

THE CALIFORNIA DIGITAL LIBRARY





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UNIVERSITY OF CALIFORNIA CAMPUSES

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| 1. UC BERKELEY (1868) | 6. UC RIVERSIDE (1954) |
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| 5. UC MERCED (2005) | 10. UC SANTA CRUZ (1965) |

■ MESSAGE FROM THE DIRECTOR

When the California Digital Library (CDL) was founded by the University of California in 1997, the establishment of a library with a wholly digital charter was unprecedented. Those of us present at the creation were often asked to explain what a “digital library” included. Although the common assumption was that it contained digital books, we began with few if any books!

Our initial task was to address the soaring costs of scholarly journals. To accomplish this we employed traditional collection development methods by focusing first on a subject area, Science, Technology, and Industry, and making publications important to these disciplines accessible to our scholarly community in digital form.

At the same time, the UC Berkeley library initiated a significant effort to make special collections more accessible to researchers by posting inventories of these materials online. CDL completed this effort, making our fledgling charter collection an eclectic mix of electronic journals in science and technology and electronic finding aids for special collections of letter, diaries, papers and other unique materials.

CDL’s digital library mandate charges us with providing “systems and services that can make the University’s shared knowledge assets in any format readily accessible and available to every member of the UC community.” The irony of this charge was that because few books were in digital form, CDL ended up indirectly supporting the print-based library. We developed systems linking our users to the vast print collections within UC and beyond, which lead to increased usage of traditional print resources. Our challenge was to enable users to access these services online. To accomplish this, we built on the foundation of the Melvyl catalog, one of the first and largest online library catalogs in the country.

Now, a little more than ten years later, we can finally declare that the University of California has a digital library in the original sense. Thousand of books have already been digitized and are available through CDL services. Soon, millions of books will be accessible, thanks to mass digitization efforts supported by both the private and non-profit sectors. Our digital collections now cover every subject area of interest to the UC community, K-12 teachers, and the people of California. The services we provide have matured beyond their initial novelty and are now an accepted and integral part of the research process.

Our initial goals of supplying the UC community with digital “knowledge assets” and saving millions of dollars by facilitating the

purchase and sharing of materials and services used by all campus libraries have been achieved. We look forward to meeting a new set of goals as CDL continues to expand.

Much of CDL’s history has involved gathering together disparate collections, often via innovative technologies. These collections were built by licensing materials for all campuses, aggregating UC’s digital assets through services such as Calisphere and eScholarship, and providing a single discovery service through the Melvyl catalog.

One of our next challenges is to make these digital assets available at the network level, where a broader community of users will be able to access them for research. We have already begun to address this challenge through initiatives like the Next Generation Melvyl Pilot, supported by WorldCat Local; exposure of eScholarship resources to search engines; and exposure of Calisphere to large content aggregators such as OAlster.

We are also focused on expanding our collections to include Web-based materials that represent an important part of our cultural heritage, namely government and political Web sites. CDL’s Web Archiving Service is investigating methods for selecting and preserving such materials.

As we make our digital assets more widely available on the Internet, our ability to understand how, where, and by whom our assets are being used becomes more fragmented due to the distributed architecture of the Web. To mitigate this risk, CDL will be investigating how our audiences create, discover, and value information. Also, we will explore how they integrate this information into their work and share it online. Through this analysis we can position our services to help users take advantage of the dynamic opportunities offered by the Web. We will also use these data to make decisions about collections, services, technology, and innovations that will shape the future of the digital library.

In the following pages you will find stories of recent accomplishments, comments from our users, and beautiful images from UC’s collections. Taken together, they tell the compelling story of CDL’s vital and evolving role in ensuring that UC remains at the forefront of public research universities. CDL is a leader in using innovative technology to connect content and communities, bringing them together in a way that enhances research and teaching. Through CDL’s Programs and Services, UC can bring the treasures of its libraries and the ideas of its rich intellectual community to the world.



Laine Farley
Executive Director
California Digital Library

CDL PROGRAMS

Bibliographic Services Program	Patricia Martin, Director Lynne Cameron, Technology Manager
Collection Development and Management Program	Ivy Anderson, Director Paul Fogel, Mass Digitization Technical Lead
Digital Special Collections Program	Rosalie Lack, Director Brian Tingle, Technical Lead
Publishing Services Program	Catherine Mitchell, Acting Director Lisa Schiff, Technical Lead
Digital Preservation Program	Patricia Cruse, Director Stephen Abrams, Technical Lead

CDL SERVICE GROUPS

Assessment, Design & Production Services	Felicia Poe, Manager
Information Services	Ellen Meltzer, Manager
Project Planning and Resource Allocation Services	Joan Starr, Manager
Business Services	Beaumont Yung, Manager
Infrastructure and Applications Support Services	John Ober, Manager

THE CALIFORNIA DIGITAL LIBRARY 2008



“INNOVATIVE BY NATURE, EFFICIENT BY DESIGN”

CDL was founded in 1997 to take advantage of emerging technologies that were transforming the way digital information was being accessed and published. At that time, the networked world was one of separate sources, contributors, and consumers. Today, the boundaries keeping users and information apart have been drastically reduced and in many cases eliminated. These changes have fulfilled the promise of “information at our fingertips”. Anyone with an Internet connection can access information that was previously isolated from most of the online community. Just as importantly, connected users can easily add content to information sources that were once the domain of a small group of technical experts. These fundamental changes provide a tremendous opportunity for knowledge sharing and the formation of communities based on common interests. By listening to our users – scholars and researchers, faculty and students – and studying how they go about their work, CDL has been able to develop innovative solutions to expand the world’s access to UC’s rich collections and transform the way research is done.

CDL has continually broken new ground by assembling one of the world’s largest digital research libraries, changing the ways faculty and students discover and access information, and making digital assets accessible to scholars over the long term. CDL supplies the UC community with vital material, including journals, books, articles, databases, images and other primary resources in digital format. CDL also saves the UC system millions of dollars by facilitating the purchase of commonly needed materials and services for all the

campus libraries. As a recognized leader in the world of digital libraries, CDL delivers high-quality information services and collaborates with UC Libraries and librarians throughout the life cycle of digital resource management.

Serving the UC Libraries is a vital component of CDL’s mission.

CDL provides infrastructure and support that helps campus libraries deliver services. This infrastructure would be extremely difficult for any single campus library to develop on its own. Services such as Melvyl® and Request, for example, allow campus libraries to share collections. CDL also leads the effort to develop a digital library environment that supports scholarly research in the UC system. CDL’s unique position within the UC system allows it to act as a neutral intermediary that can broker the sometimes divergent ideas held by the campuses concerning the future direction of the UC Libraries. In addition, by licensing and hosting quality information resources on behalf of all campus libraries, and providing digital library communications and services, CDL makes it possible for librarians to focus their resources on addressing the unique needs of their users.

UC’s traditions of collaboration and experimentation support CDL in linking evolving technologies with compelling ideas, and partnering with the ten campuses in a system-wide network. As the 21st century unfolds, CDL will continue to lead the way by making the treasures of UC’s libraries and the ideas of its rich intellectual community accessible to the world.



CDL PROGRAMS & SERVICES – MEETING CAMPUS NEEDS THROUGH COLLABORATION

In 2006, CDL carried out an extensive reorganization process, paving the way for the implementation of a vision that had emerged from an in-depth strategic planning process. The reorganization allowed CDL to better define the boundaries of its programs and services, while solidifying its commitment to a consultative structure and collaborative service model. The new organization also gave increased attention to communication and better supported collaboration between CDL and its campus partners. CDL takes pride in consulting and collaborating with its audiences to uncover unmet needs and deliver services that address those needs.

An important goal of the 2006 reorganization was to ensure that CDL Program managers were provided with the resources, decision-making capacity, and budget they needed to best serve their campus constituencies. The result was the establishment of five core Programs, each with clearly defined primary audiences and

five internal Service Groups that support the needs of the Programs. Within CDL, the same consultative and service orientation that the Programs employ when working with campuses is used by the Service Groups to support the five core Programs. Together, the Program and Service groups allow CDL to manage ongoing projects while exploring new avenues of service on behalf of campus libraries and their users.

CDL’s five core Programs include the Bibliographic Services Program, the Collection Development and Management Program, the Digital Special Collections Program, the Publishing Services Program, and the Digital Preservation Program. The five internal Service Groups that provide support to CDL Programs include Assessment, Design & Production Services, Business Services, Information Services, Infrastructure and Applications Support Services, and Project Planning and Resource Allocation Services.



BIBLIOGRAPHIC SERVICES PROGRAM

The Bibliographic Services Program supports three essential services that together provide UC faculty, students, and staff with instant access to the rich collections of content housed in the ten UC campus libraries as well as licensed materials from commercial providers.

- **The Melvyl catalog**, a pioneering online library service launched in 1981, provides one-stop search and request for UC and the public. Melvyl supports almost 6 million searches a year.
- **UC-eLinks** provides access to the libraries' full range of collections and services, regardless of where a citation is found. It connects UC scholars to more than 25,000 online journals in full-text format as well as citation management services, Ask a Librarian services, and other web resources. Users click through to full text almost 1.8 million times a year.
- **The Request service** allows UC users to obtain materials from any campus or through interlibrary loan and document delivery services worldwide. UC-eLinks can send citations to Request for items that are unavailable in the user's home library or online. Users issue nearly 400,000 requests a year.

All three services are well-established components of the research process for UC scholars and are being enhanced in the following ways:

New and improved interfaces: In 2007, Bibliographic Services released a newly designed UC-eLinks menu after conducting an extensive analysis of user interaction with the system. This simpler, better organized menu reflects CDL's commitment to user-centered design.

The "My ILL Requests" interface was introduced in January 2007, allowing users to manage their own interlibrary loan requests and freeing library staff to focus on processing requests for materials.

Better connection among services: In the past, it has been difficult for users to make use of the appropriate service depending on their starting point. Now, Melvyl provides a UC-eLinks button to connect directly from a journal record to online full text when available. Another enhancement in Melvyl makes it possible to use Request to specify a journal article or volume/issue from a journal record.

Better integration with external and network level services: The Melvyl edition of the LibX toolbar, released in 2006, was upgraded

in 2007. It gives users access from their browsers to both Melvyl and campus library catalogs, as well as WorldCat.org. LibX also places UC-eLinks into public sites such as Google Scholar.

UC-eLinks also supports COins (ContextObject in Span) technology. COins technology allows UC-eLinks to be embedded on sites with citations, such as Wikipedia, PubMed, and other selected sites.

Stability and security for core services: Securing the hardware and software resources supporting the Program's three services is mission critical. The Program's team recently completed extensive work upgrading Melvyl to state of the art technology. At the same time, the team migrated Melvyl from an aging and expensive AIX platform to a Solaris platform that offers the same level of reliability on a more cost-effective basis.

In the first quarter of 2008, the team migrated UC-eLinks to a more powerful machine in anticipation of additional load due to tighter integration with Melvyl. And in response to user security concerns, the Request service began to use more secure transmission protocols in December 2007.

One of the most dramatic indications of the success of these efforts is the fact that UC users have far greater access to online full text now than they did three years ago.

As a result of enhanced services,

better integration of tools, and ongoing acquisitions of content, the frequency with which users saw a full-text link in the UC-eLinks menu rose from 42% in 2004 to 73% in 2007.

Support for UC's mass digitization projects: In preparation for Google's scanning of Northern Regional Library Facility (NRLF) items, Bibliographic Services worked with UC Berkeley on a process of identifying, matching, and enhancing approximately 535,000 catalog records. These records are used to track items as they are digitized and become available to update UC Berkeley's catalog. A second process, designed to select items to be scanned by the Open Content Alliance, was implemented and covered over 160,000 records from NRLF and SRLF.

On behalf of UC, the Bibliographic Services team accepted an invitation to be one of the first implementers of the Google Book Search Book Viewability API protocol, which links the Melvyl catalog to any book digitized by Google. The team remains actively involved in strategizing new ways to use bibliographic data.

"[Request] is a wonderful service you provide; it allows UC faculty, staff, students, and residents to get access to published material that would otherwise be prohibitive."

- UCSF student via Request feedback, March 2007



LITH. & PUB. BY H. CURRIER,

132 NASSAU ST. COR. OF SPRUCE N. Y.

THE INDEPENDENT GOLD HUNTER ON HIS WAY TO CALIFORNIA.
I NEITHER BORROW NOR LEND.

NEXT GENERATION MELVYL®

BIBLIOGRAPHIC SERVICES PROGRAM

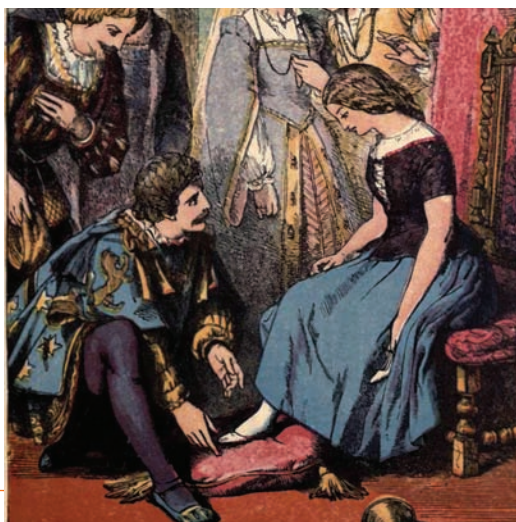


Next Generation Melvyl® Pilot Moves Bibliographic Services to the Network Level

The Bibliographic Services Program is playing a significant role in the strategic changes recommended by the Bibliographic Services Task Force (BSTF) report, commissioned by the University Librarians in 2005. UC's Next Generation Melvyl Pilot project seeks to move bibliographic discovery services to the network level through the implementation of the OCLC WorldCat Local service.

Through OCLC's WorldCat Local service, UC users can search a broad universe of materials, including more than 80 million records from 10,000 libraries worldwide. CDL's extensive experience managing system-wide bibliographic services, coupled with a cross-campus perspective, makes it well-positioned to contribute to the planning, analysis, and development of the upcoming system-wide pilot of the Next Generation Melvyl.





Benefits at the Network Level

The benefits of moving bibliographic services to the network level at a time when digitized content is becoming widely available are significant:

- A better ability to deliver services in users' workflow, including further integration into learning management systems, citation management tools, and mobile devices.
- Effective ways to access mass digitized content as well as an improved ability to manage related issues, such as the effect of mass digitized content on interlibrary loan and document delivery services and policies, and the need for print-on-

demand and scan-on-demand services.

Several CDL Programs and Services, including Bibliographic Services, Information Services, and Assessment Services, are making significant contributions to WorldCat Local task groups by supporting user interface design, assessment activities, policy development, support documentation, and testing.

The WorldCat Local pilot is expected to be deployed in mid-2008. It will continue for at least six months, and possibly through the end of the calendar year. Meanwhile, the team will continue to explore service opportunities for discovery at the network level and manage the implications of mass digitized content.





COLLECTION DEVELOPMENT & MANAGEMENT PROGRAM



The Collection Development and Management Program helps broaden and deepen access to digital and print content for UC campuses. This benefit could never be supported by individual library budgets. The program acts as the fiscal and licensing agent for the UC Libraries' shared collections, managing \$35 million annually in system-wide library expenditures. The Program also manages shared cataloging to make access easier for users, manages the mass digitization project and shared print program, and extends content and licensing services to new users, such as alumni and national laboratories.

The Program's efforts are focused on three major areas: licensed content, shared print collections, and mass digitization.

Licensed Content: Licensed content provides the UC community with more digital material than is available at any other university: more than 24,000 electronic journals, hundreds of thousands of electronic books, and more than 250 article and reference databases containing thousands of records. The Collection Development and Management Program negotiates cross-access on all major contracts, ensuring that any title with single-campus interest is also available system-wide. On behalf of the campus libraries, this Program manages 150 licenses on an ongoing basis, handles hundreds of renewal payments annually, and negotiates business and licensing terms with more than twenty major publishers (and dozens of smaller ones) each year.

Collection Development and Management centralizes licensing of these materials for two important reasons. First, centralization makes licensing much less expensive than if campuses acted independently. The costs of commonly needed materials are reduced and the cost of the acquisition process itself is eliminated. This results in a cost savings of several million dollars annually, which allows the campus libraries to focus their budgets on local research and curriculum. Projected savings for 2007–2008 alone are well over \$3 million, reflecting an average 55 percent discount off list price. Second, centralized licens-

ing allows the UC Libraries to leverage their influence and purchasing power to achieve a more sustainable marketplace and secure broad academic use rights for UC students and scholars. For example, recent contracts for John Wiley & Sons and Taylor & Francis have achieved better than 30 percent savings over the costs of licensing these journals separately at each campus, while providing greatly enhanced access to users at all ten UC campuses.

UC Libraries' Shared Print Collections: These collections of information resources, jointly purchased or electively contributed by the libraries, fulfill several goals: broadening and deepening UC Library collections in the service of research, teaching, patient care, and public service; offering economies not available through traditional models of collection development; enhancing the research community's access to important cultural assets by ensuring persistence over time; and enabling the UC Libraries to develop comprehensive research collections that would otherwise be impossible to build. Key projects in this area include the retrospective shared print repository of JSTOR journals, undertaken in partnership with JSTOR; prospective shared print archives for licensed electronic journals; and the Canadiana shared monographic collection. The program is expected to extend the reach of UC collections while providing incremental economies to the campuses over time through space savings and other cost avoidances. Also, the program will provide for the preservation of the scholarly printed record, where print remains the archival medium of choice, at the lowest possible unit cost.

Mass Digitization: Digitizing hundreds of thousands of volumes in the ten UC libraries, and making information about them freely available to users over the Internet, is an ongoing project designed to enhance access to and management of our vast library holdings. Several CDL Programs participate in this complex project, which is managed by the Collection Development and Management team. (See the "Mass Digitization" snapshot.)

"Congratulations on achieving such a noteworthy outcome for the UC library system. [...] Please know that the faculty appreciate the tremendous work that you are doing to assist our scholarly endeavors."

– UCLA professor on UC's acquisition of the Times Digital Archive, 2007

TRANSFORMING THE PUBLISHING MARKETPLACE

Collection Development & Management Program



Access for the Academic Market

The Collection Development and Management Program is leveraging the “power of ten” and its extensive experience negotiating with vendors to change the dynamics between libraries and publishers and transform the publishing marketplace. CDL has taken the following important steps to encourage publishers to develop fair pricing and access models that will work in the academic market:

- Applying value-based principles that require complex data analysis to major, evidence-based negotiations in 2008.
- Introducing and reinforcing the concept of UC authors and editors as contributors of content, not just consumers of content.
- Encouraging open access models in the marketplace.
- Opening up dialogue about sustainable economics with publishers.
- Mitigating barriers to licensing, such as restrictions on e-reserves and the use of DRM technology.

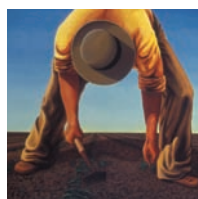




Recent successes include:

- American Chemical Society agreed to be the first publisher to apply an explicit discount to its pricing based on the number of UC authors who contributed articles to its journal publications.
- Several publisher licenses in 2008 were renewed to bring them into or below parity with the Bergstrom-McAfee Relative Cost Index (RCI), a key tool in determining value-based pricing. Annual increases have also been brought down to more sustainable levels, matching or exceeding caps derived from the U.S. Producer Price Index.
- CDL, on behalf of the UC libraries, was the first U.S. library to offer tangible support for a bold new experiment to encourage open access. SCOAP³ (Sponsoring Consortium for Open Access Publishing in Particle Physics) is a new model for scholarly communication proposed by physicists interested in expanding access to their published literature by creating a consortium of institutions that would “redirect” the money they currently pay for subscription access to support open access publication for journals in high energy physics.





DIGITAL SPECIAL COLLECTIONS PROGRAM



“The Calisphere Web site is a remarkable learning tool that will provide students with a rich experience of California’s multicultural heritage.”

– CA State Superintendent of Public Instruction, Jack O’Connell, August 2006

Photographs, artwork, maps, books, newspaper clippings, diaries, scrapbooks, transcribed oral histories, and political cartoons are some of the “buried treasures” contained in CDL’s Digital Special Collections. The Digital Special Collections Program creates and manages a diverse range of digitized curated materials drawn from the distinctive collections of the libraries and museums of the ten UC campuses and from other cultural heritage organizations. These free online collections allow scholars, students, educators, and the general public to discover primary sources and other information once accessible only to scholars who were able to visit the physical collections. Bringing visibility to these once-isolated, unique collections by making them broadly available on the Web demonstrates CDL’s strong commitment to public service.

Digital Special Collections manages several innovative services, including Calisphere, the Online Archive of California (OAC), and the University of California Shared Images.

Calisphere: Calisphere is UC’s free public gateway to more than 200,000 digitized primary sources selected from the libraries and museums of the UC campuses and cultural heritage organizations across California. Launched in August 2006, it was created to build awareness of the large quantity of excellent resources in these collections and ensure improved public access to them. This site serves scholars and the general public, and allows users from around the world to discover and experience UC library collections. In addition, it is tailored to meet the needs of K-12 educators, and includes three important primary source image and document collections: Themed Collections, California Cultures, and the Japanese American Relocation Digital Archives. Historical essays are also available, which explain the nature and importance of these collections. In 2007, both California Cultures and the Japanese American Relocation Digital Archives underwent a significant redesign to fully integrate them with other Calisphere digital content. Currently, the Program is forging partnerships with UCOP K-12 programs as well as with the California Technology Assistance Project (CTAP IV) to promote the continuing and innovative use of Calisphere in the classroom. (See the “Calisphere” snapshot.)

UC Shared Images powered by ARTstor: The greatest potential of UC Shared Images is to enable collaborative collection development across the University of California by reducing redundant effort and providing access to the images faculty need for teaching. UC Shared

Images, powered by ARTstor, is uniquely positioned to make digital images for teaching broadly available to faculty and students across the University of California. ARTstor is a digital library of approximately 750,000 images in the areas of art, architecture, the humanities, and social sciences.

In 2007, the CDL Image Service Strategic Planning team re-envisioned a shared service that would leverage CDL’s strengths in licensing and facilitation to bring together image collections from each campus for sharing across the UC system, regardless of location. In the initial phase, CDL has joined forces with UC visual resources curators to introduce this service and to build the first set of shared collections in 2008. Looking ahead, visual resources curators and other campus image stakeholders will continue to develop shared collections.

Online Archive of California (OAC): OAC is set to be the source for finding aids from California institutions. In 2008, Digital Special Collections will redesign its flagship OAC site, which provides access to online archival finding aids aggregated from over one hundred institutions across California. The redesign will focus on user interface issues while at the same time confronting a deeper need: defining and creating the next generation archival finding aid. The CDL team is being advised by an OAC Working Group, appointed by the UC Heads of Special Collections.

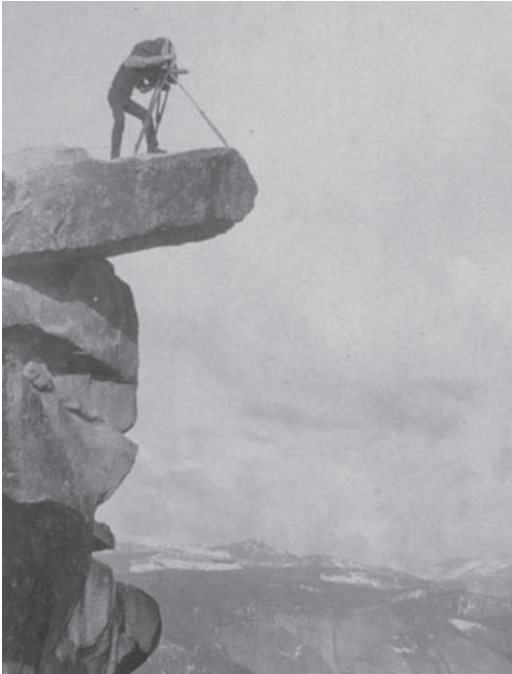
As a central repository of information describing cultural collections, OAC is a vital California resource. With the redesign, OAC will solidify its place as a preeminent site in the world of online archival finding aids by providing users with a truly innovative gateway into the vast resources available in cultural collections across California.

New Tools: The Digital Special Collections team has recently developed two new tools that support online research:

- A new zoom tool will allow users to see detailed views of images and imaged texts in a growing number of digital special collections, opening the door to a whole new level of research by scholars and lifelong learners.
- A picture may be worth a thousand words, but it remains hidden without the right words to find it! Metadata Submission Guidelines for UC Shared Images provides guidelines for image collection builders to describe images in an effort to ensure that faculty and students find what they need.

CALISPHERE – A WORLD OF PRIMARY SOURCES AND MORE

Digital Special Collections Program



“A Teacher’s Dream Come True”

Calisphere, described by users as “a teacher’s dream come true”, is a great example of what partnerships between CDL, campus libraries, and cultural heritage institutions across California can accomplish. By working with K-12 educators and uncovering their need for primary sources to use in the classroom setting, CDL was able to design Calisphere in a way that provides teachers with a quick and easy tool for finding historical context and selected sets of images geared to teaching standards.

Teachers in all grades, and in subjects from History to English to Journalism, have found creative ways to use Calisphere. Here’s what they’ve told us:

- “The variety of images (Daguerreotypes, photos, posters, paintings, etc.) led to numerous discussions of how history has

been documented, particularly prior to the invention of the camera.”

- “I used the Civil Rights images to show how rights guaranteed by the 14th Amendment to the Constitution in 1868 were being violated in the 1960s.”
- “The images help to put a face onto the Great Depression.”
- “It sparked ideas for ways to connect the long-ago past with the more recent past—and with the actual area that we live in.”

The Digital Special Collections Program is currently forging partnerships with UCOP K-12 programs, as well as with the California Technology Assistance Project (CTAP IV), funded by the California Department of Education, to promote the use of Calisphere in innovative ways.



Tech Spec >>> OAC in Aquifer

As OAC prepares for redesign, its collections are being re-purposed in an experimental project called Aquifer, which is focused on finding, gathering, and collecting distributed and disparate scholarly content related to American Social History. Sponsored by the Digital Library Federation, Aquifer's "American Social History Online" site will allow users to search diverse digital content from 143 American Social History research collections. CDL contributed seventy-nine collections of about 28,000 items, second only to the Library of Congress.

OAC collections are already available for harvesting using the OAI protocol. They appear in University of Michigan's OAlster catalog of digital resources, as well as various Internet search engines. The Aquifer records, however, were selected for their subject focus as well as their enhanced metadata (conforming to the MODS specifications adopted for Aquifer). CDL is pleased to participate in this program, which will provide a variety of users with a greater chance of discovering UC collections in their workflows.



PUBLISHING SERVICES PROGRAM

"I am working on my MA overseas, and needed a reference about Rilke, which led me to your site. Thank you so much for making these books available online."

- Graduate student, eScholarship Editions feedback, 2007

The Publishing Group provides low-cost, alternative publication services for the UC community, supports widespread distribution of the materials that result from research and teaching at UC, and fosters new models of scholarly publishing through development and application of advanced technologies. CDL's eScholarship® Publishing Suite includes an institutional repository replete with manuscript management, publishing, and seminar/conference services, as well as a growing number of collaborative publishing projects with the University of California Press. All of these services are a part of UC's broader effort to ensure a sustainable scholarly publishing system in the service of the University's research and teaching enterprise.

eScholarship® Repository: The eScholarship Repository is an open-access publishing platform that offers UC departments, centers, and research units direct control over the creation and dissemination of the full range of their scholarship, including pre-publication materials, journals and peer-reviewed series, postprints, conference proceedings and seminar papers. Recently, the Repository reached two significant milestones: over 6 million full-text downloads and more than 20,000 papers added to the Repository since its inception.

According to a recently completed faculty survey, users familiar with the Repository's services regard them as of high caliber, both as a publishing platform and a research resource. The challenge has always been to raise awareness of the suite of eScholarship publishing services among members of the UC community. During 2008, the Publishing Group will be working to enhance services by employing XTF 2.1 (Extensible Text Framework, open source software developed by CDL) to develop a new, significantly more robust search and display interface that improves access to eScholarship materials and supports active engagement with the materials in the Repository.

eScholarship Editions 2 (EE2): This collection of digital scholarly monographs includes nearly 2,000 UC Press publications. The Publishing Group is launching an updated version of eScholarship Editions (EE2), which will continue to provide online access to these monographs for the UC community, with an increasing number available freely to the public. New XTF 2.0 features developed for EE2 include: "bookbag" functionality for storing references from

search and browse results; a "similar items" feature that suggests similar books based on search or browse queries; spell correction for user-entered queries; and dynamically generated counts of books by subject and author.

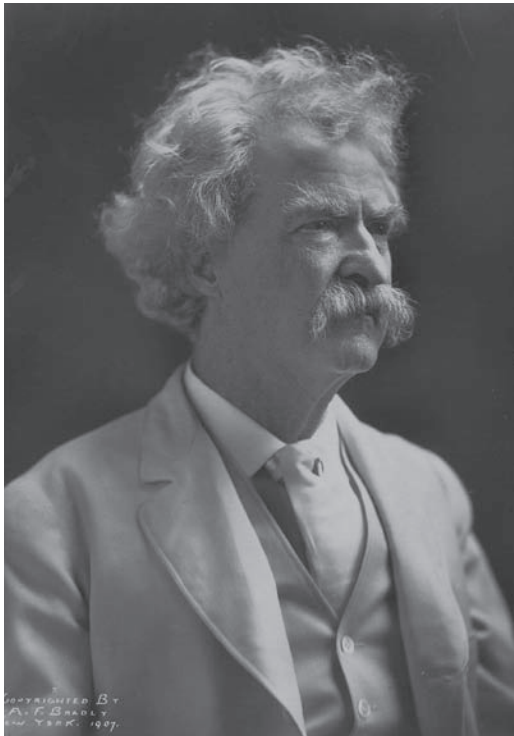
University-as-Publisher Initiative: To advance UC's University-as-Publisher initiative, CDL's Publishing Group developed and hosted a one-day summit, "New Structures, New Texts: A Summit on the Press and the Library as Partners in the Enterprise of Academic Publishing" on June 5, 2007. Held in Oakland, the conference included more than 50 press directors and university librarians from across the country, all of whom had convened to explore the unique challenges and opportunities that emerge within library/press publishing collaborations. Participants acknowledged a sense of shared mission, enjoyed frank discussion about the challenges of differing economic models, and agreed that such dialogue should and must be sustained. The conference was followed up with the establishment of LIBPRESS, a listserv that offers participants another venue for sharing ideas and challenges along the way. The Publishing Group is in the midst of formalizing its collaborative activities with the University of California Press and is looking forward to the emergence of other joint publishing opportunities across the campuses.

Mark Twain Project Online: The Publishing Group, in partnership with the Mark Twain Papers at the Bancroft Library and University of California Press, has developed and launched an innovative and powerful textual editorial resource: the Mark Twain Project Online (MTPO). MTPO applies innovative technology to more than four decades' worth of archival research by expert editors at the Mark Twain Papers. It offers unfettered, intuitive access to reliable texts, accurate and exhaustive notes, and the most recently discovered letters and documents. The site also features integrated text and scholarly notes, as well as robust and innovative citation functionality. These features are supported, in large part, by XTF. The Publishing Group and many other CDL units have contributed significant expertise to MTPO over the past two years to help create this premier resource for Mark Twain scholars. (See the "Mark Twain Project Online" snapshot.)



MARK TWAIN PROJECT ONLINE

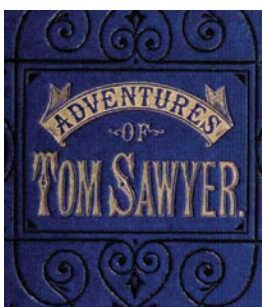
Publishing Services Program

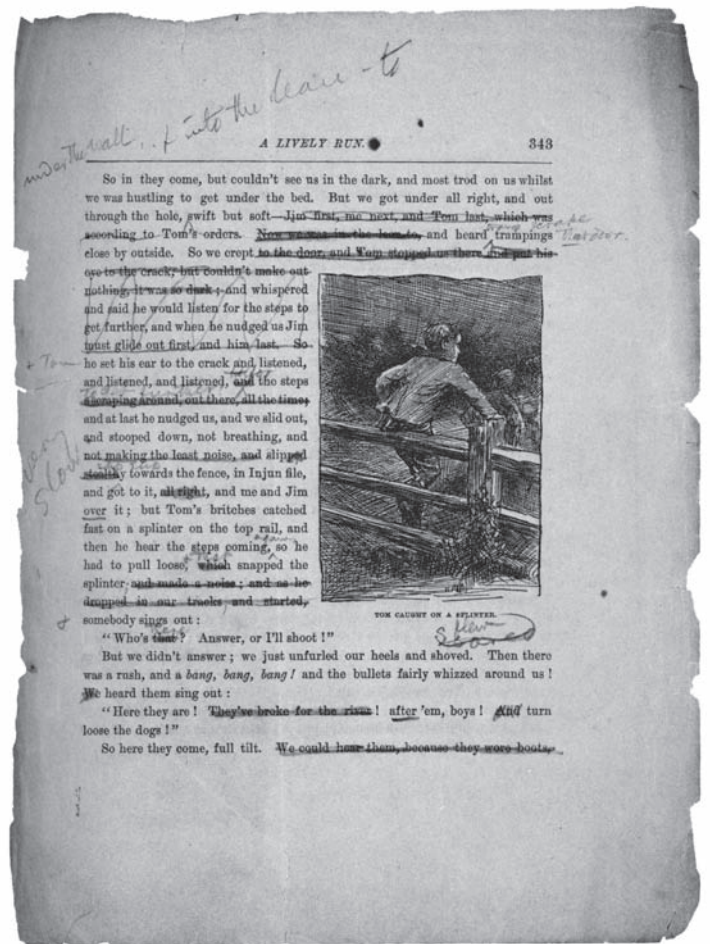
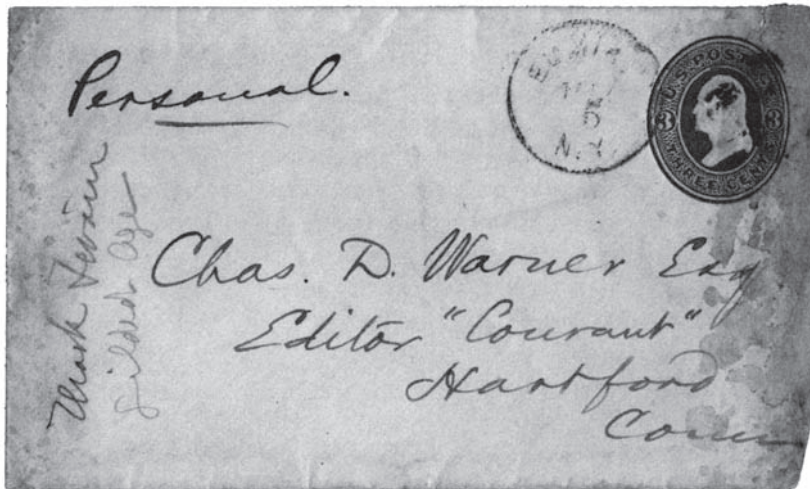
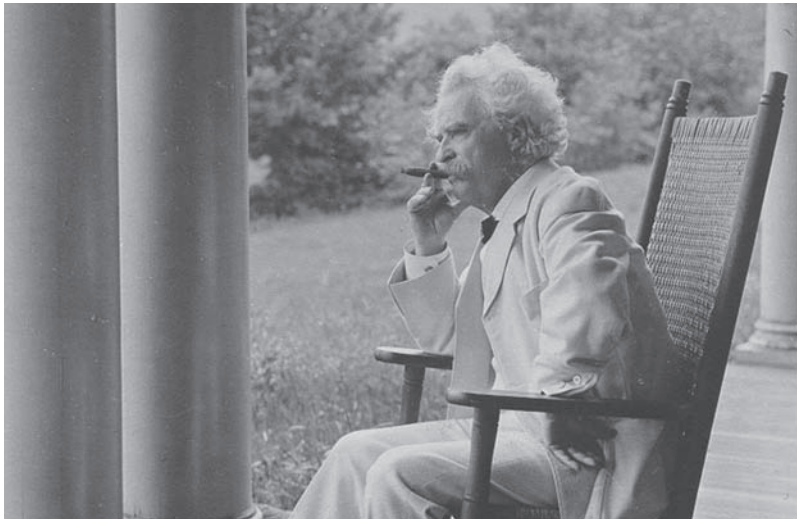


“Nothing Less Than a Landmark”

Mark Twain, born Samuel Langhorne Clemens in 1835, put an astonishing number of words on paper. By the time of his death in 1910, he had published more than thirty books and pamphlets, and easily three or four thousand newspaper and magazine articles. The Mark Twain Project Online (beta), launched on November 1, 2007, seeks to make these words accessible to scholars and the general public, many of them, for the first time. At launch, the site contained fully annotated versions of more than 2,300 letters written by or to Samuel Clemens between 1853 and 1880, and nearly one hundred facsimiles of originals. More material will be added as it is digitized and becomes available.

“When the Mark Twain Project Online went live in late October,” reports Robert Hirst, General Editor of the Mark Twain Papers, “the reaction was instantaneous—both in the outside world and among the editors themselves: this is going to revolutionize the way we edit and publish and read Mark Twain. Within days, the site had begun to draw people from across the country—people who had never seen our print publications—to our electronic text to get answers to their questions in minutes and hours, rather than days. Sophisticated users have already praised it as ‘easy to use, well-designed, logical, reliable online access to enormous quantities of primary materials’ and as ‘nothing less than a landmark in the development and promulgation of cultural archives.’”





"If I were an NEH panelist looking at this, I'd give it the highest rating. Beta or not, it's setting the standard for digital humanities, collaboration with institutional entities, and disseminating widely to the public - and the world."

– Mark L. Kamrath, General Editor, Charles Brockden Brown Electronic Archive and Scholarly Edition, November 2007



DIGITAL PRESERVATION PROGRAM

Ensuring long-term access to digital information: The UC Libraries' commitment to maintaining world-class collections of scholarly information means that essential information resources *must* remain available, usable, and authentic into the future. Research, public, and special collection libraries have a crucial role to play in enduring access to this information, but many have been hampered in taking up this role in the electronic age because they cannot individually develop and sustain the considerable infrastructure required to meet the challenge of preserving digital information.

CDL, in partnership with the UC Libraries, established the Digital Preservation Program to ensure long-term access to the digital information that supports and results from research, teaching, and learning at the University of California. This includes e-journals, Web-based content, digitally reformatted materials from UC libraries and museums, and online course materials. Through the Digital Preservation Program, UC libraries can acquire, submit, manage and preserve digital assets.

Cornerstone of the program – a continuum of strategies: CDL's Digital Preservation Program recognizes its broad mandate to ensure the long-term usability of valuable digital resources. While "preservation" is a highly elastic term applicable to a continuum of intentions, activities, and outcomes, three principles emerge: preserved digital resources must be *available* (an identified user must be able to find his or her content), *usable* (the user must be able to understand and possibly interact with the digital resource), and *authentic* (the digital resource should be what it purports to be).

The cornerstone of the Digital Preservation Program is the achievement of these principles through a continuum of strategies. Digital Preservation strategies are devised to promote desirable values that articulate the principles of *authenticity*, *availability*, and *usability*. Operationally, the strategies are exemplified in a set of services around CDL's Digital Preservation Repository (DPR). The DPR currently manages a range of digital objects from over fifty libraries in California, including UC libraries, public libraries, and museums supported by the California State Library.

- **Availability** is made possible by CDL's careful stewardship and shored up by ARK identifiers. ARKs provide a way to generate unique and persistent identifiers for each information object in the DPR. This ensures that object references remain durable over long periods of time. The DPR's replication service also supports availability by redundantly managing several copies of each digital object to protect against the possibility of media failure.
- **Authenticity** is supported by the use of checksums in conjunction with a fixity-checking service. A checksum value is calculated for each digital object upon ingest into the DPR. Thereafter, the fixity-checking service periodically recalculates the checksum and compares it to the original value, ensuring the validity and authenticity of the object over time. If the values differ, the fixity-checking service sends a notification to the DPR technical staff and the broken object can be repaired using a replica.
- **Usability** is supported by metadata rules that the DPR requires each information object follow, as well as format characterization and migration tools to be applied in the event that a format falls out of use by widely available end-user software. The DPR requires that information objects describe themselves using METS (Metadata Encoding and Transmission Standard), which helps in discovering and describing them, and in troubleshooting in case errors arise after ingest. The JHOVE format validation service helps detect and correct structural problems both before and after ingest.

Building a sustainable service: In order to develop a lasting service, the CDL Digital Preservation Program is conducting a pilot project during the latter part of 2008 to better understand some of the costs of the range of services associated with managing digital preservation. The long-term cost of these services is difficult to quantify, vastly complicating efforts by UC collection managers to plan for and provide a sustainable financial basis for administering their digital collections. The aim of the pilot project is to develop a reliable model that can be used to estimate and anticipate the long-term cost of preservation activities.





WEB ARCHIVING SERVICE

Digital Preservation Program

Capture Today's Web, Build Tomorrow's Archives

"404 Not Found": We've all had the experience of opening a Web page to find it vastly different from our last visit, or gone altogether. The ephemeral nature of Web publications is well-documented, and their fragile nature has a growing impact on the scholarly and public record that libraries are charged with preserving. We might expect a home page or a blog posting to have a fleeting nature. However as local, state and federal government agencies rely increasingly on the Web for distributing statistical reports, budget documents, environmental impact reports and other critical publications, key scholarly and public resources are now just as vulnerable to disappearing. The Web also offers a unique opportunity to preserve public discourse and reactions to historic events in ways never before possible. More than ever, librarians need a new suite of tools that will help them in their traditional role of preserving our cultural and political heritage.

The Tools: Web Archiving Service: In direct response to these concerns, CDL is developing the Web Archiving Service (WAS). This toolset allows curators to easily crawl selected parts of the Web, describe and preserve that content, and build searchable topical archives. WAS also provides tools to help librarians analyze and visualize Web content, allowing discovery of publications that were hard to find on the live Web, and charting site volatility as it is captured over time. WAS builds on CDL's existing Digital Preservation Repository (DPR) and draws from existing and widely shared open source Web archiving tools. With these tools, curators will be able to create collections that will deepen and broaden future researchers' understanding of important events and Web communication

trends. Kris Kasianovitz, a WAS curator from the UCLA libraries, states:

"One of the great strengths of the WAS is that it is designed for and by librarians. The tool's user friendly interface and integration with the CDL Digital Preservation Repository will allow library staff to incorporate the capture and curation of Web-based information into their daily workflows. Responding to faculty requests to archive Web based content will be as seamless as responding to a request to purchase a book. The development and release of the WAS directly supports the University of California's mission 'to serve society as a center of higher learning, providing long-term societal benefits through transmitting advanced knowledge, discovering new knowledge, and functioning as an active working repository of organized knowledge.'"

The Web-at-Risk: The Web Archiving Service is a result of the Web-at-Risk grant awarded by the National Digital Information Infrastructure and Preservation Program (NDIIPP). The work is undertaken by the CDL and its partners: New York University and the University of North Texas. Additional support is provided by Stanford University, the San Diego Supercomputing Center, the Arizona State Library, and the Library of Congress. The purpose of this grant has been to assess library needs for Web archiving, to provide policy and collection development guidance, and to provide the tools needed to build Web archives. Thirty curators from a range of UC campuses and partner institutions are currently building Web archives on a range of topics, from California local government resources to Political Parties of the Middle East.





Tech Spec >>>

Persistent Naming - Archival Research Key (ARK)

Digital publications provide instant access, and easy, low-cost distribution and duplication. However, to maintain *available*, *usable*, and *authentic* digital publications the materials must be preserved. Long term preservation won't happen unless these objects can change residence, diverge, and respond to risks that threaten the materials. The CDL-developed ARK is a URL created to allow persistent, long-term access to information objects. ARKs can identify objects of any type: digital documents, databases, images, software, and Web sites, as well as physical objects (books, bones, statues) and even intangible objects (chemicals, diseases, vocabulary terms, performances).

Why do we need ARKs? These and other persistent identifiers are necessary and useful because both the protocols used to access objects (such as http and ftp) and the sites that host the objects are subject to change. An ARK contains parts that are impervious to such changes, and other parts that are flexible enough to support technological change and improvement. The idea is to create a stable "name" or reference that can be permanently associated with that specific object.

ARKs are used by the Web Archiving Service and the Digital Preservation Repository. The Digital Preservation Program team continues to keep the ARK specification up-to-date, and registers institutions that wish to use ARKs. Our investment in tools like ARK supports the Program's core services and contributes to broader digital preservation and the digital library communities.

OPENING OUR COLLECTIONS TO THE WORLD

Mass Digitization – Putting Our Libraries Online

Great books, rare books, important books, ordinary books...all have something in common: they sit on library shelves in universities throughout the world, waiting to be discovered and read. Unfortunately, the traditional tools available to scholars for discovering and accessing these books are often limited and inefficient. However, the same books — digitized, indexed, online, searchable, and instantly available — can be discovered, read, compared, and researched by scholars throughout the world much more effectively.

Mass digitization, the effort to put the world's vast libraries of books online, is an idea whose time has arrived. In consultation with sponsors, UC librarians have selected millions of books from the UC Libraries, including American literature, mathematics, and other subjects from both general and special collections, to be scanned through UC's participation in three mass digitization projects: the Google Book Search project, with a goal of digitizing 2 million to 3 million volumes; the Microsoft Live Search Books project; and the Open Content Alliance (OCA), which will scan tens of thousands of books based on broad subject areas and works in the public domain.

Three CDL Programs — Collection Development and Management, Bibliographic Services, and Digital Preservation — are actively contributing to these ongoing efforts to digitize millions of volumes in the UC Libraries' collections. The impact and benefits of these efforts on scholarship, libraries, preservation, and even finances will be tremendous; the effort itself is no less impressive.

Why Digitize?

Enhanced access and preservation are the two primary benefits of mass digitization. But these two benefits cover a lot of territory:

- Mass digitization enhances student and faculty research by increasing awareness of and improving access to the rich materials in our libraries.
- Placing our books online opens our collections to a much broader audience than the students, faculty and researchers able to travel to a particular campus. When books are available online, as many books in the public domain are, scholars no longer have to travel to libraries halfway around the country or the world to read them.
- The ability to perform deep searches across many volumes transforms the speed and nature of research. Searching in the digital environment not only saves time, it enables serendipitous connections and discoveries that might otherwise never have been made. Scholars can trace the evolution of ideas and perform other sophisticated textual analysis more easily because the full text is indexed and searchable by computer.
- Providing access to print collections is expensive. By perusing volumes online, researchers can determine whether it's really necessary to see the physical volume. Where permitted by copyright, digitization means more than one person can read the same book at the same time. We no longer

have to send thousands of volumes back and forth by courier, allowing scholars and libraries to save time and money.

- Paper disintegrates, and books can become lost or damaged. Through digitization, we can reduce the wear and tear on our collections and protect the university from more catastrophic loss should disaster someday strike our libraries. Mass digitization provides libraries with an additional level of protection and preservation.

In addition to these benefits, mass digitization serves a deeper purpose: it expands our ability to give faculty, students, and the public access to information, and supports the exploration of new service models for research and teaching.

Massively Mobilized for Mass Digitization

In a relatively short period of time beginning in mid-2006, CDL has put into motion an enormous operation requiring the coordination of funders, campuses, regional library facilities, personnel, and logistics. Each of the three participating Programs oversees a specific area of effort:

- **Collection Development and Management** has overall responsibility for coordinating the projects across CDL. This team facilitates the process of identifying collections as candidates for digitization, helps manage the selection process, and monitors and manages the entire digitization workflow, which is a major organizational effort.
- **Bibliographic Services** established three vital parts of the process. First, they created the mechanism (i.e., wrote algorithms) for identifying out-of-copyright materials that meet the criterion for digitization in the Microsoft project. Second, they researched how users/scholars will use these books, and what services users/scholars will need to manage their work in this new environment. Third, they are analyzing and experimenting with mechanisms for integrating new digital content directly into the workflow of academic researchers.
- **Digital Preservation** has established the capacity and processes required to bring the digital book files into CDL's technical environment so that the files can be managed and preserved.

Opening Our Collections to the World

Mass digitization increases public awareness of the rich materials in our collections, serving the world's scholars and enhancing the entire UC community. As more and more volumes are scanned, indexed, and made available, they will expand the UC Libraries' ability to give faculty, students, and the public better access to information and new tools for research and teaching. CDL is proud to lead the way in this fundamental transformation of how scholarship is done in the 21st century.



NOW that dinner is ordered, we'll just take a peep
At the cooks in the kitchen—just see! what a heap
Of plates are provided, and copper pans too;—
They'll soon make a dinner for me and for you.
French cookery's famous for flavouring rare,
But of *garlic* I think they've enough and to spare.



If we ask how their wonderful dishes are made,
I'm afraid they won't tell us the tricks of the trade.
Do they make them, I wonder, of frogs and of snails?
Or are these, after all, only travellers' tales?



· BON RÉTOUR ·

NOW THAT AT LAST WE'RE SAFELY BACK AGAIN,
AND AS UPON THE RAILWAY BRIDGE THE TRAIN
IS STAYED SOME MOMENTS, LET US SAY GOOD-BYE,
AND ASK IF YOU'VE ENJOYED THE TRIP, AND TRY
TO THINK THAT SOON AGAIN WE'RE SURE TO MEET,
ON COUNTRY ROAD OR IN THE CROWDED STREET,
AND ERE WE PART, STILL LINGER FOR A WHILE,
VIEWING THIS TRANQUIL SCENE WITH PENSIVE SMILE,—
THE EVENING GLOW, THE RIVER'S FALLING TIDE,
SAINT PAUL'S FAMILIAR DOME AND LONDON'S PRIDE.



· AU REVOIR BIENTÔT ·

CDL SERVICE GROUPS

Specialized Program Support



CDL's five Service Groups provide internal support to CDL's core Programs. They also interact with campus libraries and other partners, sometimes, as in the case of the HelpDesk, on a one-to-one basis. The Services supply specialized technical and professional expertise to the Programs in support of projects and services, keep the cyber-infrastructure up and running, and help explore new opportunities and plan for new avenues of service.

Assessment, Design & Production Services

Assessment, Design & Production Services exemplifies the spirit of co-operation and collaboration between campus libraries and CDL that is inherent in CDL's "user-centered" approach to digital library service design. By evaluating the evolving research and information needs of the academic community — UC students, faculty, and library staff — through all stages of a project or service lifecycle, CDL can respond to those needs through the development of usable Web-based services. With the help of campus partners, Assessment, Design & Production Services connects Programs to campuses and users, and finds innovative solutions to the needs of the academic researcher.

Information Services

For many users, Information Services' Helpdesk is the "face" of CDL. Information Services addresses the information needs of CDL's users, including campus librarians, students, faculty, and the general public, on behalf of and in support of the Programs. Programs depend on Information Services to provide direct and indirect support by answering user queries, writing FAQs, ensuring licensed content resources are up and running, and participating in QA testing and analysis.

Project Planning and Resource Allocation Services

The creation of the Project Planning and Resource Allocation Service was a specific response to requests in the 2006 study of campus libraries for better project management. This Service supports CDL Program managers in the areas of project management, strategic and tactical planning, and organizational and administrative problem-solving. This broad perspective allows Project Planning to facilitate connections and identify opportunities within CDL.

Business Services

Business Services supports CDL's core Programs by coordinating and managing all of CDL's business activities. For example, the team works with the Collection Development and Management Program to ensure the complete and correct execution of licenses and other agreements with content providers and third parties.

Infrastructure and Applications Support Services

The Infrastructure and Applications Support Group provides support to CDL Programs at all points in the development lifecycle: from planning, to development, to testing, to the release and maintenance of a new service. Along the way, the group creates a secure technical environment for testing, ensures that systems will be available to users at any time of day or night, and coordinates with two data centers at UCOP and UC Berkeley to resolve any technical issues that arise.

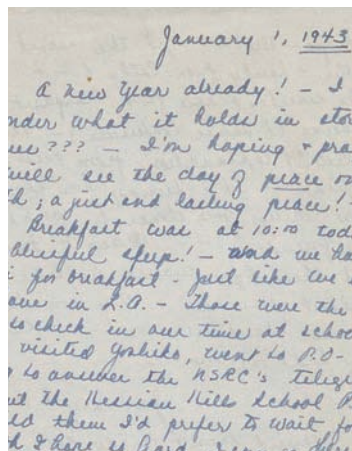
LOOKING FORWARD

Shaping the Future of the Digital Library

sionally these birds, both male and female, take imitation, and where the note mim- is a clear, full one, the success is ounced. I remember hearing a poorwill imitated, and as it was oad daylight, the sound was the noticeable; for, contrary as birds isposed to be, I never heard rhippoorwill at high noon. ttall has treated of the inal's song most ex- tively and correctly, overy varied are the r whistlings that ird must be heard to preciated. Nuttall gives zen variations of the song. It were easy to al ones. We get an by remembering one of the Cardinal are he manner of the migratory grosbeak, brilliantly black and white, a superbly rose-tinted breast. comes from the

Cardinal Grosbeak.

give a dozen ad- idea of it, how- fact, that "all the whistled much human voice."



In the near future, CDL will be:

- Exploring roles for libraries in the University's emerging cyber-infrastructure initiatives, with a special emphasis on digital curation, digital archiving, preservation, management, and other value-added services that support research throughout its life cycle.
- Supporting the Heads of Public Services' initiative to create a common user experience across UC campuses.
- Reinvigorating the contributions of UC Libraries, museums, archives and cultural heritage institutions across California to our digital special collections through OAC, Calisphere, and the UC Image Service.
- Continuing to explore ways that the University can provide a new mixture of publishing and broadcasting services beyond those currently offered.
- Defining meaningful metrics for programs and activities that demonstrate their impact and measure their progress toward CDL's goals.

Major future and ongoing challenges include:

- Managing open access initiatives and intellectual property rights, both from the perspective of providing resources to the UC community and for UC faculty as creators.
- Using the mass digitization initiatives to take advantage of opportunities emerging at this watershed moment of transition from print to digital collections.
- Continuing the growth of network level services and strengthening CDL's role in relation to campus libraries and users' interactions.

CDL, which characterizes itself as being "innovative by nature; efficient by design," is in an excellent position to address these challenges. Our successes and experiences over more than a decade prove that libraries have the ability to lead the way. CDL was born out of a desire to change the nature of scholarly publishing by taking advantage of emergent technologies and maximizing the resources of the UC system. In an era of fiscal crisis, CDL leveraged common solutions across the campuses to provide a more cost-effective way of delivering services. In the coming years, we will continue our efforts to balance resource constraints with growing expectations for services in the same way that we always have: by collaborating with UC Libraries and librarians to develop innovative and cost-effective ways to provide the best resources for the UC community.

"As a rather heavy user of information services, I have to say that all of you at CDL provide the most thorough, conscientious, prompt, efficient, and useful service I have ever encountered in my 20 years of experience online...."

- UC graduate student via UC-eLinks feedback, July 2007

IMAGE INDEX AND CREDITS

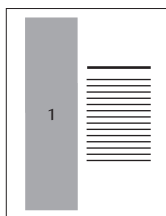
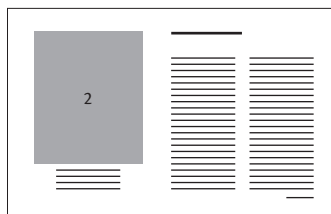
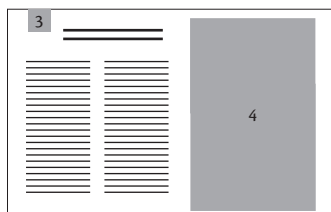


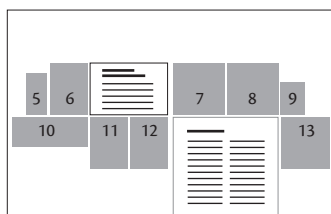
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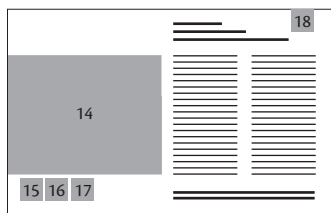
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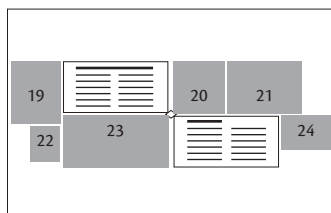
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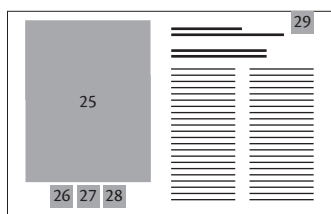
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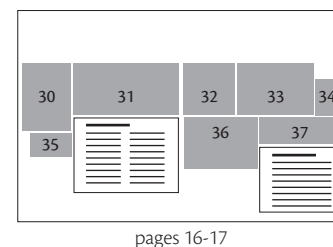
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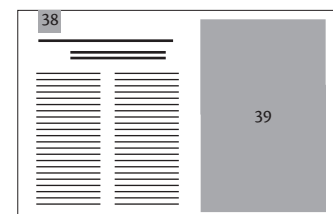
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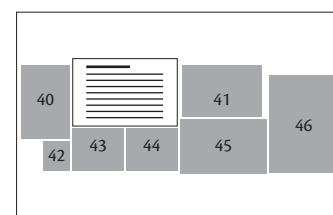
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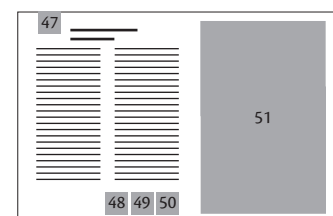
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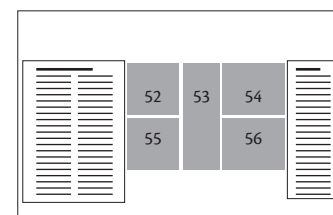
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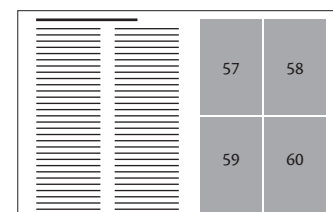
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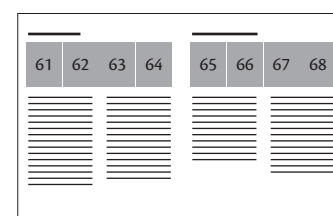
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