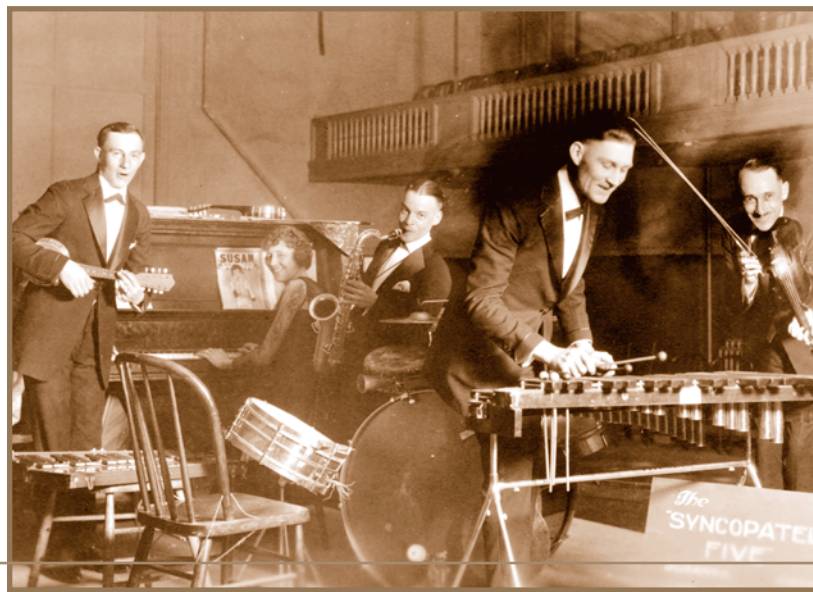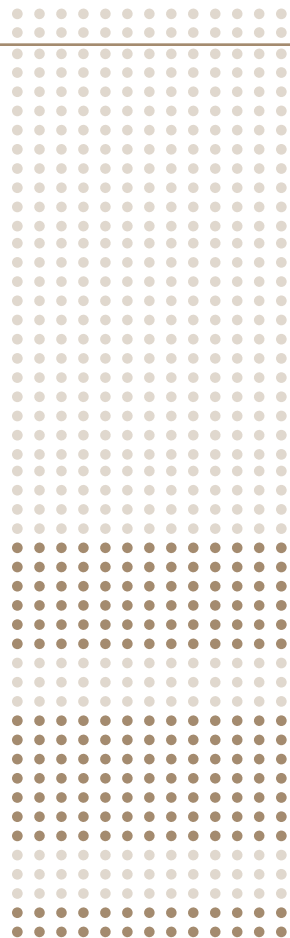# DIGITAL RESOURCES FOR CULTURAL HERITAGE:

A STRATEGIC ASSESSMENT WORKSHOP ON CURRENT STATUS AND FUTURE NEEDS

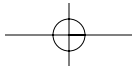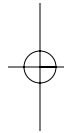*Syncopated Five Music Group. Courtesy of the Animas Museum Durango, Colo.*

COLLABORATION IS KEY

SUPPORTED BY
**The Institute of Museum
and Library Services**

REPORT AND RECOMMENDATIONS
PREPARED BY
**Angela Spinazzé, Nancy Allen,
and Liz Bishoff**

JUNE 8, 2004

CONTENTS

A WORKSHOP TO SHAPE THE FUTURE

On August 25 and 26, 2003, 63 specialists from 26 states, representing libraries, museums, archives, higher education institutions, public broadcasting, research consortia, public and private funding organizations, and service providers, participated in a workshop in Washington, D.C., to assess progress on and plan for the development and use of digital cultural resources. The Institute of Museum and Library Services (IMLS) provided funding for the workshop.

After opening remarks by Robert Martin, Director of IMLS, six invited speakers laid a foundation for subsequent discussions. The speakers described exciting, leading-edge efforts, highlighting powerful changes that digital cultural heritage resources can bring to society and ways in which cultural heritage organizations are reflecting societal change.

- Gregory Crane, Professor in the School of Arts and Sciences of Tufts University, created a vision of interdisciplinary alliances of scholarly work in the humanities that are useful, understandable, and basic to the lives of everyday people in the places where they live and work. Access to the right information in the right place at the right time makes all the difference.

- Sarah Shreeves of the University of Illinois Library at Urbana-Champaign described tools and concepts of discovery that would enable researchers, learners, and teachers alike to find and use digital resources anywhere, penetrating the barriers that now separate the Google searcher from the "deep Web" of databases and specialized digital collections. She reminded the participants that browsing is different from searching, and that both methods of discovery should be available to accommodate learners with different goals.

- Andrea Goethals of the Florida Center for Library Automation talked about the challenge of bringing the traditional preservation roles of cultural heritage organizations into the digital age. She reviewed the best current thinking about our collective options for archiving and preserving our digital assets.

- Kenneth Hamma, Assistant Director of the J. Paul Getty Museum and Senior Advisor for Information Policy of the Getty Trust, spoke about changing priorities in the ways museums regard their Web sites. As museum visitors express their changing expectations for digital information, online services, and digital collections, the museum world will give greater priority to the Web site and to digital presentations and exhibitions as part of the core mission of the institution.

- **David Liroff**, Vice President and Chief Technology Officer of WGBH Boston, spoke about synergies and commonalities between cultural heritage organizations and public broadcasting. He also touched on the many complex issues stemming from the ephemeral nature of the broadcast medium. Changes in the digital infrastructure for public broadcasting, changes in audience expectations, and changes in cost models for digital content all contribute to a volatile business with tremendous potential for partnerships.

- **Liz Bishoff**, former Executive Director of the Colorado Digitization Program, reminded the group about the promise and the peril of collaboration. She remarked that throughout the cultural heritage community, in museums, libraries, archives, and historical societies, we need to identify and define our common vision. Together, we all need to make sure that the goals and objectives of collaborative projects meet the institutional goals of all partners.

DIGITAL COLLECTIONS FOR CULTURAL HERITAGE: A PROGRESS REPORT

Many of the building blocks for a coordinated effort to develop and present useful cultural and scientific heritage collections in digital form are in place. The momentum is great, and energy among libraries, museums, and other cultural heritage organizations is high. IMLS has been a positive influence, creating an action agenda, setting high expectations, promoting collaboration, encouraging an emphasis on real-life outcomes and impact in learning communities, and setting the stage for development of content through grants that create a network of interconnected achievement. Many elements of a solid foundation are emerging:

- Appropriate standards are available for describing various types of collections, along with best practices in the implementation of standards. Experts are continuing to develop expansions to metadata standards of all kinds. These rich descriptive data elements are the building blocks for achieving the goal of preserving access to digital and physical information.

- Several approaches to "better-than-the-Web" resource discovery and searching, including harvesting and collection-level registries, are now in place, and use of these approaches is growing.

- Many collections are equipped with educator guides that enable ready application in formal learning communities, from preschool through college.

- Rich and varied primary research collections in cultural, historical, and scientific heritage are now available in digital form. The range is impressive and inspiring,

although far from complete. Photographs, films, diaries, oral histories, botanical specimens, maps, music, and data sets are only a few of the ways we can document our history, culture, and experience.

- Methods of archiving and preserving both the original documents and their digital surrogates are being explored so that no learner in the future will face the permanent loss of irreplaceable information.

- Research is under way to tell us more about the ways individuals and learning communities seek cultural heritage resources and how we can present information in ways that meet their needs.

- Cultural heritage organizations are working with exciting new partners, and collaboration across libraries and museums has never been more productive and persistent. Public broadcasting, schools, and professional associations are working together to link those who want and need learning resources with the librarians, curators, and other experts who have created digital resources and put them on the Web.

- In a dynamic, rapidly changing digital environment, it is critical to bring together technologists, scientists, humanists, social scientists, librarians, educators, museum administrators, and other stakeholders to build agreements, share knowledge, and create change in a unified, visionary way. A variety of opportunities for collaboration and exchange are in place.

- Early efforts at sustainable, programmatic digitization are being carefully examined to identify models and success elements.

NEXT STEPS: SUGGESTED ACTION ITEMS

At this critical stage in the history of cultural institutions and digital resources, participants agreed that future funding by IMLS and other organizations that support digital resource development, management, and preservation in the heritage sector should be directed to four key areas: infrastructure, audience research and development, collaboration, and professional development.

- Focusing on these four action areas will ensure the longevity of existing digital collection efforts and open the door to institutions that heretofore have not had the opportunity to participate in digital collection development activities.

INFRASTRUCTURE

> • Define a national strategic agenda for the
> development, maintenance, and preservation
> of digital cultural collections.

The heritage community has been creating, delivering, organiz-
ing, and preserving digital collections for years without a collec-
tive vision to steer the process. Individual institutions have taken
the initiative to digitize their collections, create teacher packs
and lesson plans, and create Web exhibits and databases, all in
the desire to use the power of the Web to share more of what has
heretofore been unseen. Much effort has been expended to stitch
together these collections in various ways––through subject-
based searching, for example. What is readily apparent, though,
is that it takes more than the enthusiasm of a cadre of colleagues
to build a community around the existing digital resources.
Without a larger vision for these resources, developments in dig-
ital collections will continue as they have in the past, and the
needs of audiences who use them will remain, for the most part,
unknown and unmet.

The need for a comprehensive, sustainable model, including the
infrastructure components required for each activity––capture of
digital files, creation of metadata, asset management, short- and
long-term preservation, and intellectual property—is great. No
proven financial models for sustaining these activities exist. This
means that as a community we do not know what combination
of outside funds, fee-based services, capital expenditure, and
other revenue sources might help an institution sustain its efforts
to manage digital content. In the absence of strategic plans for
what content to capture, for whom, and why, digital capture of
cultural content grows at an inconsistent pace.

AUDIENCE RESEARCH AND DEVELOPMENT

> • Research and publish findings about needs and
> expectations for use of digital collections.

It is in our best interest to learn more about the people and organi-
zations that use our digital collections. It is not enough, though, for
individual institutions to learn about their own specific audiences.
Without a better understanding of the larger audiences (local,
regional, national, and international) who use digital resources, why
they use them, and how they use them, we will miss opportunities
to serve new communities. Some communities already have estab-
lished networks (teachers, scholars, tour guides, staff, professional
organizations), and we need to use those networks to engage them
in a collaborative inquiry process. If we do not, we will have little
chance of providing meaningful services to those audiences that fall
outside of the familiar ones (those who speak languages other than
English, for example).

We need to better understand who is looking for or at our digital collections, what they are looking for, why they are using these resources, and what creative ways they have found to use the resources. For instance, a person who is passionate about a hobby, one engaged in formal continuing education, a scholar, and a student working on a school assignment may all use the same digital object or collection in different ways. We must know more about their needs before we can effectively design interfaces through which to deliver packaged content, answer queries, or foster lifelong learning relationships.

In addition, we need to seek out new communities. Audiences may be looking for digital cultural resources and not finding them. Our community will benefit greatly from finding those audiences, opening discussions with them, and building collaborative relationships to explore how to provide digital content that is useful for them. Our users are likely to need new methods of packaging and reusing digital resources, supporting the creation of new scholarship, art, and other forms of knowledge. This flexibility is important to sustaining the vitality of digital collections for the future.

COLLABORATION

- Encourage collaboration through a greater emphasis on following successful leaders in the field.
- Engage industry, government, and private sector organizations in support of strategic infrastructure, technology, and economic needs.

Some institutions are leaders and others are followers. We need both in order to be successful in our collective endeavors. The same applies to building digital collections. Many organizations have accumulated valuable experience working with digital resources. We need to learn from them and follow their lead. We can encourage collaboration with greater emphasis on communicating both successes and how to achieve them, and failures and how to avoid them.

A more structured approach is needed. The development of a digitization superstructure is critical. There is a need for better information about sources of financial support. One possible approach is the development of a national grid of funding sources and priorities. In addition, a registry of completed and in-progress projects would provide a national overview that would be useful to identify resources, reduce duplication, and ensure better coordination for future projects.

In addition to following the leaders in our own field, we need to engage leaders in related fields and industries. Some of the tools and technologies we need are financially beyond our reach. In other cases, the expertise required to use the tools falls outside of our collective capacity. A shared voice, a clear vision, and a national strategic agenda would help to ensure effective progress.

PROFESSIONAL DEVELOPMENT

> • Improve access to hands-on learning, mentoring, and continuing education, as well as formal education of a new generation of creators and managers of digital assets.

Most training courses offered through local computer superstores do not address the day-to-day issues of working with digital collections. Conferences offer abstracted versions of process. Large-group workshops offer an entire day of listening as talking heads share their collective experience. Each of these learning experiences is valid, but none of them is effective at transferring knowledge about specific problems from individual to individual. Media management tools are complex, editing visual content requires special skills, and enabling interoperability between systems requires consistency of approach. To solve day-to-day problems, professional practitioners need access to more peer-to-peer, hands-on learning experiences.

Professional development can be dynamic. It might even become more formal, as is the case in other disciplines that offer continuing education courses and acknowledgement of new skills. Problem solving is not just about knowing which book or Web site to consult; it is about knowing whom to call with a question and whom to consult about how to move from inspiration to implementation.

Graduate education of library, archival, and museum professionals should incorporate the creation, management, and preservation of digital assets, as well as current research issues and methodologies.

FUNDING: A CRITICAL FACTOR

Professionals in the heritage sector want to create a national agenda that articulates content, technical, and financial priorities on a large scale. Initiatives of this type are under way in other disciplines in the United States and in the heritage sector abroad. We need to create our own version of a sustainable future for the collections we build, deliver, and preserve.

To do this, the community needs assistance from funders in the four key areas outlined above: infrastructure, audience research and development, collaboration, and professional development. Without a shared vision and support to pursue it, all of the potential outcomes from these thoughtful conversations will remain hidden, like so much of the heritage we seek to make visible in the digital environment.

The cultural heritage community is poised for a great advance in the provision of digital resources for education and learning. It has accumulated a body of experience, knowledge, standards, and infrastructure needed to manage digital collections and services that will support the "nation of learners" that cultural heritage organizations serve. Sustainability for both the individual institution's cultural heritage effort and the collective national

infrastructure is essential. This effort will require coordination, collaboration, and advocacy on the part of IMLS and other funding agencies. It will also require a concerted effort at the local level by libraries, archives, museums, and historical societies, and their strategic partners, to recognize their roles and responsibilities for sustaining digital collections as a cost of doing business, and to form collaborative relationships to achieve economies of scale in managing digital content. This work will ensure that our nation's rich cultural heritage is part of a new information environment that will revolutionize education and support learning and leisure at all levels, for all ages, and in all communities.

In addition to federal agencies, private foundations, and other funding sources, cultural heritage digital content initiatives have explored sustainability options including revenue from sales or fees (such as licensing digital content themselves or selling corollary products such as high-quality print services). Larger institutions have undertaken digital creation and management services such as consulting, metadata management, or conversion services. These activities can be part of the revenue mix, but they will not fund the large-scale creation of new digital resources.

Many larger institutions recognize that museum visitors and library users will increasingly expect them to provide online access to their digital resources; therefore, they regard digital collection management as a core activity. Cultural heritage organizations with significant digitization experience are allocating general operating funds to support staff and infrastructure for management of digital collections. Even organizations with marginal excess operating revenue are providing some operating budget support in addition to other revenue. But nearly all development of digital resource content is based on one-time funding in the form of grants or gifts.

How can the flow of funds for this worthy and future-oriented effort be better organized and further developed? The answer lies in coordination, collaboration, and advocacy.

Two Taos Men standing at river on North side of Taos Pueblo, about 1891. Courtesy of Taos Historic Museums.

Two Boys Playing in the Snow, 1890's. Courtesy of Mystic Seaport.

Museums, libraries and archives are the stewards of cultural heritage. Making these resources available digitally enhances learning by greatly expanding access to and use of important historical materials.

RECOMMENDATIONS TO IMLS

IMLS should seek additional funding, through appropriations or partnerships, to support increased digitization activities. In addition, IMLS should seek to extend the digitization policies and practices it has developed in its National Leadership Grant program throughout the funding programs it manages and encourage their adoption by other funders.

Under the Library Services and Technology Act, IMLS has authority to provide grants in a number of ways. One is competitive national funding, for which it develops standards and quality review. The other is state-based grants to State Library Administrative Agencies (SLAAs). SLAAs have considerable latitude in how they use and distribute state funding. IMLS should work more closely with the SLAAs to ensure that funds allocated to digitization are well spent and that the digital content created is well managed. It should also encourage state-based efforts to develop a shared digital collection management infrastructure. IMLS could start by identifying the states that have allocated funds to digitization, determining what standards each requires and what outcomes assessments each uses. SLAAs should be strongly encouraged to adopt standards for digitization and asset management similar to those required of applicants for the IMLS National Leadership Grant program.

IMLS should also explore the creation of a parallel state-based program for museums. It is imperative that more funding for digitization be made available to the museum community, in conjunction with requirements for standards. IMLS should lead an effort to ensure that training in digital content creation, preservation, and management is available to museums at the state and regional levels.

IMLS has been effective in working with the National Science Foundation's Digital Library Initiative and the National Science Digital Library programs to foster information sharing among grantees. Similar efforts with agencies such as the National Endowment for the Arts, the Library of Congress, and the National Endowment for the Humanities would create further benefits for cultural heritage organizations. IMLS could promote the adoption by other funding agencies of its "Specification for Projects Involved in Digitization," which is required for IMLS digitization applications, and its "Framework of Guidance for Building Good Digital Collections," which has been adopted by the National Information Standards Organization.

IMLS should also encourage other funding agencies to adopt its practice of encouraging grant recipients to participate in national registries of digital content. Participation will promote greater conformance to standards and increased access to digital content. These requirements and quality standards are potential models for public policy makers and legislators as they consider new approaches to supporting digital content development initiatives.

RECOMMENDATIONS TO THE CULTURAL HERITAGE COMMUNITY

The library and museum communities can do more as well. Professional associations such as the American Library Association, the American Association of Museums, and the Association of Research Libraries are actively engaged in advocacy relating to legislative matters on a national level, and state library associations often have effective advocacy efforts. Advocacy for state and federal funding programs for creating digital content and digital asset management infrastructure can have positive results. A key part of that advocacy is gathering information about the outcomes of access to digital content. The library and museum communities should produce fact-based reports about how digital educational and learning resources can change lives and should publicize these findings to key decision makers. Professional associations should also provide continuing professional education and training to disseminate information on standards and standards-based systems, interoperability solutions, and program assessment. The museum and library communities have supported the establishment of new organizations or the expansion of existing ones to address digital assets—for example, the Museum Computer Network and the Coalition for Networked Information. These organizations ensure a growing base of informed staff and collectively build the capability for high-quality digital content, associated metadata, and resource preservation.

CONCLUSION

Development of a collaborative agenda for digital cultural heritage collections requires collaboration on a long list of key questions. Some of those have been identified through the conversations held during this workshop; other questions will certainly emerge in the coming years. Examples will suffice to illustrate the hard work needed to reach the goal of a seamless fabric of museum and library collections online that represent every aspect of our heritage and culture.

What partnerships will support a sustainable digital environment? How should the growth of digital content be funded? How can a coordinated collection be built together by many separate organizations? What interoperability solutions will best meet the learners' needs? How will information seekers of today and of tomorrow be different, and how can we track their needs so that we can meet those needs? How can a focus on learning communities and individual learners be the driver determining priorities for content development? What can we do to identify trends in the economic and information environments that can support our own initiatives and directions?

One thing is certain. We have come a long way in the past decade, and the pace of progress is faster than ever. We will continue to work together to envision solutions, apply creativity, develop answers, and listen to the visitors and users of libraries and museums as we move ahead.

NATIONAL INITIATIVES

A few examples of national initiatives that support a strategic approach to the development, use, management, and preservation of digital collections are presented here.

Under its National Science Digital Library Initiative, The National Science Foundation is supporting research and development of resources in science, technology, engineering, and mathematics. These libraries will consist of an online network of learning environments and resources for the subject areas at all levels. Through a three-track approach, institutions may apply for grants as stewards for content and services, service providers to develop services that support audiences and promote integration of content, and research exploring specific topics that are applicable to both content and services within the context of these digital libraries. See: http://www.ehr.nsf.gov/due/programs/nsdl/.

The Council for Museums, Libraries, and Archives in the United Kingdom provides strategic leadership, advocacy, and advice to its constituencies to enable them to engage life-long learners, new audiences, and support for programs and activities that bring heritage into people's lives. See http://www.resource.gov.uk/.

The Information Society Technologies (IST) program is part of the European Union's research agenda. European research activities are structured around consecutive four-year programmes, or so-called Framework Programmes. The Sixth Framework Programme (FP6) sets out the priorities––including the IST Priority––for research, technological development, and demonstration (RTD) activities for 2003–2006. See http://www.cordis.lu/ist/about/about.htm.

Crowd of spectators watching [aviator Charles] Hamilton in his Flying Machine, 1910. Courtesy of the Connecticut Historical Society, Hartford. Scientific and technological progress may be documented in "hidden" local history collections.

PARTICIPANT ROSTER

Nancy Allen
Dean and Director
Penrose Library
University of Denver
2350 E. University Ave.
Denver, CO 80208
Phone: (303) 871-2007
Fax: (303) 871-2290
Email: nallen@du.edu

Kenning Arlitsch
Head of Digital Technologies
J. Willard Marriott Library
University of Utah
295 S. 1500 East, Rm. 463
Salt Lake City, UT 84112
Phone: (801) 581-3721
Fax: (801) 585-5549
Email: kenning.arlitsch@library.utah.edu

William Barnett
Vice President and Chief Information Officer
The Field Museum
1400 South Lake Shore Drive
Chicago, IL 60605-2496
Phone: (312) 655-7959
Fax: (312)-665-7416
Email: wbarnett@fieldmuseum.org

Lisa Beyer
Collections Manager
Arizona Capitol Museum
Arizona State Library, Archives and Public Records
1700 West Washington
Phoenix, AZ 85007
Phone: (602) 364-0304
Fax: (602) 542-4690
Email: lbeyer@lib.az.us

Liz Bishoff
Executive Director
Colorado Digitization Program
Penrose Library
University of Denver
2150 East Evans
Denver, CO 80208-2007
Phone: (303) 871-2006
Fax: (303) 871-2290
Email: liz@bishoff.com

Mamie Bittner
Director, Public & Legislative Affairs
IMLS
1100 Pennsylvania Avenue NW, Room 510
Washington, DC 20506
Phone: (202) 606-4648
Fax: (202) 606-8591
Email: mbittner@imls.gov

Michael Brugnoni
Digital Imaging Specialist
Cleveland Museum of Art
11150 East Blvd
Cleveland, Ohio 44106
Phone: (216) 707-2677
Email: mbrugnoni@clevelandart.org

John Chadwick
IT Manager
Office of Information Technology
New Mexico State Library
1209 Camino Carlos Rey
Santa Fe, NM 87507
Phone: (505) 476-9740
Fax: (505) 476-9761
Email: johnc@stlib.state.nm.us

Kevin Cherry
Visiting Instructor
College of Education
East Carolina University
2400 Nelson Hwy.
Chapel Hill, NC 27517
Phone: (919) 490-6447
Fax: (252) 328-4368
Email: cherryt@mail.ecu.edu

Schroeder Cherry
Deputy Director for Museum Services
IMLS
1100 Pennsylvania Avenue NW, Room 608
Washington, DC 20506
Phone: (202) 606-0480
Fax: (202) 606-0010
Email: scherry@imls.gov

Sayeed Choudhury
Director
DKC, MSE Library
Johns Hopkins University
Baltimore, MD 21218
Phone: (410) 516-4930
Fax: (410) 516-5170
Email: sayeed@jhu.edu

Mary Chute
Deputy Director for Library Services
IMLS
1100 Pennsylvania Avenue, NW, Room 802
Washington, DC 20506
Phone: (202) 606-5419
Fax: (202) 606-1077
Email: mchute@imls.gov

Anne Craig
Associate Director
Library Automation and Technology
Illinois State Library
Gwendolyn Brooks Building
300 South Second Street
Springfield, IL 62701-1796
Phone: (217) 785-5607
Fax: (217) 557-6737
Email: acraig@ilsos.net

Gregory Crane
Professor
School of Arts and Sciences
Tufts University
Eaton Hall
Medford, MA 02155
Phone: (617) 627-3830
Fax: (617) 627-3032
Email: gcrane@perseus.tufts.edu

Martha Crawley
Senior Program Officer
IMLS
1100 Pennsylvania Avenue, NW
Washington, DC 20506
Phone: (202) 606-5513
Fax: (202) 606-1077
Email: mcrawley@imls.gov

Nancy Dennis
Director
Collections and Technology Services
University of New Mexico General Library
MSC05 3020
1 University of New Mexico
Albuquerque, NM 87131-0001
Phone: (505) 277-2585
Fax: (505) 277-1788
Email: ndennis@unm.edu

Steve Dietz
Consultant and Independent Curator
24680 Smithtown Road
Shorewood, MN 55331
Phone: (952) 994-4118
Email: stevedietz@yproductions.com

Ricky Erway
Digital Resources Manager
RLG
1200 Villa Street
Mountain View, CA 94043
Phone: (650) 691-2228
Fax: (650) 964-0943
Email: rle@notes.rlg.org

Keith Ewing
Learning Resources & Technology Services
St. Cloud State University
St. Cloud, MN 56301
Phone: (320) 308-4824
Fax: (320) 308-5623
Email: kewing@stcloudstate.edu

Diana Folsom
Manager, Art & Education Systems
Collections Management Dept.
Los Angeles County Museum of Art
5905 Wilshire Blvd.
Los Angeles, CA 90036
Phone: (323) 857-6594
Fax: (323) 857-6213
Email: folsom@lacma.org

Andrea Goethals
Florida Center for Library Automation
5830 NW 39th Avenue
Gainesville, FL 32606
Phone: (352) 392-9020 x265
Fax: (352) 392-9185
Email: goethal@ufl.edu

Jason Hall
Director, Government & Public Affairs
American Association of Museums
1575 Eye Street, NW, Suite 400
Washington, DC 20005
Phone: (202) 289-9125
Fax: (202) 289-6578
Email: jhall@aam-us.org

Kenneth Hamma
Assistant Director
Senior Advisor for Info. Policy, Getty Trust
J. Paul Getty Museum
1200 Getty Center Drive, Suite 1000
Los Angeles, CA 90049-1687
Phone: (310) 440-7186
Fax: (310) 440-7752
Email: khamma@getty.edu

Eric Hansen
Executive Director
Kansas Library Network Board
300 SW 10th Ave., Rm. 343N
Topeka, KS 66612-1593
Phone: (785) 296-3875
Email: eric@kslib.info

Jane Heiser
Associate Deputy Director
IMLS
1100 Pennsylvania Avenue, NW
Washington, DC 20506
Phone: (202) 606-5395
Fax: (202) 606-3155
Email: jheiser@imls.gov

Jason Herrick
Special Assistant to the Director
The Frick Collection
1 East 70th Street
New York, NY 10021
Phone: (212) 547-0663
Fax: (212) 861-7347
Email: herrick@frick.org

Peter Hirtle
Director for Instruction and Learning
Instruction, Research, and Info. Services
Cornell University Library
309 Uris Library
Ithaca, NY 14853
Phone: (607) 255-4033
Fax: (607) 255-2493
Email: pbh6@cornell.edu

Nancy John
Interim University Librarian
University of Illinois at Chicago
University Library
Box 8198 m/c 234
Chicago, IL 60680
Phone: (312) 996-2716
Fax: (312) 413-0424
Email: nrj@uic.edu

Ann Joslin
Associate State Librarian
Idaho State Library
325 W. State Street
Boise, ID 83702
Phone: (208) 334-2150
Fax: (208) 334-4016
Email: ajoslin@isl.state.id.us

Mary Estelle Kennelly
Associate Deputy Director
IMLS
1100 Pennsylvania Avenue NW, Room 608
Washington, DC 20506
Phone: (202) 606-8547
Fax: (202) 606-8539
Email: mkennelly@imls.gov

Jeffrey Kintop
State Archives Manager
Nevada State Library and Archives
100 North Stewart Street
Carson City, NV 89701-4285
Phone: (775) 684-3410
Fax: (775) 684-3371
Email: jmkintop@clan.lib.nv.us

Ann Lally
Head, Digital Initiatives
University of Washington Libraries
Box 352900
Seattle, WA 98195-2900
Phone: (206) 685.1473
Fax: (206) 616.6135
Email: alally@u.washington.edu

David Liroff
VP & Chief Technology Officer
WGBH Boston
125 Western Avenue
Boston, MA 02134
Phone: (617) 300-2404
Fax: (617) 300-1013
Email: dliroff@wgbh.org

Dan Lukash
Program Officer
IMLS
1100 Pennsylvania Avenue, NW
Washington, DC 20506
Phone: (202) 606-4644
Email: dlukash@imls.gov

*Advanced Technology is
A Moving Target.*

*Hanscom Park, 3201 Woolworth Avenue, Omaha, Nebraska. Horse-drawn band-
stand unassembled. 1890-1900. Courtesy of Omaha Public Library, Omaha, NE*

Clifford Lynch
Director
Coalition for Networked Information
21 Dupont Circle, NW
Washington, DC 20036
Phone: (202) 296-5098
Email: clifford@cni.org

Elizabeth Lyons
Special Assistant
IMLS
1100 Pennsylvania Avenue NW, Room 510
Washington, DC 20506
Phone: (202) 606-4649
Fax: (202) 606-8591
Email: elyons@imls.gov

Susan Malbin
Program Officer
IMLS
1100 Pennsylvania Avenue NW, Room 802
Washington, DC 20506
Phone: (202) 606-5389
Fax: (202) 606-1077
Email: smalbin@imls.gov

Hanscom Park, 3201 Woolworth Avenue, Omaha, Nebraska. Bandstand set up. 1890-1900. Courtesy of Omaha Public Library, Omaha, NE

Robert Martin
Director
IMLS
1100 Pennsylvania Avenue NW, Room 510
Washington, DC 20506
Phone: (202) 606-4649
Fax: (202) 606-8591
Email: rmartin@imls.gov

Sue Medina
Director
Network of Alabama Academic Libraries
P.O. Box 302000
Montgomery, AL 36130-2000
Phone: (334) 242-2211
Email: smedina@ache.state.al.us

Sarah Michalek
Director
J. Willard Marriott Library
University of Utah
295 South 1500 East
Salt Lake City, UT 84112-0860
Phone: (801) 581-8558
Fax: (801) 581-3997
Email: sarah.michalak@library.utah.edu

Kate Nevins
Executive Director
SOLINET
1438 W. Peachtree Street, Suite 200
Atlanta, GA 30309-2955
Phone: (800) 999-8558
Fax: (404) 874-3220
Email: knevins@solinet.net

Charles Patch
Director of Systems
The Historic New Orleans Collection
533 Royal Street
New Orleans, LA 70130
Phone: (504) 523-4662
Fax: (504) 598-7108
Email: chuckp@hnoc.org

Faye Phillips
Assoc Dean of Libraries for Special Collections
Louisiana State University
Hill Memorial Library, Room 107
Baton Rouge, LA 70803
Phone: (225) 578-6552
Fax: (225) 578-9425
Email: fphilli@lsu.edu

Joyce Ray
Associate Deputy Director
IMLS
1100 Pennsylvania Avenue NW, Room 802
Washington, DC 20506
Phone: (202) 606-5384
Fax: (202) 606-1077
Email: jray@imls.gov

Peggy Rudd
Director and Librarian
Texas State Library and Archives Commission
P.O. Box 12927
Austin, TX 78711-2927
Phone: (512) 463-5460
Fax: (512) 463-5436
Email: prudd@tsl.state.tx.us

Michael Seadle
Assist. Director for Systems & Digital Services
Michigan State University Libraries
100 Library
East Lansing, MI 48824-1048
Phone: (517) 432-6123 x292
Fax: (517) 432-4795
Email: seadle@msu.edu

Marsha Semmel
Director of Strategic Partnerships
IMLS
1100 Pennsylvania Avenue NW, Room 510
Washington, DC 20506
Phone: (202) 219-3625
Fax: (202) 606-8591
Email: msemmel@imls.gov

Sarah Shreeves
Project Coordinator
IMLS Digital Collections and Content
Univ. of Illinois Library at Urbana-Champaign
Grainger Engineering Library, MC-274
1301 W. Springfield Avenue
Urbana, IL 61801
Phone: (217) 244-7809
Fax: (217) 244-7764
Email: sshreeve@uiuc.edu

Abby Smith
Director of Programs
Council on Library and Information Resources
1755 Massachusetts Avenue NW, Suite 500
Washington, DC 20036
Phone: (202) 939-4758
Fax: (202) 939-4765
Email: asmith@clir.org

Barbara Smith
Technology Officer
IMLS
1100 Pennsylvania Avenue NW, Room 802
Washington, DC 20506
Phone: (202) 606-5254
Fax: (202) 606-0395
Email: bsmith@imls.gov

Angela Spinazzé
ATSPIN Consulting
3270 North Lake Shore Drive, Suite 5E
Chicago, IL 60657
Phone: (773) 281-1515
Fax: (773) 442-0071
Email: ats@atspin.com

Thornton Staples
Director, Digital Library Research & Dev.
University of Virginia Library
Alderman Library, Room 533
Charlottesville, VA 22904
Phone: (434) 924-3975
Fax: (434) 924-1431
Email: tls@virginia.edu

Christie Stephenson
Head, Digital Conversion Services
University of Michigan
3208-A Buhr Building
837 Greene Street
Ann Arbor, MI 48104
Phone: (734) 615-4061
Fax: (734) 763-7886
Email: christee@umich.edu

Bonnie Styles
Associate Museum Director
Science and Education
Illinois State Museum
Research and Collections Center
1011 East Ash Street
Springfield, IL 62703-3535
Phone: (217) 782-7475
Fax: (217) 785-2857
Email: styles@museum.state.il.us

Taylor Surface
Director
Digital Content Management Services
OCLC, Inc.
6565 Frantz Road, MC131
Dublin, OH 43017
Phone: (614) 761 5145
Fax: (614) 718 7497
Email: taylor_surface@oclc.org

Edward Valauskas
Manager, Library and Plant Information
Chicago Botanic Garden
1000 Lake Cook Road
Glencoe, IL 60022
Phone: (847) 835-8202
Fax: (847) 835-6885
Email: ejv@chicagobotanic.org

Rod Wagner
Director
Nebraska Library Commission
1200 North Street, Suite 120
Lincoln, NE 68508
Phone: (402) 471-4001
Fax: (402) 471-2083
Email: rwagner@nlc.state.ne.us

Frederick Weingarten
Director, Office for Info. Technology Policy
American Library Association
1301 Pennsylvania Avenue NW, Suite 403
Washington, DC 20004
Phone: (202) 628-8421
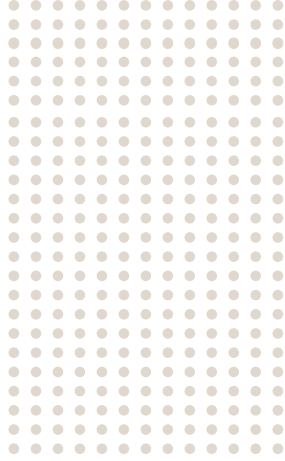Fax: (202) 628-8424
Email: rweingarten@alawash.org

Nancy Weiss
General Counsel
IMLS
1100 Pennsylvania Avenue NW, Room 802
Washington, DC 20506
Phone: (202) 606-5414
Fax: (202) 606-1077
Email: nweiss@imls.gov

Kendall Wiggin
State Librarian
Connecticut State Library
231 Capitol Avenue
Hartford, CT 06106
Phone: (860) 757-6510
Fax: (860) 757-6503
Email: kwiggin@cslib.org
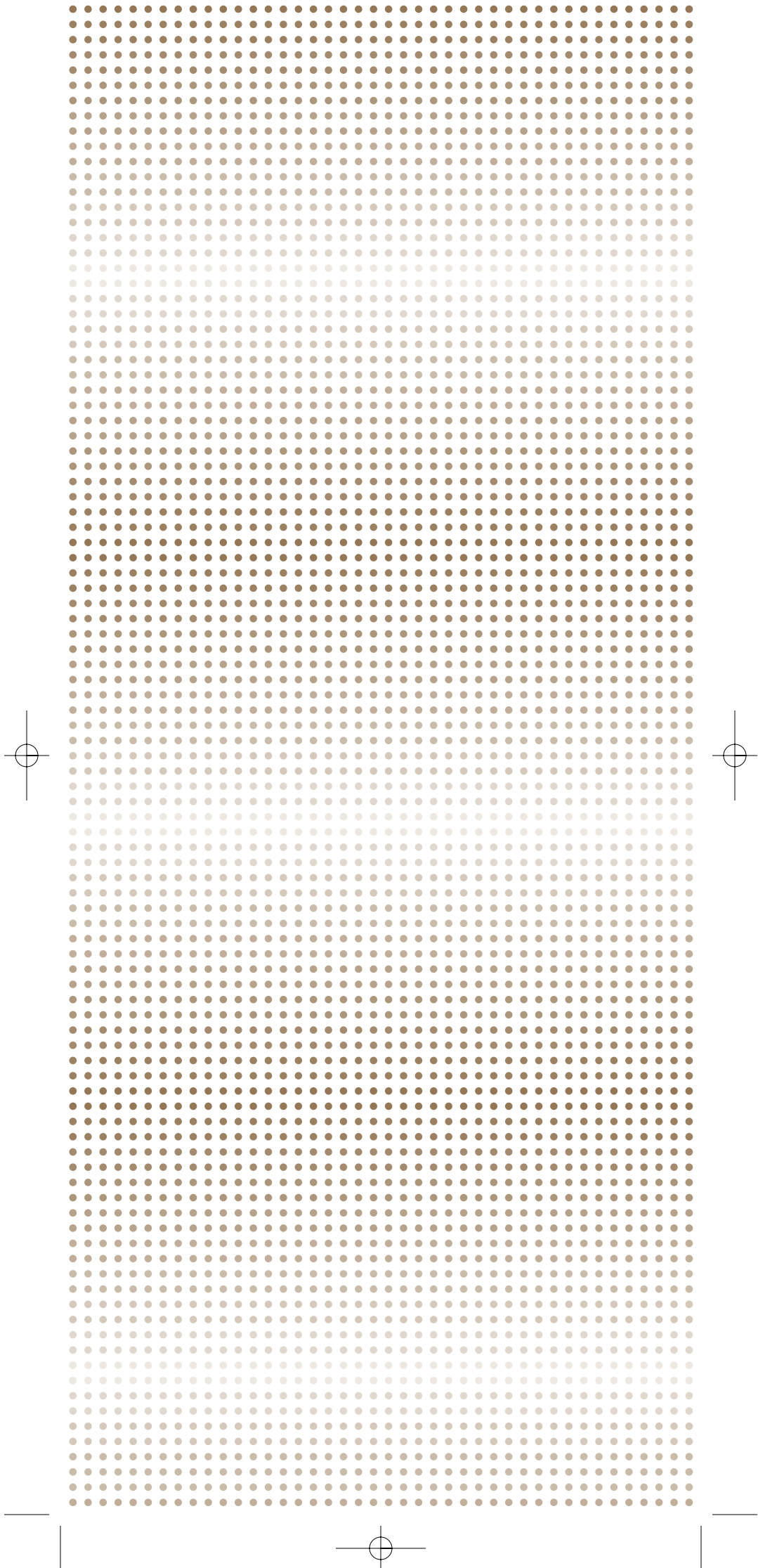
*Rocky Mountain Railroad Club special backing over trestle above Ophir,
Colo. May 30, 1947. Photographer: John W. Maxwell, Photoprint #P026045
Rio Grande Southern Railroad Photographs Collection.
Reproduced by permission of the Center of Southwest Studies,
Fort Lewis College, Durango, Colo.*

INFRASTRUCTURE IS ESSENTIAL

COLLABORATIVE Digitization PROGRAM