosswalks for use in building integrated systems.<sup>38</sup>

Dublin Core has also been used as the basis for a more sophisticated schema that has been developed specifically for the purpose of cross-sectoral collaborative projects, the Research Libraries Support Programme Collection-Level Description schema (RSLP CLD). This schema's design has taken into account the traditional theoretical and methodological treatment of collection-level description in all three disciplines. It includes descriptive attributes about the collection, descriptive attributes about the location of the collection, information about the owner of the collection and administrator of the location, and information about external relationships the collection may have with other related resources.<sup>39</sup> Further, rather than create new collection-level descriptions using RSLP CLD, archivists can simply map their existing collection-level descriptions

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<sup>38</sup> Some of these were previously mentioned (refer to Chapter 4, footnote 17). Further, tools for creating metadata in Dublin Core can be found at <http://dublincore.org/tools/>. An example of a system employing Dublin Core in a manner different from the RSLP CLD was the aforementioned PictureAustralia.

<sup>39</sup> Andy Powell, "RSLP Collection Description," *D-Lib Magazine* (Sept. 2000), <http://www.dlib.org/dlib/september00/powell/09powell.html> (last accessed April 21, 2007). See the project website for RSLP's CLD at <http://www.ukoln.ac.uk/metadata/rslp>. The Research Support Libraries System was a three-year British national initiative that developed new forms of access to library information especially for research purposes. RSLP's work on collection description was afterwards taken up by UKOLN, a British research, development, and services office that addresses the information management community. See UKOLN's collection description project website at <http://www.ukoln.ac.uk/cd-focus> (active 2001-2004). For help with implementing this type of system, UKOLN has an online tutorial at <http://www.ukoln.ac.uk/cd-focus/cdfocus-tutorial/intro.html>.

to the RSLP CLD schema using a metadata crosswalk.<sup>40</sup>

Creating this type of system would be an excellent starting point for work on collaborative descriptions, particularly between a group of separately managed organizations. Multiple access points could be created, including name, time, place, and subject. Institutional information could be included in addition to the collections information so that researchers would know how to proceed, should they desire more in-depth information. Cornucopia, a British project, is an example of such a system. In it, the search results not only include information about the individual collections, but also information about the repository and its overall collections, which may be useful.<sup>41</sup>

Other projects employing the RSLP CLD are also based in the United Kingdom, likely because the original research and development was funded through British organizations. Further, a strong joint administrative structure, the previously mentioned Museums, Libraries and Archives Council (MLA), is in place, and it supports cross-sectoral collaboration in the United Kingdom as a whole. This situation better enables such large-scale integrating projects. Other examples of projects that have employed the RSLP CLD include: RASCAL (Research and Special Collections Available Locally), a web-based directory of special collections materials located in Northern Ireland;<sup>42</sup> Backstage, a portal for performing arts cultural heritage collections in the United

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<sup>40</sup> Ann Chapman, "Collection-level Description: Joining up the Domains," *Journal of the Society of Archivists* 25, 2 (2004): 155.

<sup>41</sup> Available at <http://www.cornucopia.org.uk/> (last accessed April 21, 2007). For further information on the project, see: Chris Turner, "Cornucopia: An Open Collection Description Service," *Ariadne* 40 (July 2004), <http://www.ariadne.ac.uk/issue40/turner/intro.html> (last accessed April 21, 2007). See Appendix H for a sample collection-level description in this system.

<sup>42</sup> Available at <http://www.rascal.ac.uk> (last accessed April 21, 2007). For more information see the project's website at <http://www.qub.ac.uk/rascal/index.html> (last accessed April 21, 2007).

Kingdom;<sup>43</sup> and Cecilia, an online guide to information about music collections from archives, libraries and museums across the United Kingdom.<sup>44</sup>

Research on developing collection description schemas is ongoing, and did not end with the RSLP CLD. Experience with implementing the RSLP CLD has helped to inform the current research into creating a Dublin Core Application Profile for collection description. This application profile would formally specify which set of terms are to be used in creating collection-level descriptions as well how they should be applied. By providing a means to create simple descriptions of a broad range of collections, it would aid in the selection, identification and discovery of resources of interest.<sup>45</sup>

There have been other subsequent projects and data schema that developed out of RSLP CLD as well. For instance, MICHAEL (Multilingual Inventory of Cultural Heritage in Europe) is a project that provides a single portal to access collection descriptions, which were developed using a model specific to MICHAEL that was based on the RSLP schema. It has portals for both European collections and collections from repositories located in the United Kingdom. Its focus is to provide access to digital cultural heritage collections. MICHAEL provides many access points into its collections information, including keyword or thematic searching as well as searching by repository, project audience, time period and more.<sup>46</sup> MICHAEL-UK and Cornucopia, along with a

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<sup>43</sup> Available at <http://www.backstage.ac.uk> (last accessed April 21, 2007).

<sup>44</sup> Available at <http://www.cecilia-uk.org> (last accessed April 21, 2007). It should be noted that although the collection-level records have been created using RSLP CLD, Cecilia also contains item-level records for some collections catalogued in ISAD(G) format.

<sup>45</sup> Dublin Core Metadata Initiative – Dublin Core Collection Description Task Group, “Dublin Core Collections Application Profile,” March 9, 2007, <http://dublincore.org/groups/collections/collection-application-profile> (last accessed April 21, 2007).

<sup>46</sup> Accessible at <http://www.michael-culture.org.uk/mpf/pub-uk/index.html> and <http://www.michael-culture.org/en/home> (last accessed April 21, 2007).

registry of all cultural heritage institutions in the United Kingdom, comprise the three initiatives of the National Collection Description Service of the Museums, Libraries and Archives Council (MLA). To help organizations participate, the MLA has created online resources including a tutorial that helps to explain collection-level description in the context of their initiatives and how to participate in the projects.<sup>47</sup>

Why is collection-level description desirable and how can one develop such a program? Providing access to collection descriptions enables a high-level navigation of a large and potentially distributed and heterogeneous resource base. Researchers would have broad access to information about collections that, in some cases, would not otherwise be described.<sup>48</sup> It would not be used in place of traditional descriptive systems, but rather as an additional point of access. As an initial contact point, researchers would have access to a broad array of collections information from which they might follow links to other traditionally structured descriptive systems in which they could pinpoint more detailed information. Lastly, although some re-description would potentially be necessary to participate in such projects (i.e., by libraries and museums which may not already have collection-level descriptions for their resources), it may provide an opportunity to create a basic level of access for backlogged previously uncatalogued collections.<sup>49</sup>

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<sup>47</sup> The tutorial is accessible at <http://www.michael-culture.org.uk/manual/intro.htm> (last accessed April 30, 2007). Information about MLA's Collection Description programme is accessible at [http://www.mla.gov.uk/webdav/harmonise?Page/@id=73&Section\[@stateId\\_eq\\_left\\_hand\\_root\]/@id=4332&Section\[@stateId\\_eq\\_selected\]/@id=5284](http://www.mla.gov.uk/webdav/harmonise?Page/@id=73&Section[@stateId_eq_left_hand_root]/@id=4332&Section[@stateId_eq_selected]/@id=5284) (last accessed April 30, 2007).

<sup>48</sup> *Ibid.*

<sup>49</sup> More information about the pros and cons of collection-level description can be found in Paul Miller's article, "Collected Wisdom: Some Cross-domain Issues of Collection Level Description," *D-Lib Magazine* 6, 9 (September 2000), <http://www.dlib.org/dlib/september00/miller/09miller.html> (last accessed April 30, 2007).

## Comparing Options

The various options for creating integrated descriptive systems for collections information from libraries, archives and museums each have advantages and disadvantages. Further, one method may be more appropriate to employ depending on the situation. Federated systems can often offer integrated access to collections information that has been maintained in its original descriptive form according to the standards for that type of media. These do not require compromise in how descriptive standards are applied within any one of the three disciplines. In addition, they provide one-stop-shopping and simultaneous access to multiple databases, which may be popular with users who are already accustomed to this type of access through mainstream avenues like Google or Amazon. However, it should be noted that retrieval time may be extended during searches, as it takes more time to query multiple databases rather than one single database.

In comparison, the advantage to the collection description method is that it provides an opportunity for users to browse the information landscape, taking a broad view to what resources are available. After finding an applicable collection description, the researcher can then narrow the search. In addition, metadata aggregation systems enable the same breadth of access to lower-level records as federated systems, but system response times are reduced because only one central repository is being queried at a time. However, rights management issues concerning pooling separately managed digital records together in one repository may become an issue. A hybrid system, such as

PictureAustralia, may solve this problem by incorporating elements of both federated searching as well as a central repository of metadata records.

There are many conceptual and procedural similarities amongst all of these options. In each option, three different types of descriptive records, which are created and stored in three separate databases, can be accessed jointly either via a federated search portal, via an aggregated metadata repository, via collection descriptions, or via some hybridized variation of these options. In these scenarios, the original records in their repositories remain intact and an additional procedure or access point is enacted to jointly access them. Conceptually, then, the procedure and the result are similar in all three scenarios and their hybridized variations.

Further, in a broader sense, these solutions involve similar tasks and activities. Descriptive records are created according to the standards devised for a certain discipline, and some compromise may be involved if one wants to participate in an integrated system (i.e., creating collection descriptions). A middle manager is required to receive, collate, or provide the portal or access point at which these descriptions can be accessed. Often these middle managers tend to be publicly funded projects like OurOntario.ca and Cornucopia. The end user interacts with one interface that provides integrated access to the collections information.

As interest in these systems and projects continues to grow, it is likely that a larger re-conceptualization of the cultural heritage sector and its resident professions will occur. At the very least, it is sensible to consider a pertinent argument put forth by Mary W. Elings and Günter Waibel in their recent article, which was that materials should be

described according to the standard appropriate for their media rather than in accordance to the repository within which they reside.<sup>50</sup> In other words, archival materials, for example, should be described using archival descriptive standards, whether they reside in an archives, library or museum. Likewise, library materials and museum artifacts should be described using bibliographic description standards and museological descriptive standards, respectively, regardless of which type of institution in which they reside. This overlap of types of holdings between these institutions was discussed in Chapter 2 of this study as a form of typically “unacknowledged convergence.” This type of re-conceptualization as promoted by Elings and Waibel has the potential to lead to more openness and cross-pollination of ideas and methods across the sectors.

If this type of approach gains support, there is potential for greater consequences such as a re-envisioning of professional education for cultural heritage professionals (e.g., descriptive specialists who are versed in descriptive standards from all three sectors), possible outsourcing to sibling professionals to aid in describing resources using an appropriate media-specific standard, and other outcomes pertaining to greater integration in the cultural heritage sector overall.

### **Other Considerations**

Aside from the technical aspects of creating integrated descriptions as well as some of the attitudinal issues concerning collaborative projects previously discussed in

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<sup>50</sup> Mary W. Elings and Günter Waibel, “Metadata for All: Descriptive Standards and Metadata Sharing across Libraries, Archives and Museums,” 12, 3 (Mar. 2007), [http://www.firstmonday.org/issues/issue12\\_3/elings/](http://www.firstmonday.org/issues/issue12_3/elings/) (last accessed April 28, 2007).

Chapter 2 of this study, there are still some other issues to consider with respect to collaborative projects. For instance, the ability to organize and manage large projects is dependent on the infrastructure in place, including availability of administrative and financial support. Further, as noted in cross-repository projects like PictureAustralia and RLG Cultural Materials, licensing issues definitely affect how cultural heritage information can be re-packaged and distributed. PictureAustralia utilized a federated system perhaps partly because it bypassed licensing issues; downloading the pictures in real-time through federated search enables the host institution to maintain the rights of controlling their digital resources. Comparatively, RLG Cultural Materials negotiated rights management issues with each contributor and anticipated potential joint licensing ventures with websites, publishing houses and other commercial partners at the time of its demise. However, these efforts as well as their subscription-based service model were not that successful with respect to cost recovery.<sup>51</sup>

Resource constraints from the bottom-up are also significant. It would likely be daunting for many cultural heritage institutions to be able to develop and implement integrated systems. Further, if support grew for Elings and Waibel's view of describing resources by media not by type of repository within which they reside, how could this approach be implemented? Where would the required expertise be acquired within an often resource-poor environment? However, as time progresses, more tools will become readily available to assist those interested in creating integrated descriptive systems, and methodologies and systems developed for larger networks or institutions will likely

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<sup>51</sup> [RLG], "[Dear Cultural Materials Alliance Participants...]," February 5, 2007, <http://www.oclc.org/community/rlg/transitions/discontinued/rcm/rcm-future.pdf> (last accessed April 30, 2007).

trickle down to smaller-scale repositories with less resources. Further, there is potential, theoretically anyway, for greater integration or cross-disciplinary studies between the professional training programmes, which will better enable future practitioners to cope with the demands of integrated cultural heritage systems and programmes.

### **Conclusion**

This chapter introduced integrated cultural heritage descriptive systems. After introducing several essential concepts, specific systems designs and practical examples of these systems employed in various contexts around the world were introduced. More specifically, the discussion concerned federated systems, metadata aggregation systems and systems employing the collection description method, as well as a hybrid system option. Thus, the focus of this chapter was to discuss technical solutions centred around the management and exchange of metadata for creating integrated systems between libraries, archives and museums. In addition, some of the broader issues surrounding the creation of these systems including administrative and financial infrastructure, licensing issues, and resource constraints were also mentioned.

A subsequent comparison of the types of systems, which identified advantages and disadvantages, demonstrated how all of these scenarios share common elements conceptually and procedurally. Thus, the best option to choose is dependent upon the available resources and infrastructure in place. The goal in all instances is to provide

integrated access to collections information, but not to compromise the high quality of traditional descriptive records that are developed in each sector. It is true that in some scenarios a degree of compromise is required to participate in the system, for example, creating Dublin Core versions of descriptive records. However, this is not to say that traditional descriptive practices will cease; rather, an additional layer of access will be provided to better service end users.

## Conclusion

This thesis has addressed one key area in which the sibling cultural heritage sectors of libraries, archives, and museums can work together to enhance service to the public – by creating integrated descriptive systems. This avenue of collaboration could be one part of a larger move toward collaborative endeavors, including combined advocacy efforts, educational and public programming activities, or possibly to maintain institutions under the same administrative umbrella, which may be appropriate in some contexts.

The perspective upheld throughout the discussion of potential collaborative endeavors has been supportive of such activities. There are enough similarities between the institutions with respect to purpose, functions, and activities to support pursuing collaborative endeavors and the benefits that they would bring to the cultural heritage sector overall. The focus should be on respecting traditional definitions, methodologies and theories while also looking forward to new possibilities for cross-sectoral collaboration and integration.

The thesis began by providing background information for each type of cultural heritage institution – libraries, archives and museums. The historical evolution of each institution was covered, as well as the evolution of descriptive practices in each sector. Comparative analyses were provided with respect to the nature and purpose of the three institutions as well as their descriptive practices. The general conclusion is that there are enough similarities to support collaborative endeavors, especially in light of the overall

general purpose of all three institutions: to protect and preserve the cultural heritage legacy of society as well as to provide adequate access to it. In so doing, these three institutions form a significant part of society's collective memory and informational infrastructure.

The final chapter of the thesis introduced practical means of developing a variety of types of integrated descriptive systems, which are all based on methods for managing and manipulating collections metadata. This discussion illustrated the level of compromise involved in creating integrated systems (which may in fact be minimal) and how collaborating in this way does not necessarily threaten the autonomy or unique traditions of each of the sectors. It is not necessary to amalgamate all three of the institutions and professions into one converged unit. Rather, all three sectors can maintain and build upon their unique traditions as well as embarking on new collaborative endeavors. These endeavors would capitalize upon the similarities among the three sectors, building a new information superstructure above and beyond the regular level of descriptive activities in each of the sectors. This new level of collaboration would be in addition to traditional descriptive activities rather than in place of them. In other words, collections metadata would be constructed in accordance with each sector's unique descriptive standards, and then various methods would be employed – such as federated searching or metadata aggregation – to help simultaneously search these descriptions across the sectors, thereby providing enhanced access and better service to users.

It is fair to hypothesize that over time, collaboration between the library, archives

and museums sectors may influence the level of autonomy in each sector. The institutions and professions may develop even more fluid boundaries, and the professionals working within them could possess a greater level of interdisciplinary or cross-sectoral knowledge and expertise. However, new developments in the evolution of institutions and professions do not necessarily cancel out centuries of distinct and individual progress. A positive attitude toward this type of growth and change in the cultural heritage sector is the best choice to make, especially because technology enables cross-sectoral collaboration, and the public continues to demand greater access to heritage information in the digital environment. Embracing cross-sectoral collaboration, for example by developing integrated descriptive systems, is a smart way in which to proceed in the twenty-first century, as it will help to maintain the relevancy and legitimacy of these important cultural heritage institutions overall.

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## Appendix A:

Sample Bibliographic Descriptions using AACR2 in MARC Record Format<sup>1</sup>

## 1) Sample Local System Record

**This item has  
been removed  
due to copyright  
issues. To view  
it, refer to its  
source.**

---

<sup>1</sup> These examples have been extracted from: Betty Furrie, "MARC21 Reference Materials, Part IX: A Sample Record in Various Formats," in Understanding MARC Bibliographic: Machine-readable Cataloging ([United States]: Cataloging Distribution Service, Library of Congress, in collaboration with the Follett Software Company, 2003), available online at <http://www.loc.gov/marc/umb/um11to12.html> (last accessed 10 June 2007).

**This item has  
been removed  
due to copyright  
issues. To view  
it, refer to its  
source.**

2) Formatted displays

a) Sample of a brief record display as seen by a patron:

**This item has  
been removed  
due to copyright  
issues. To view  
it, refer to its  
source.**

b) Sample of a full record display as seen by a patron:

**This item has  
been removed  
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Copies  
Available : GV943.25 .B74 1990

c) Sample of a catalog card:

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## Appendix B:

Sample Archival Description: A *Fonds*-level Record<sup>1</sup>

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<sup>1</sup> This example was created by the Centre for Addiction and Mental Health Archives in Toronto and is publicly available via ARCHEION, Ontario's Archival Information Network: <http://archeion-ao.fis.utoronto.ca/> (last accessed June 10, 2007).

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## Appendix C:

Samples of Museological Descriptive Records Built in Accordance with Canadian Heritage Information Network (CHIN) Humanities Data Dictionary Standards<sup>1</sup>

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<sup>1</sup> These examples were extracted from random searches in Artefacts Canada, Canadian Heritage's databases containing humanities-related collection records for museum artefacts: [http://www.chin.gc.ca/English/Artefacts\\_Canada/index.html](http://www.chin.gc.ca/English/Artefacts_Canada/index.html) (last accessed June 10, 2007).

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### Appendix D:

#### Comparison of Current Descriptive Practices in the Library, Archives and Museum Sectors

	Library Sector	Archives Sector	Museum Sector
<b>Type of Descriptive Activity</b>	Cataloguing and classification activities	Arrangement and description activities	Cataloguing and classification activities
<b>Method of Descriptive Activity</b>	Cataloguing includes both bibliographic description (describing the main attributes of the publication) and subject analysis (assigning subject headings to describe the publication)	Arrangement is done according to the provenance, or origin, of the records; description involves research into the history and context of the records and their creation, including the history of their creators	Catalogue records are created and describe the physical characteristics, provenance or origin, and other related information pertinent to the object at hand
<b>Classification</b>	Classification using Library of Congress Classification (LCC) or Dewey Decimal Classification (DDC) is common	No classification of archival records	Classification using the most appropriate system according to type of artifact (e.g., historical, archaeological, scientific); classification systems include <u>Nomenclature</u> and Social History and Industrial Classification (SHIC)
<b>Typical Level of Detail for Description</b>	Primarily item-level description of resources for which multiple copies exist; in the case of special collections, however, there is less likelihood of there	Usually description is done at the group or collection level, though item-level description is sometimes done for certain media, particularly	Usually item-level treatment of unique resources, although collection-level description is being incorporated more often into distributed databases to provide a

	<b>Library sector</b>	<b>Archives sector</b>	<b>Museum sector</b>
	being many copies in existence and collection-level description may be relevant (i.e., in the case of thematic collections or groups of resources donated from a single donor)	photographs, maps, and other special media	first point of contact for the user when browsing collections prior to viewing individual item records
<b>Copying or Sharing Descriptions with Other Institutions of the Same Type</b>	Copy-cataloguing (i.e., sharing catalogue records) is common practice	Unlikely that sharing descriptive records for copy-cataloguing would be possible, given that each repository has unique records	Unlikely that sharing descriptive records for copy-cataloguing would be possible, given that each museum has unique artifacts
<b>Importance of Concept of Provenance</b>	Provenance of the publication being described is usually of limited relevance, except in the case of rare book description	Provenance is of utmost importance when devising arrangement structures, and description succeeds arrangement; describing the historical context of records is necessary in order to understand them	Provenance is an important to include in collection descriptions at the item or collection-level although it is not as crucial to organize collection descriptions in hierarchies based on provenance as in traditional archival description
<b>New Systems, Models or Research Interests</b>	Development of a new functional model for description, Functional Requirements for Bibliographic Records (FRBR); interest in participative	Functional analysis precedes the descriptive function; little interest so far in developing user-driven participative descriptive systems	Development of higher-level conceptual reference model, the CIDOC-CRM, which takes a semantic approach to description to provide a framework for integrating or mapping disparate

	<b>Library sector</b>	<b>Archives sector</b>	<b>Museum sector</b>
	descriptive systems like folksonomies		cultural heritage descriptions (in museums and other types of heritage institutions) together
<b>Data Content Standards</b>	Anglo-American Cataloguing Rules, second revision (AACR2r)	Describing Archives: a Content Standard (DACS); Rules for Archival Description (RAD)	Cataloguing Cultural Objects (CCO)
<b>Data Structure Standards</b>	Machine Readable Cataloguing (MARC)	Encoded Archival Description (EAD) (using an XML DTD); MARC-AMC (Machine Readable Cataloguing for Archives and Manuscripts Control)	SPECTRUM; Categories for the Description of Works of Art (CDWA)
<b>Data Value Standards</b>	Library of Congress Subject Headings (LCSH); authority records (Library of Congress, Library and Archives Canada (AMICUS))	Authority records (Library of Congress, Library and Archives Canada (AMICUS))	CHIN data dictionaries, MDA data dictionary, Art & Architecture Thesaurus (AAT) and other thesauri
<b>Data Interchange Standards</b>	Z39.50	XML OAI	XML OAI

## Appendix E:

### Sample Results from a Search Conducted using Library and Archives Canada “Search all” Federated Search Function<sup>1</sup>

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<sup>1</sup> Library and Archives Canada’s new search federated search system allows one to jointly search the bibliographic and archival databases as well as the website content. The first four screenshots illustrate a typical list of search results for the term “frogs”. The fifth screenshot shows the search results from only the archives database after having followed the “show all” link in the initial list of search results, and this includes the further analysis and categorization of the search results in the links in the right-hand column. Refer to Chapter 4, footnote 24 for more information about this system.

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## Appendix F:

Sample Search Results in a Metadata Aggregation System, AlouetteCanada<sup>1</sup>

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<sup>1</sup> These screenshots display search results from a query for “Moosonee, Ontario” in AlouetteCanada. Refer to Chapter 4, footnote 25 for more information about this system.

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## Appendix G:

Sample Search Results using the Hybridized System, PictureAustralia<sup>1</sup>

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<sup>1</sup> These screenshots depict results from a search for “wombats” in the PictureAustralia database. Refer to Chapter 4, footnote 35 for more information about this system.

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## Appendix H:

Sample Search Results List and Collection-level Description using Cornucopia<sup>1</sup>

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<sup>1</sup> The first screenshot is of a list of results to a query for “castle” in Cornucopia. The remaining screenshots are of a sample archival collection-description record (the first from the list) to illustrate the type of information typically included. Refer to Chapter 4, footnote 41 for more information about this system.

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