tutions or in particular topical areas. Nine papers deal with this aspect. Here too the papers are diverse. Some deal with scalability of the digital library in a global environment. Others look at implementation in particular, specialized areas such as forensic medicine and botanical hypermedia information systems. Yet others discuss support for manipulation of large quantities of statistical data and use of the digital library to support science teaching. It is clear from these papers that a great deal of work is being done in testing ideas and models in test-bed initiatives.

The issue of the human-machine interface for a digital library is addressed by four articles. Two deal with interface issues as they apply to the scalability of the digital libraries with very large collections. How can informational content be organized in large collections so that users can identify and select appropriate sources? Others deal more with issues from the user's perspectives—how should users best interact with the digital library?

Seven papers deal with issues of organization of information within digital libraries. Once again, the topics within this group are very diverse. They deal with data compression and indexing; storage and retrieval of videos; finding syntactic and semantic relationships in digital documents; using "community memory" to join large-scale digital libraries with the activities of community members; and using linguistic ontologies to enhance retrieval from large digital databases.

One of the thorny issues, of course, is the relationship between publishing and libraries in a digital environment. Many of the unsolved problems of implementing digital libraries lie in this area. Several of the papers presented deal with this in passing. However, one paper takes a more in-depth look at this future relationship through a description of Project ELVYN—a project that links the Institute of Physics Publishing with a number of academic libraries for the purpose of testing a new model of information delivery from publishers to libraries.

Finally, three papers look at the digital library within the context of intelligent agents of various sorts that will shape the digital library and will allow users unprecedented access to information. There is wide recognition that the digital environment both requires and is amenable to "intelligent" tools for information access. The research reported here looks at three very different projects—intelligent access in a K–12 environment, use of agents for retrieval of digital images, and knowledge-based retrieval from heterogeneous information sources.

The proceedings of this conference were a landmark in the sense that they brought together many of the major players and ideas in what is truly a multidisciplinary field. The list of both individual and institutional participants in this research is very impressive. However, the proceedings also highlight the enormous amount of work, both in research and implementation, that needs to be done before we can truly point to working models of the digital library. The very diversity of the papers indicates that the path to the digital library is a highly complex one. By bringing together so many researchers in so many different fields, the prospect of real progress has been increased considerably. These proceedings and those of the 1995 conference are essential introductions to current thought and research into the digital library of the future.—*Peter Liebscher, Palmer School of Library and Information Science, Long Island University*

Format Integration and Its Effect on Cataloging, Training, and Systems: Papers Presented at the ALCTS Preconference, "Implementing USMARC Format Integration," American Library Association Annual Conference, June 26, 1992, San Francisco, California. Ed. Karen Coyle. ALCTS Papers on Library Technical Services and Collections, no. 4. Chicago: ALA, 1993. 110p. (ISBN 0-8389-3432-3). LC 93-19721.

"The goal of Format Integration is the creation of a single USMARC bibliographic format that provides the complete range of content designation for all types of materials and in which all information of the same type is identified by the same

content designation. Format Integration provides for the communication of records for complex items whose descriptions may include serial, archival control and/or multiple material type aspects" (p. 11). Thus begins Patton and Weiss' contribution to Karen Coyle's edited volume published in 1993. This book is the fruit of a Machine-Readable Bibliographic Information Committee (MARBI) preconference on format integration held before the 1992 ALA Conference in San Francisco, California. Authors of the chapters were speakers at the preconference, coming from varying but related professional fields of endeavor, each one well versed on the intricacies of format integration: a programmer, a technical services librarian, a network trainer, a Library of Congress representative from the Network Development and Machine-Readable Cataloging (MARC) Standards Office, an OCLC Online Computer Library Center, Inc., (OCLC) product specialist, and several systems librarians.

Beginning with a brief introduction, Coyle, technical specialist for the University of California's MELVYL system, reminds us that the authors of the articles have had no real experience with format integration, but assures us that " . . . Format Integration is a relatively simple task" (p. viii). Next, Coyle offers an explanation of the technical setup. As each USMARC tag is first mentioned in each chapter, the name of the tag is given: ". . . field 246 (Varying Form of Title)" (p. ix). Following these preliminaries, the authors individually launch into chapter topics that cover a full range of implementation considerations: an overview of format integration, the effect of format integration on cataloging, the treatment of monographic, multimedia, and serials materials, training, documentation concerns, the vital roles of the utilities, the impact of format integration on local systems, and the end result on online public access catalogs.

As the impact on various formats is discussed in chapters entitled "Monographic Materials," "Multimedia Materials," and "Serials," examples of MARC records before and after format integration are given, each preceded by a concise explanation of what has occurred. There are many examples of sample bibliographic records created with an integrated MARC format. Following the examples, the text comes full circle through discussions of how training, documentation, utilities, local systems, and online public access catalogs will be affected through implementation. The interrelation of these five categories is obvious as one topic easily leads into the next.

The appendix consists of charts comparing the display of the leader, 006 field, and the 008 field of OCLC, the Research Libraries Information Network, and the Western Library Network (WLN). A glossary and acronyms follow. An added index of MARC fields is included at the end.

Readers might want to compare parts of this book with the "Special Section: Format Integration" in the June 1990 *Information Technology and Libraries* that features papers based on presentations made at the MARBI program on format integration at the 1989 ALA Annual Conference in Dallas, Texas. The types of changes, the handling of serials and mixed media, coordinating the implementation, and applying format integration are discussed in an equally clear and succinct manner, complete with examples of MARC records, although not as extensive and without the before-after comparisons.

It is much easier now than two years ago to obtain up-to-date information on the implementation of format integration. With electronic resources so readily available, a wealth of information is available. Now it is possible, with only a few clicks of a mouse button, to go directly to the World Wide Web pages and peruse not only technical services of individual libraries, but also those of the utilities.

In September 1995 the Library of Congress announced through its USMARC home page (http://lcweb.loc.gov/marc/) that it should have its system development work finished for the final (1995) phase by March 1, 1996. On October 13, 1995, OCLC announced through its home page (http://www.oclc.org/oclc/press/951013.htm) that it hopes to be finished with its implementation of the final phase by March 3, 1996, a date agreed upon after

consultation with the Library of Congress, the National Library of Canada, ISM Library Information Services, the Research Library Group, and the Western Library Network.

Format integration is now reality. Certainly, a major concern now has to be the reaction of system vendors toward implementation. Have the vendors' reactions to format integration implementation been slow (or nonexistent)? Or have the vendors taken swift and timely action toward full implementation? It is indeed frustrating, for instance, for catalogers who find it necessary to work around systems that are not fully implemented in format integration.

Now that the final phase of implementation is to be completed by early 1996, it behooves all persons involved with format integration to take another look at this gem of a handbook. No doubt the subject matter will be better understood now than it was in 1993, when the book was first published, although in 1996, as in 1993, librarians are still grappling with how their libraries might be affected by format integration. Regardless, through use of this book along with the classic *Format Integration and Its Effect on the USMARC Bibliographic Format,* now available in a third edition, the planning for and implementation of format integration should unfold as Coyle so precisely stated in her chapter entitled "Online Public Access Catalogs": "Format Integration represents an evolution of the USMARC formats, not a revolution. . . . If Format Integration truly is successful, the users never will know it happened" (p. 98).—*Kathleen Sparkman, Library Technical Services, Cataloging, Baylor University*

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