

# Information Standards

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## Defining Permanent Paper

By Janet Gertz

The "slow fire" ravaging our cultural heritage caused by acid deterioration of paper and the high cost of replacing or reformatting embrittled items are well known. Having a reliable way to identify and regulate the manufacture of "permanent" paper that will deteriorate at a very slow pace matters greatly to publishers, libraries, archives, and museums. Since 1984 these communities and others concerned with the longevity of the written word, artworks, photographs, and any other intellectual or cultural creation produced on paper, have depended on the NISO standard for paper permanence (ANSI/NISO Z39.48) to define what permanent paper must be. After almost two decades, new research may lead to changes in that definition.

### Standards Development: Step One

Noting that "there is not at this time any directly applicable national standard for paper to be used in printing library materials," in 1981 NISO charged standards committee S to "prepare standards for paper of sufficient longevity to last under normal conditions of library circulation and archival storage." Published as ANSI Z39.48-1984 Permanence of Paper for Printed Library Materials in 1984, for the first time a national standard established the ingredients from which permanent paper should be made, bolding noting that "actual observation and laboratory test results suggest that paper meeting the requirements for pH, alkaline reserve, and freedom from ground-wood ... should survive hundreds of years."

### What is Permanence?

Permanence has been described as "a measure of the chemical stability of paper." Cellulose, the primary ingredient of paper, is a polymer—a very large and stable chain of atoms that gives paper the ability to bend and stretch without tearing or breaking. Embrittlement is the result of chemical deterioration, occurring when the bonds holding the polymer molecule together begin to break down. Eventually the paper loses flexibility and cracks instead of bending. It is because acidity contributes strongly to embrittlement that ANSI Z39.48-1984 specified permanent paper as non-acidic or alkaline, with a pH measure of 7.5 or higher.

Another frequent sign of chemical change is discoloration. While yellowing or darkening alone does not affect the strength and flexibility of the paper or its longevity, it does affect the appearance, reducing the contrast between the paper and what is printed on it, and altering the color of illustrations.

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## Standards Development: Step Two

A revision of the NISO standard began in 1988. The revised standard (ANSI/NISO Z39.48-1992, Permanence of Paper for Publications and Documents in Libraries and Archives), approved in 1992, broadened the standard's scope to include both coated and uncoated papers. The 1992 revision did not differ significantly from the original version except for the incorporation of coated papers in the scope. The standard defines permanence as "the ability of paper to last at least several hundred years without significant deterioration under normal use and storage conditions in libraries and archives." Like its predecessor, ANSI/NISO Z39.48-1992 includes content specifications based on observation of the known content of historic papers that have survived for centuries and on laboratory testing of a variety of modern papers for strength and longevity. It calls specifically for alkaline content with an alkaline reserve to counteract introduction of acids, and a limit of no more than 1% lignin content. Lignin, a "natural binding constituent of the cells of wood and plant stalks," is connected to color instability in paper. The limit on lignin was included despite the paper industry's contention, acknowledged in the standard, that "testing has shown that some papers with higher lignin levels ... can exhibit excellent retention of physical strength after accelerated aging" (p. 3). Recognizing that questions about the potential permanence of paper with lignin content remained open and were of great importance to the paper industry, the foreword stated that "additional research is needed ... to define more precisely the conditions under which higher levels of lignin are compatible with paper permanence. The next revision of the standard should reflect the results of such research."

One way to avoid singling-out of lignin-containing papers would be to define the behaviors permanent paper must demonstrate regardless of its content. These behaviors would include remaining strong, flexible, and non-acidic and retaining original color and brightness rather than yellowing and fading over time. Any paper that could pass the tests and demonstrate good long-term results would be considered permanent even if it contained significant amounts of lignin. The difficulty with this approach has been that while it is easy to test a piece of paper to determine its content, there has been no reliable method of demonstrating that a piece of paper will or will not behave in a certain manner a century from now.

### ASTM Paper Aging Research Launched

In response to the revision of ANSI/NISO Z39.48 in 1992 and the paper industry's concern that many of the industry's most common products failed to meet the NISO standard's requirements, the American Society for Testing and

Materials (ASTM) Committee D06 on Paper and Paper Products in 1994 undertook an international research project to explore the nature of paper aging. The program engaged five laboratories in the United States, Canada, and Finland to develop scientifically verifiable accelerated aging tests that could produce the same chemical and physical changes in paper as natural aging and reproduce the natural effects of temperature, light, and air pollution over time. Such tests would determine which papers could demonstrate strong potential for permanence, regardless of lignin or other controversial or innovative content. Oversight of the project included an advisory council with members from the paper industry, paper chemists, and representatives from the library and archives community.

### Accelerated Aging

Chemical deterioration is a slow process of degradation over what can be a very long time, especially in paper stored under archival conditions. Simply testing the flexibility of a piece of paper at any given point in time cannot predict the likelihood of permanence. Other than observing and repeatedly testing papers over many years, the only way to make predictions is to speed up deterioration so that measurable change happens quickly. Accelerated aging simulates the effects of natural aging in a short time by exposing paper to high concentrations of damaging conditions such as heat, humidity, light, and pollutants. Accelerated aging only attempts to predict paper stability under specific environmental conditions in the absence of use. Actual documents and books are stored in all sorts of conditions that change repeatedly over their lifespans, and they are of course also subject to use, potentially suffer catastrophes like floods and fires, and are otherwise stressed in ways that can significantly shorten the life of even the best paper.

Accelerated aging tests rely on the Arrhenius kinetic theory that chemical reactions happen faster the higher the temperature; to be exact, "the rate of an ordinary chemical reaction will be accelerated by approximately a factor of two if the temperature at which the reaction is run is raised by 10° Celsius." To provide a valid basis for a permanent paper standard, accelerated aging must accurately mirror natural aging over time. It must not induce deterioration results significantly different from what would have happened during normal aging. If accelerated aging tests do not accurately simulate natural aging, they cannot be considered reliable predictors of paper longevity.

Different aging conditions, different amounts and combinations of light, heat, and humidity can produce very different results. This is true in nature—paper stored at high temperatures and high humidity deteriorates faster than paper stored at low temperatures and low humidity.

During accelerated aging even a slight variation in conditions causes significant differences in the results. The absence of humidity during testing can alter the aging process itself so that different degradation products result. More strenuous test conditions (higher temperature, stronger light) engender faster deterioration, making it easier to conduct the test, but there are limits to how extreme conditions can be made before they cease to replicate natural aging results. Unfortunately, in the past there has been no agreement on precisely how accelerated testing should be done. Researchers have produced inconsistent data, and no one has demonstrated that the results of accelerated aging model the results of natural aging. As a consequence, in 1984 the authors of ANSI/NISO Z39.48 explicitly stated that "tests of artificial aging are ... excluded because of unresolved technical problems" and the 1992 revision continued to exclude them.

One of the prime goals of the ASTM research program was therefore to establish a set of testing methods that accurately replicate natural aging results in a dependable, repeatable manner. It was of particular importance to identify and quantify the "products of degradation" (chemical compounds created as reactions occur at the molecular level) under various conditions and thereby determine whether natural and accelerated aging produce the same products in the same quantity. Several types of chromatography were employed to study the compounds produced during testing, and to compare them with compounds formed through time in historical papers. "It was highly encouraging to find that the chemical compounds formed by aging were essentially the same, whether aged very rapidly in the accelerated process or slowly, over a century or so by natural process."

In order to assure that the process of accelerated aging paralleled natural aging as closely as possible it was also important to find a way to maintain the relative humidity of the paper at a constant state under differing temperature levels. The lighting and pollution tests also had to be designed to keep temperature and humidity at normal levels at all times. Other variables included whether to test paper in containers or loose, and whether to test single sheets or piles of paper simulating bound volumes and therefore closer to the real situation of paper in libraries. As it turned out, the most efficient way to avoid humidity changes proved to be enclosing samples of paper in glass tubes sealed to prevent moisture loss. It was further demonstrated that the glass tube method correlated well with the aging of stacks of paper.

To control the conditions of the research program, ASTM had fifteen types of test paper manufactured to eliminate a possible source ambiguity. The papers included both cotton paper and chemically and mechanically produced wood pulp papers, in both acidic and alkaline versions.

All of the laboratories performed their tests on the papers supplied by the project. Each laboratory studied changes to the papers' strength, flexibility, and optical properties of brightness under differing conditions of temperature, relative humidity, light, or pollution. In all of the tests alkaline papers suffered much less degradation and loss of strength than did acidic papers. In the lighting and pollution studies, lignin-containing paper yellowed much more rapidly than paper without lignin content.

## **ASTM Releases New Test Methods**

After five years of research, test development, and rigorous, in-depth peer review of the proposed testing methods, three new test methods are now ready for publication:

- Standard Test Method for Accelerated Light Aging of Printing and Writing Paper by Xenon-Arc Exposure Apparatus,
- Standard Test Method for Accelerated Pollutant Aging of Printing and Writing Paper by Pollution Chamber Exposure Apparatus, and
- Standard Test Method for Accelerated Temperature Aging of Printing and Writing Paper by Dry Oven Exposure Apparatus.

ASTM brought the light and pollution testing protocols to ballot in spring of 2002; the temperature method is concurrently being balloted by the subcommittee and is expected to reach the main committee for final balloting in the summer. The results of all three ballots should be known by October 2002. These new tests "will provide manufacturers, paper users and other interested parties with quantified rankings of paper stability that identify papers that will be stable and those that will be unstable when aged under normal conditions of use and handling over time" (Accelerated Temperature Aging p. 2).

## **Next Steps for NISO**

When ANSI/NISO Z39.48 came up for five year review in 1997 the NISO members recommended reaffirmation without change until the ASTM research was completed. The NISO standard is now due for its regular five-year review. A new committee will be appointed during 2002 and charged with evaluating the ASTM testing methods, as well as other relevant research, to determine whether the new information justifies a revision and if so, whether it would be appropriate to base a revised ANSI/NISO Z39.48 on accelerated aging tests in addition to or in place of continuing to specify the content of paper that can be called permanent. Because paper deterioration has such a devastating effect on libraries and archives and those who make use of them, proposing such a fundamental change to the standard would require extremely convincing evidence that the testing methods are scientifically

accurate and genuinely predict future paper stability. ASTM believes that the scientific research underlying its testing methods does provide a new set of tools for judging the relative long-term stability of paper.

The operative word here is 'relative'. The use of accelerated aging to predict paper longevity presents two difficulties: first, demonstrating that accelerated aging accurately reproduces natural aging, which the ASTM research addressed; and second, determining how much real time is represented by how much accelerated time. The ASTM test methods do not address the latter.

The draft test methods explicitly state that each "provides qualitative results regarding paper stability and does not define the exact life expectancy for a given paper to reach a specified set of physical properties" (Accelerated Temperature Aging, p. 1). The stability rankings "will not define specific periods of life expectancy ..." They do not attempt to predict an absolute lifespan (for example: paper A is stable for X years). Rather, they separate the relatively unstable papers from those that are more stable (paper A is more stable than paper B). As stated in the test methods documents, "the limit(s) of acceptability for a specified set of properties must be defined by each end user." (Accelerated Temperature Aging, p. 2).

It is the library and archive community in company with others who rely on permanent paper who must determine what level of results on the tests could and should qualify paper as permanent. Reaching consensus on these limits will undoubtedly be interesting and challenging.

## Next Steps: Natural Aging

The ideal, of course, would be to have a conclusive natural aging study of paper types against which to calibrate accelerated aging results. Until now, studies of real-time paper aging have depended on anecdotal observation of old papers that have not been kept in controlled conditions. In conjunction with the accelerated aging project, ASTM initiated a hundred-year natural aging test in 1999. Ten libraries representing a variety of climate regions in the US and Canada are storing volumes composed of the fifteen types of paper specially made for the accelerated aging project. The paper samples are being kept under controlled conditions until the year 2100. Pages from the volumes will be tested at regular intervals by scientists at four testing laboratories to track the natural deterioration as it progresses over the century. Because the same paper is being used for both projects, the scientists will be able to directly correlate the consecutive natural aging test results with the results of accelerated aging tests. While none of us will see the final data, even the preliminary comparisons of data done early in this century will enable adjustments to help accelerated test methods more closely mimic the results of natural aging.

Janet Gertz, is the Director for Preservation, Columbia University Libraries, New York, NY. She is also a member of the NISO Standards Development Committee and a member of the ASTM Paper Aging Research Advisory Committee. The author thanks R. Bruce Arnold and Margaret Byrnes for their comments on previous drafts of this article.



## STANDARDS NEWS

### OpenURL Standardization Moves Forward

By Eric F. Van de Velde, Chair, NISO Standards Committee AX

NISO Committee AX, the committee drafting the OpenURL Standard, met on January 24-25, 2002 at the CNRI offices in Reston, VA. This meeting was a turning point, as the emphasis shifted from defining the scope to addressing encoding issues.

Existing applications of OpenURL technology only scratch the surface of what else is feasible. We now apply OpenURL technology to bibliographic citations. In the near future, we may apply it to many other types of information: subject headings, legal documents, biological (genome sequences), etc. Currently, we encode OpenURL in an HTTP GET or POST format. In the near future, we may encode OpenURL links in XML. Today, we think of OpenURL links being provided by specific information

providers. In the near future, third parties may provide OpenURL links for any information resource. With these and other opportunities yet to be explored, it is obvious that OpenURL is a technology in its infancy, and we should think of the emerging OpenURL standard as the beginning of a long-term evolutionary process.

However, we cannot ignore short-term issues. The standard should not impede on the developments and innovations of early adopters. For this reason, the committee adopted as Version 0.1 of the standard the OpenURL draft as originally submitted to NISO ([http://library.caltech.edu/openurl/Record\\_Documents/OpenURL\\_Version\\_0.1.mht](http://library.caltech.edu/openurl/Record_Documents/OpenURL_Version_0.1.mht)). Resolvers will interpret all OpenURLs that do not contain a version number as Version 0.1 OpenURLs. Therefore, Version 0.1 OpenURLs will remain valid, even after adoption of new version(s). To encourage innovation and experimentation, the committee adopted the resolution that it will never use any parameter names beginning with an underscore. Early adopters may use such parameters for testing, developing, and debugging purposes without fear of introducing future incompatibility.

Version 1.0 will be a significant departure from Version 0.1. It puts in place strong fundamentals that will survive technology and application changes. Over the past seven months, the committee spent considerable time refining the structure of an OpenURL and the definitions of all underlying concepts. The OpenURLs of Version 1.0 will contain up to six entities: referent, resolver, referrer, referring-entity, requester, and service-type. Each entity may be described by up to four different kinds of descriptors: id, metadata-description (by-value), metadata-description-pointer (by-reference), and private-zone. This variety of entities and the flexibility in description methods increase the potential of the OpenURL technology to deliver targeted and context-appropriate services.

For details on this work refer to the OpenURL web site at <http://library.caltech.edu/openurl>. [Editor's note: the OpenURL web site also includes a link to the committee's theme song and video. This is not to be missed!]

The next committee meeting is on May 30 - 31, 2002 at the Getty in Los Angeles.

## E-Metrics Put on the Fast-Track

On February 22, 2002 the Library Statistics Standards Committee met in Washington, DC. During discussions at this meeting, it was agreed that the committee charge would be expanded to move the e-Metrics portion of the committee's work ahead in the work plan. The Committee's new goal is to release the e-metrics data elements as a Draft Standard for Trial Use in May 2002. The committee intends to maintain the data elements in a web-accessible database available to the entire community.

The committee has re-grouped into two teams to complete its work: Subcommittee A will revise ANSI/NISO Z39.7-1995 incorporating improvements based on the existing survey instruments in use by nationally recognized U.S. library data collection programs. This includes the programs sponsored by the National Center for Education Statistics (NCES), American Library Association (ALA), Association of Research Libraries (ARL); others may be included as appropriate. The first draft for full committee review is expected by April 1, 2002. The deadline for completion of the full revision of

the base standard remains June 2002. Members of the A-team are Dianne Carty (chair), Ann Carlson Weeks, Sherrie Schmidt, Barratt Wilkins, and Peter R. Young.

The second Team (Subcommittee B) will prepare the e-metrics data dictionary as a Draft Standard for Trial Use. It will define measures for electronic network performance, vendor and publisher-based use statistics reporting methods, and service quality measures. Subcommittee B will have a final draft standard prepared for the NISO members to review by May 1, 2002. Members of Subcommittee B include: John Carlo Bertot (chair), Brian Auger, Denise Davis, Oliver Pesch, and Sue Phillips.

## Net Reference Committee Begins Work

The following persons are serving on NISO's Networked Reference Services Committee (Standards Committee AZ):

Michelle Cadoree (Library of Congress); Ray Denenberg (Library of Congress); Donna Dinberg (National Library of Canada); Cary Gordon (The Cherry Hill Company); Rebecca Guenther, NISO SDC Liaison (Library of Congress); R. David Lankes (Syracuse University); Sally H. McCallum, Committee Chair (Library of Congress); Michael McClennen (Internet Public Library); Mary Parker (MINITEX); Jeff Penka (OCLC, Inc.); Joan Stahl (Smithsonian Institution); Michael Teets (OCLC, Inc.); Jacqueline Van der Linde (Koninklijke Bibliotheek).

Observers include: Norman Paskin (The International DOI Foundation); Mark Needleman (Sirsi); Shirley Forster (Altarama Systems & Services); J.D. Kathuria, (IBSI/LiveAssistance).

The committee has formed subgroups to draft the question processing transaction protocol and to define the networked reference metadata element sets needed to support the protocol. The Committee met on February 25, 2002 in Washington, DC to reach agreement on the general model for the standard, define the scope of each subgroup, and to set milestones and target deadlines.



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## An Intermediary's Perspective on Standards

By Bob Boissy, Manager, Standards and Interface Services, divine

It is fair to say that one factor that kept the library community from becoming a library malaise during the turbulent Internet era has been the continuing call for standards. Vendors serving the library community realize that the success of their products and services in the marketplace is directly tied to their adoption of standards.

At divine/Faxon Library Services the motto is to incorporate standards wherever they exist, and help create the standards wherever they do not exist. This tradition was started in the 1980s and carried on with fervor by respected Faxon standards advocates such as Mary Ellen Clapper and Fritz Schwartz. As a consequence, Faxon has been a leader in the development and implementation of standards within the American and international serial publications handling community. This has extended from NISO into cooperating sister organizations like the Serials Industry Systems Advisory Committee (SISAC), the International Committee for EDI for Serials (ICEDIS), EDItEUR, and the Organization for the Advancement of Structured Information Standards (OASIS).

### Electronic Data Interchange (EDI)

In 1990, Faxon was the first member of the serial publications community to implement standard EDI, sending an X12 file of address changes across the Atlantic. Faxon was also the first agent to implement use of ANSI/NISO Z39.56-1991 Serial Item and Contribution Identifier in EDI transactions. Today, Faxon exchanges over 7,000 standard X12 messages a month with libraries, publishers, and banks.

It may not be clear to the observers how interconnected NISO standards are in their use within the world of library automation. The various standards can be likened to a telescope with multiple extending "draws." In the serials world, the first draw is the ISSN (Z39.9/ISO3297). This numbering system for serials is at the root of almost all automation projects. It is the lead data element in the Serial Item and Contribution Identifier (or SICI, ANSI/NISO Z39.56) which enables machine identification of a serial issue. The SICI is the second draw in the telescope. Within the SICI it is possible to identify an individual article - the contribution identifier portion. The preferred machine-readable string to identify articles from serials available on the web is the digital object

identifier (ANSI/NISO Z39.84). The Digital Object Identifier, commonly known as the DOI, is a third draw. Like a telescope, NISO standards are extendible. And like a telescope, they allow distantly perceived goals to be brought closer. NISO standards have helped divine build new systems and services with confidence in their far-reaching utility.

In the mid-1980s the community was struggling to create of fixed field file format standards for serials claims and claims responses. The effort was questioned by several parties, including Faxon participants. The main debate was whether NISO would be better off creating electronic data interchange (EDI) standards for library transactions. The ANSI X12 format was already well-developed and in use in many U.S. industries. The thought was that EDI would bring the library community into closer alignment with the business, health, manufacturing, transportation, retail, and educational context within which libraries provide service. The retail book industry and library book jobber community was also thinking along these lines. Consequently, the Serials Industry Systems Advisory Committee (SISAC), a sub-unit of the Book Industry Study Group (BISG), began creating X12 standards for the library and publishing community. The membership of SISAC was eclectic - librarians, publishers, subscription agents, integrated library system vendors, bar code service providers, standards specialists, and consultants to the industry.

After many drafts and implementation experiments, SISAC released a set of X12 guidelines for the serials industry in 1995. In 1990 Faxon had run an EDI pilot project with several publishers and two library system vendors. The first EDI X12 exchange in the scholarly serials publishing community took place in June 1990; a file transfer of address changes from Faxon to the Royal Society of Chemistry. The SISAC guidelines eventually published in 1995 included X12 specifications for the serials invoice, serials claim, serials claim response, and publisher issue shipment data (known as dispatch data). The SISAC guidelines were quickly adopted by the major publishers and subscription agents represented in the International Committee for EDI for Serials (ICEDIS). The SISAC guidelines were explicitly designed to make use of existing NISO standards like the ISSN and the SICI.

Soon after the completion of the SISAC guidelines, work began on an international standard format for serials transactions that would make use of the data elements devised by SISAC members. EDItEUR International (<http://www.editeur.org/>) began writing serials transactions in the EDIFACT format. EDIFACT is very similar to ANSI X12, except that it is administratively overseen by the United Nations. The EDIFACT form of the serials transactions appealed to some libraries and library system

vendors. Subscription agents were quick to adopt EDIFACT as a viable form of standard data exchange. EDIFACT guidelines have always made use of NISO standards like the ISSN and SICI – reflecting the increasing globalization of the book and serials standards efforts.

Since 1995, Faxon and the other major subscription agents have benefited from receipt of EDI claims from most major integrated library systems in standard X12 and EDIFACT formats. Such claims are loaded automatically to back-end systems - eliminating delays, data entry errors, and improving resolution times. Three major publishers have adopted and integrated EDI claims technology in their fulfillment systems. Of even greater importance to libraries is the widespread adoption of the EDI serials invoice. Anyone who has keyed a serials renewal invoice has a sincere and deep appreciation for the EDI-enabled invoice that auto-loads in just minutes. When this happens at a library, a "thank you" should go

to NISO, SISAC, and all the people who make standards their priority in the library and publishing community.

### **Looking Ahead: DOI and OpenURL**

At this moment, document linking is the high-profile area of cooperation among publishers, aggregators, libraries, and end-users. Initiatives such as CrossRef, depend to a large extent for its success on the growing use of the Digital Object Identifier (DOI). A related standard that is becoming increasingly important is the OpenURL, which allows disparate systems to share information about digital resources using a standard format and syntax to communicate the information.

The future will hold many new opportunities for standards creation in the library and publishing community. Faxon and divine are prepared to part of it.



## **N I S O   N E W S   A N D   N O T E S**

### **NISO and ALA's Building and Equipment Section Explore Opportunities for Standards**

*By Shawn Tonner*

Twenty-five members of American Library Association's Building and Equipment Section sat down together on January 19, 2002 in New Orleans at the ALA Midwinter Conference to uncover the topics related to library buildings, furniture, and equipment that are in need of new standards and to determine the best of potential ideas. The group was made up of librarians with building project experience, architects, furniture and equipment vendors, and library building consultants.

Discussion began by focusing on the "successes" and "misses" in the most recent building projects in which participants were involved. Participants identified those features, processes, and designs that their project teams generally agreed were successful and worth repeating. They also identified the problem areas and stumbling blocks that hindered the projects and that need to be addressed in different ways in the future. When all the individual ideas were combined and sorted, distinctive themes in library building design, furniture, and equipment emerged:

- 1: Process
  - Making decisions effectively and efficiently
  - Including stakeholders
  - High-quality architect-owner-contractor-vendor relationships
- 2: Site selection for new facilities, additions, and historic renovations
- 3: Aesthetic and special design
- 4: Heating, air conditioning and ventilation (HVAC)
  - Indoor environmental quality issues
  - Below floor air distributions
- 5: Material performance, strength and maintenance
  - Building materials
  - Floor coverings
  - Furniture design and finishes
- 6: Lighting and illumination
  - Design
  - Energy-efficient design and maintenance costs
  - Window treatments for preservation and comfort
  - Glare and reflection and computers
  - Task, artificial, and natural light
- 7: Signage
- 8: Building security design and equipment
- 9: Public seating programming, design and furnishings

- 10: Accommodating staff: ergonomic design and furniture
- 11: Library service points: design, ergonomics, human factor engineering, materials
- 12: Accommodating collections: design and programming for space, access, and functionality
  - Preservation and cold storage
  - High density storage and compact shelving
  - Planning shelving installation
- 13: Public furniture
  - Programming
  - Comfort and ergonomics
  - Functionality and style
  - Durability and maintenance
  - Design for computer workstations
- 14: Wiring for power and communications and wireless data management in building and furnishings
  - Designing for wireless
  - Data closets design
  - Wire management in furnishings

The frequency that some themes reoccurred during the brainstorming session was interesting and surprising to participants. The most frequently occurring "successes" and "misses" in library buildings and furnishings were: process, library service points, accommodating collections, lighting and illumination, public furniture.

Each one of the 14 themes uncovered during this meeting presents a rich opportunity for reviewing the existing industry standards to determine if gaps exist that could be filled by expanding NISO's Building and Equipment portfolio. Perhaps useful standards and best practice guidelines do exist and simply need to be more fully understood and applied to our library buildings, furnishing, and equipment. The Building and Equipment Section of LAMA and NISO are committed to providing leadership to promote standards. If however, no current and applicable standards and guidelines are in place, particularly in those themes that reoccurred throughout this meeting, then NISO and BES may have found new opportunities for standards in library building, furnishings, and equipment.

This meeting was chaired by Shawn Tonner, Chair of the Building and Equipment Section of LAMA and member of NISO's Standards Development Committee. Attendees included: Joseph Agati (Agati Furniture), Claire Belanti (UCLA), Robert Danford (Widener Univ), Jay Carow (Carol Architects Planners), Barton Clark (Univ. of Illinois), Michael Daly (Queens Borough Public Library), Richard Fetzer (Fetzers, Inc), Elisabeth Habich

(Northeastern Univ.), Alexander Lamis (Robert A M Stern Architects), John Lutz (Thomas Moser Cabinetmakers), Gerald McCabe (library consultant), Kent Miller (Univ. of Kansas), Wendy Shelburne (Univ. of Illinois), Earl Shumaker (Northern Illinois Univ), Barbara Sirmans (Birmingham Public Library), Herbert Stone (Brown, Healey, Stone and Sauer), Betty Teoman (Rye Free Reading Room), Beth Titus (New Mexico State University), Paul Zajfen (Anshen and Allen Architects, LA).

## NISO/BISG Program on Archiving Electronic Publications

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This well-attended NISO/BISG program held during the ALA Midwinter 2002 Conference explored the issues publishers and librarians face in ensuring long-term access to digital resources. Creating a cost-effective business model for archiving, ensuring the rights and responsibilities of publishers and libraries, and identifying and framing new standards to support digital archival repositories were the topics covered.

Dale Flecker, (Associate Director for Planning and Systems, Harvard University Library), reported on Harvard's study on how to archive electronic journals. This activity is one of six digital archiving projects supported by planning grants from the Andrew W. Mellon Foundation. Flecker half-humorously observed that much of the energy behind digital archiving is rooted in a belief that "something 'bad' is about to happen, and we don't know what to do about it." He reminded the audience that unlike the print environment, nothing in the electronic environment will be saved through inaction.

Flecker described the basic assumptions and objectives of the Harvard project and the related access and economic issues. Flecker also identified areas where common practices would streamline the archiving effort. Flecker stressed the importance of using a common dtd (document type definition) and alerted the audience to the feasibility study which examines this question (<http://www.diglib.org/preserve/hadtdfs.pdf>).

Karen Hunter, (Senior Vice President, Strategy for Elsevier Science) reported on the Yale Library/Elsevier Science Digital Preservation Collaboration, which, like the Harvard project, is funded by a Mellon Foundation grant. Hunter noted that the Project's underlying assumptions called for the design of a long-term archive for content without the "look and feel" or functionality of a traditional archive; that the archive would be responsible for file migration; and, that standards would be key to success.

Hunter noted that the technical infrastructure for the archive and the metadata elements have been defined. Yet to be explored are economic and access issues.

George Barnum, (Electronic Collection Manager, U.S. Government Printing Office, Library Programs Service), reported on the OCLC Web Document Digital Archive, a GPO/OCLC collaboration to archive electronic government publications. Barnum explained that the government's web documents are administered by hundreds of different people thus making the job of "getting it all and keeping it forever" very difficult. As Barnum explained, the GPO/OCLC activity focuses on: offsite vendor maintained archives, toolkits for all associated procedures, identification of a set of preservation metadata, and the integration of workflow and tools.

Links to the Powerpoint presentations are on the NISO website at: <http://www.niso.org/presentations/niso-bisg-rpt.html>.

## Your Content and Mine: NISO/NFAIS Linking Workshop

*By October Ivins*

The NFAIS conference theme "Integrating at Internet Speed," set the stage for NISO and NFAIS to partner on a preconference Workshop examining ongoing "live" linking initiatives from several perspectives. Four top-notch presenters provided both a framework and a wealth of practical information on integrating content from multiple producers.

Ed Pentz, Director of CrossRef, described CrossRef's role as a member supported DOI registration agency for journal articles. Pentz noted CrossRef's reliance on standards and its support of new standards, including ONIX and the Open URL. Major concerns include: responding to the "appropriate copy problem" by supporting multiple link resolutions for a given article (DOIs presently support a single link); how to select the correct link for a specific user or application; and, reconciling the non-standard journal title abbreviations used by publishers. Plans for 2002 include recruiting CrossRef members from all types of scholarly publishers, not just those in STM fields and assigning DOIs to conference proceedings and books (reference works will be first).

Howard Ratner, Nature Publishing Group, drew on his early and ongoing involvement with CrossRef to describe the specific application of DOIs in the editorial and production process at Nature. Ratner offered practical insights into how workflow and staff roles have adapted. For example, careful copy editing of journal title

references is now mandatory. Ratner pointed out that one advantage of the new workflow is the ability to assign DOIs for advance web publication of articles before they appear in print. The relatively low match rate for references supported CrossRef plans for assigning DOIs to additional types of publications. Ratner's final observation that a substantial increase in document delivery revenue was already allowing Nature to recoup its investment in its new products clearly impressed the audience.

Dale Flecker, Harvard University Library, focused on the "appropriate copy problem." That is: how do we link a user to the appropriate copy when there are many options available? For example, a library user should not be linked directly to a publisher site when the library holds a subscription copy locally. (Or if the user is linked to another institution the authentication should be seamless without requiring log-in or fee requests.) Since DOIs resolve to only a single copy, two enhancements are now on the drawing board. One allows multiple links from a single DOI and another establishes a registry of authorized access options and authentication information which can support user agents. CrossRef, Harvard and other participants have successfully tested a reverse look-up solution to provide the appropriate copy. They acknowledge, however, that additional work to scale to a larger context and more players are needed. Flecker also pointed out that the hardest part may be knowing when a given user needs localization. At this time, cookies offer the best solution but this is far from ideal.

Miriam Blake, Los Alamos National Laboratories, described how the LANL uses SFX to support user links to a wide-variety of information, not just journal reference linking. She was careful to note that SFX is a commercial product from ExLibris and similar products are available or under development. For this reason, she referred to the library's system as "OpenURL aware" since that is the underlying standard. Blake pointed out that this area is evolving so rapidly that a common vocabulary is not yet in place. For example, "Local resolution server" and "link server" are, in fact, the same thing -- a software suite with an associated database of links, Blake noted that metadata inconsistencies were the biggest problem in using the system; and observed that both quality and quantity of metadata impact services.

Blake closed the workshop on a high note. Recent research, Blake reported, has found that a typical linked-screen which gives a user a selection of links to information (in a library catalog, and to purchased and free resources that are on local or remote servers) would require a user to execute 42 separate steps to access the same information in a non-linked environment.

Links to the speakers' Powerpoint presentations are featured on the NISO website.

## **Z39.50 Maintenance Revision at Ballot**

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A maintenance revision of ANSI/NISO Z39.50 is being reviewed and balloted by the Voting members March 29-May 13, 2002.

This maintenance revision integrates into the base standard the clarifications, amendments, defect reports, etc. approved by the Z39.50 Implementers Group since the release of ANSI/NISO Z39.50-1995. These changes do not disrupt any existing applications of ANSI/NISO Z39.50-1995.

Details on the changes and the text of the maintenance revision of Z39.50 are on the NISO website.

## **Serials Solutions Joins NISO**

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NISO is pleased to welcome a new member, Serials Solutions. Serials Solutions helps libraries keep track of their full-text electronic-format journals. The Seattle-based company provides client institutions of all types and sizes with comprehensive reports that show all the full-text electronic journals available at their institutions.

Serials Solutions partners with a variety of publishers, subscription agents and aggregators, many of which are also NISO members, to provide comprehensive and accurate information regarding the journals a library has available in electronic format. By increasing the accessibility to these journals, patrons, librarians, and content providers benefit.

Serials Solutions will be represented by Mike McCracken, Co-Founder and Director of Technology. More information about the Seattle-based company can be found on their website at <http://www.serialssolutions.com>.

## **News from ANSI and ISO**

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### **World Standards Day: October 16**

The theme for World Standards Day 2002, to be celebrated on October 16 is "Standards Mean Business." You can read more about ANSI's plans for World Standards Day, including details on the World Standards Day paper competition at: [http://www.ansi.org/public/news/2002feb/standards\\_mean\\_business.html](http://www.ansi.org/public/news/2002feb/standards_mean_business.html)

### **ANSI Speeds-up Public Review Process**

Standards Action, ANSI's public review vehicle for developing domestic, regional, and international standards, announced a new compressed publication schedule effective March 11, 2002 that will support more timely announcements and shorten the standards development/publication cycles. Standards Action will now be published weekly (it was previously a bi-weekly) and Public Review cycles for Call for Comment will begin every week (instead of every two weeks).

### **Standards Organizations Sign XML Agreement**

The IEC, ISO, ITU, the UN/ECE and OASIS have formalized a Memorandum of Understanding (MoU) on Electronic Business (e-business) to coordinate the development of global standards supporting XML. By establishing a coordination mechanism under a cooperative model, the MoU signatories hope to produce mutually supportive standards required in business transactions, such as data interchange and interoperability, as well as product design and manufacturing.

### **ISO Looks at New Pricing Model**

ISO has made available for a one year trial period a collection of over 100 information technology standards produced by ISO/IEC JTC 1

This collection is available online at a special flat rate of 44 Swiss francs through the end of 2002. An objective of this trial is to investigate alternative models for offering ISO standards priced on market-driven expectations rather than page count.



## STANDARDS STATUS: APRIL 1, 2002

This is a capsule report on each active NISO Standards Committee or standard-in-development.

This list does not include current, approved standards not being revised.

To learn more about each activity go to: <http://www.niso.org/standard.html>

Status	Committee	Standard
Development	SC OO	Revision of Z39.29, Bibliographic References
Published	SC AQ	ANSI/NISO Z39.86-2002 Specifications for the Digital Talking Book
Development	SC AT	Circulation Interchange Protocol
Development	SC AU	Technical Metadata for Digital Still Images
Development	SC AV	National Z39.50 Profile for Library Application
Development	SC AW	Revision of Z39.18, Scientific and Technical Reports
Development	SC AX	Open URL
Development	SC AY	Revision of Z39.7, Library Statistics
Development	SC AZ	Networked Reference Services
Ballot		Z39.50 Maintenance Revision

## CALENDAR

For additional information on any of the events listed contact [nisohq@niso.org](mailto:nisohq@niso.org)

### Meetings

#### APRIL 2002

- April 3 SC AV, Z39.50 Profile  
Dublin, OH
- April 11-12 TC46 SC 9 WG 3  
ISTC Working Group  
Toronto, Canada

#### MAY 2002

- May 2 9:00 am - 10:30 am  
Room 1E14, Javits Center  
Book Expo Standards Update  
Moderated by Pat Harris
- May 10 NISO/DLF workshop "Library Resource  
Management Systems"  
Chicago
- May 30-31 SC AX  
Los Angeles, CA
- May 31 10:30am - 12noon  
Westin Copley Place, Boston  
Society for Scholarly Publishing:  
E-Book Update  
Moderated by Pat Harris

#### JUNE 2002

- June 14 Statistics Forum  
Atlanta, GA
- June 16 NISO Annual Meeting and Program  
Atlanta, GA
- June 18 NISO Board of Directors  
Atlanta, GA

#### JULY 2002

- July 12 Standards Development Committee  
Washington, DC

#### SEPTEMBER 2002

- September 19 NISO Board of Directors  
Washington, D.C.

### Ballots

- March 29 - May 13 Z39.50 Maintenance revision of  
ANSI/NISO Z39.50-1995
- May 1 - June 14 Z39.83-200X  
Circulation Interchange Protocol

## NISO PRESS NEWS

### AVAILABLE NOW TO UPDATE YOUR BOOKSHELF

#### **Z39.86-2002 Specifications for the Digital Talking Book**

This standard makes possible a powerful, flexible reading system that easily adapts to different types of documents and different user needs. Using this framework anyone can create DTBs ranging from a very simple novel to a long, complex reference work or textbook. The standard is built on existing standards and specifications, so programming skills and software tools developed for other purposes can be applied.

NISO Press, 2002 124 pp. ISBN: 1-880124-54-8 Price: \$99

#### **Z39.85-2001 The Dublin Core Metadata Element Set**

Metadata is structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use or manage an information resource. The Dublin Core was originally developed to be simple and concise, and to describe Web-based documents. The current standard defines fifteen metadata elements for resource description in a cross-disciplinary information environment.

NISO Press, 2001 16 pp. ISBN: 1-880124-53-X Price: \$39

#### **Z39.78-2000 Library Binding**

Binding is the first line of defense in library preservation and can be a major part of a library's preservation budget. Developed jointly by NISO and the Library Binding Institute, this ANSI/NISO/LBI standard describes the technical specifications and materials to use for first-time hardcover binding of serials and paperbound

books intended for the rigors of library use. It also covers re-binding of hardcover books and serials. Following this standard will give you volumes that are sturdy, durable and flexible.

NISO Press, 2000 40 pp. ISBN: 1-880124-43-2 Price: \$59

#### **Z39.82-2001 Title Pages for Conference Publications**

Describes the kinds of information that publishers, authors, and editors should use to create title pages for conference publications so research results can be easily found and shared.

NISO Press, 2001 24 pp. ISBN: 1-880124-42-2 Price: \$39

#### **Metadata Made Simpler by Gail Hodge**

This introduction to metadata will help you understand what metadata is all about, why it is needed, and the advantages that metadata offers. Dublin Core, GILS, metadata creation and mapping are covered. A list of Web resources and glossary are included.

NISO Press, 2001 12 pp. ISBN: 1-880124-50-5 Price: \$20

#### **Z39.79-2001 Environmental Conditions for Exhibiting Library and Archival Materials**

Explains how to exhibit and display library and archival items—books, manuscripts, photos, and pamphlets—to minimize the wear and tear on the item. Temperature, humidity, light, contaminants are discussed. Details on exhibition case design and construction are given and specific materials that are safe to use are noted.

NISO Press, 2001 36 pp. ISBN: 1-880124-44-0 Price: \$49

## HOW TO GET NISO PUBLICATIONS

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