

Notes on Operations

Database Design for Preservation Project Management: The California Newspaper Project

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In this article, database design for preservation project management is addressed. The system described manages a serials preservation project in which issues from multiple repositories are gathered and collated for preservation microfilming. The system accommodates the ongoing standardization of bibliographic data in the MARC format to facilitate the comparison of holdings among collections. It imports holdings records in the OCLC format and provides for the addition of condition reports and information about existing microfilm service copies, filmers, and the locations of master negative microfilm. Boolean search strategies, employing data from both bibliographic and holdings records, facilitate the identification of newspaper available for microfilming. Management information, added to bibliographic and holdings records, supports the production of reports tracking preservation activity.

The computer is a relative newcomer to preservation management, although the pace of implementation is accelerating. Applications were adopted first for binding preparation activities either as stand-alone proprietary software or as components of integrated library systems in the 1980s. Since then, an increasing number of functions have been automated, including library and archival condition surveys—specifically CALIPR (Ogden and Jones 1991) and PRENAPP (RLG Needs Assessment Task Force 1993); data logging and analysis to measure and report on environmental storage conditions; selection and implementation of physical conservation treatments; and

the tracking of reformatting queues for microfilming.

Some early applications were developed as stand-alone modules employing general-purpose database management software, such as dBase, FoxBase, and Revelation. Recognition of the advantages of linking preservation information to bibliographic records and associating preservation with other library functions came quickly and is increasingly in evidence (Bruer 1995). One means of making preservation information available within as well as beyond the local institution is the creation of fields in Machine-Readable Cataloging (MARC) bibliographic and item records. Many libraries have imple-

mented posting mechanisms to record preservation decisions in nationally accessible bibliographic records, storing these records in the Research Libraries Information Network (RLIN) or the OCLC Online Computer Library Center, Inc. databases.

The system application described in this article was designed to manage the California Newspaper Project (CNP), a component of the U.S. Newspaper Program (USNP) funded by the National Endowment for the Humanities (NEH). The database design was intended to facilitate the collection and incorporation of preservation information during the inventory and cataloging phase of the project, which was the first phase. Preservation data are entered into cataloging and holdings records in the system and become the content of system-produced management reports that direct, track, and inform subsequent preservation phases.

THE U.S. NEWSPAPER PROGRAM

The USNP represents an ongoing collaboration of the NEH and the Library of Congress (LC) to identify and preserve newspapers of the United States and its territories. Within the scholarly community, the American Council of Learned Societies reported that access to newspapers, an important yet impermanent resource, was one of its highest research needs (Eugene C. Barker Texas History Center 1990). Implementation of the USNP began in 1982 with grants to six repositories with holdings encompassing most of the fifty states. By 1996, all states were represented, and 29 projects representing U.S. states and territories had been completed. "Completed and current projects will produce bibliographic records for 245,000 newspaper titles and microfilm for 55 million pages of newsprint. To date, the NEH has spent \$36 million in support of USNP projects, with non-federal contributions totaling \$14 million" (National Endowment for the Humanities 1996). Cataloging is entered into the CONSER (Cooperative Online Serials) database in OCLC, and records are distributed on tape by LC. Holdings

entered into OCLC are profiled in the USNP Union List.

USNP projects typically consist of three distinct phases: planning; inventory and cataloging; and preservation. In practice, the inventory and cataloging and preservation phases of a project can overlap. In a small number of projects, microfilming precedes cataloging. Logic would dictate that full inventory and bibliographic control of these items would be achieved prior to filming in order to identify the most complete set of holdings; however, the large number of newspapers involved, combined with the extremely vulnerable and fragile condition of many, means that many newspapers would be lost to accelerating deterioration if they were not filmed quickly. Consequently, a number of USNP projects have adopted a modified regional approach, in which details of the state's major collections are noted and then filming on a county-by-county basis proceeds as fieldwork is conducted. This was the approach envisioned for the CNP.

CNP GOALS

The bibliographic phase of the CNP began at the Center for Bibliographical Studies and Research, University of California (UC) Riverside. Although the initial planning was undertaken by the California State Library (CSL) almost a decade earlier (in 1983), the project began in earnest in 1992. The project's goals were determined at this time by the project management team and were modeled on those of the other state newspaper projects. Although the exact statements were modified during the life of the project, the goals as expressed below reflect what the project intended to accomplish. The project set out to:

- Survey and inventory U.S. newspaper collections in the state
- Construct cataloging records in the CONSER database in OCLC in accordance with national standards and guidelines
- Construct holdings records in the OCLC Union List Subsystem, USNP Union List

- Provide information about California newspapers to scholars, historians, genealogists, and the public by distributing access to the project's database and producing finding aids
- Produce microfilm of endangered newspapers, meeting national preservation standards for filming and storage
- Place service copies of microfilm in libraries for public use
- Ensure continuing access to California's newspapers into the future

CNP PLANNING AND CHALLENGES

Despite the existence of impressive files of bibliographic information at CSL and other research libraries, as well as the existence of numerous published scholarly bibliographies and histories, no single source was found to serve as a comprehensive bibliography of California newspapers. A similar situation held for the state's serial holdings in that no single database could serve as the predominant union list from which a major set of newspaper holdings could be extracted. The three largest union lists are CALLS, the California Academic Libraries List of Serials, which is a University of California MELVYL system database that lists holdings for the University of California and several other large academic library collections; CULP, the California Union List of Periodicals, that lists holdings for the State Library and public, special, and academic library periodical collections of all types; and the OCLC Union List Subsystem, representing academic and public libraries, including the California State University. (As of this writing, the California State Serials Union List Project is building a merged union list in the MELVYL system.) Newspaper holdings are underrepresented in each of these databases.

In addition to the absence of a single comprehensive file of bibliographic and holdings information, California's newspapers are scattered throughout the state in the collections of libraries, historical societies, newspaper publishers, commercial microfilmmers, and private collectors. Although estimates of the total number of

titles are reputedly as high as 15,000, no more than 6,000 titles are represented in the two largest repositories—CSL and UC Berkeley. Also, these collections often house limited runs of titles, while more complete runs are held in local or county library, historical society, and publishers' collections.

Further complicating the task of collecting and organizing information was the fact that, even where cataloged, very few of these newspapers had been subjected to adequate bibliographic control or, in many cases, even inventoried or listed. In the past, national cataloging standards were not applied to resources of local or ephemeral interest (as newspapers were too often categorized), and even the largest university collections did not furnish full bibliographic records, track title changes, or record the newspapers in the library's catalog. Frequent title changes, mergers, and varying frequency of editions, if listed, were not presented in a uniform manner. Issues listed under a single title by one repository might be listed under five titles in another, due to title changes (see figure 1). The same newspaper might be represented by different forms of its title in different union lists, due to the generic nature of newspaper titles and their appearance on mastheads where the placement and size of words can make it difficult to define the title.

The challenge facing the CNP was to bring together information about California's newspapers to enable strategic planning and continual updating as the fieldwork was conducted. The body of information that was organized was complex in both its bibliographic and physical manifestations. On the project, information about newspapers from a large number of sources was collected, organized and standardized so that bibliographic and holdings identification among repositories could be compared. This was an ambitious cataloging project, requiring years for completion and a flexible database management system to support the overlay of full MARC bibliographic records on existing records as cataloging proceeded. Notes and holdings had to be moved from one record to another on an

	Record: 15972
UNIFORM TITLE	Daily sun (San Bernardino, Calif.)
TITLE	The daily sun
PLACE	San Bernardino, San Bernardino County, California
FREQUENCY	Daily (except Mon.)
DATES PUBLISHED	Vol. 1, no. 1 (Sept. 1, 1894)-v. 17, no. 34 (Oct. 8, 1902).
LATER TITLE	Continued by: San Bernardino daily sun.
	Record: 2377
TITLE	San Bernardino daily sun
PLACE	San Bernardino, San Bernardino County, California
FREQUENCY	Daily
DATES PUBLISHED	Vol. 17, no. 35 (Oct. 9, 1902)-v. 19, no. 51 (Feb. 6, 1966).
PREVIOUS TITLE	Continues: Daily sun (San Bernardino, Calif.).
LATER TITLE	Continued by: Sun (San Bernardino, Calif. : 1966).
	Record: 97
UNIFORM TITLE	Sun (San Bernardino, Calif. : 1966)
TITLE	The sun
PLACE	San Bernardino, San Bernardino County, California
FREQUENCY	Daily
DATES PUBLISHED	Vol. 72, no. 133 (Feb. 7, 1966)-Feb. 1, 1974.
PREVIOUS TITLE	Continues: San Bernardino daily sun.
	Record: 2866
UNIFORM TITLE	Sun-telegram (San Bernardino, Calif.)
TITLE	The sun-telegram
PLACE	San Bernardino, San Bernardino County, California
FREQUENCY	Daily
DATES PUBLISHED	Feb. 2, 1974-v. 105, no. 294 (Oct. 21, 1978).
LATER TITLE	Continued by: Sun (San Bernardino, Calif. : 1978).
	Record: 2933
UNIFORM TITLE	Sun (San Bernardino, Calif. : 1978)
TITLE	The sun
PLACE	San Bernardino, San Bernardino County, California
FREQUENCY	Daily
DATES PUBLISHED	Vol. 105, no. 295 (Oct. 22, 1978)-v. 113, no. 111 (Apr. 21, 1986).
PREVIOUS TITLE	Continues: Sun-telegram (San Bernardino, Calif.).
LATER TITLE	Continued by: San Bernardino County sun.
	Record: 7043
TITLE	The San Bernardino County sun
PLACE	San Bernardino, San Bernardino County, California
FREQUENCY	Daily
DATES PUBLISHED	Vol. 113, no. 112 (Apr. 22, 1986)-
PREVIOUS TITLE	Continues: Sun (San Bernardino, Calif. : 1978).

Figure 1. Title Changes for the San Bernardino Sun

ongoing basis as title changes were identified. And to support the preservation microfilming, information on the condition, location, producers, quality, and technical specifications of existing microfilms as well as the condition of physical newsprint on site had to be collected and associated with the bibliographic and holdings data.

Several categories of information

sources were identified. The previously mentioned serial lists, together with other regional union lists of newspapers and local library systems, such as the catalog at the University of California, Los Angeles (UCLA), furnished a significant portion of the initial data for the project. The initial survey of approximately 700 collections done by CSL in 1983 and the CNP survey of 2,700 California repositories and

publishers undertaken in 1993 also provided a substantial amount of data. The CNP survey included a questionnaire that solicited information about newspapers collected, microfilmed, and indexed, as well as policies for cataloging, interlibrary loan, storage, and collection development. Additionally, a work form for reporting individual titles and issues held, their format, and condition was attached to the survey.

Other research files came from individuals. Physicist Richard L. Lingenfelter supplied the project with his extensive record of California newspaper publishing. This list (compiled for Lingenfelter's personal research) includes publishing details for over 7,000 California newspapers. Additional inventories of newspapers on microfilm were supplied by Bay (Library) Microfilms and Custom Microfilming Corporation. Last, secondary historical sources and bibliographies were used to identify additional newspapers.

A DATABASE MANAGEMENT SYSTEM

The choice of a system best suited to management and manipulation of bibliographic and preservation data was considered essential to the project's success, and the desired functionality was comprehensive. Throughout the project, the system supported the ongoing work of field teams based at three locations: UC Riverside, UC Berkeley, and CSL. It was necessary to generate lists of repositories and collections sorted by zip code, city, county, or region to assist the field teams in planning for canvasses. It was necessary to produce cataloging work forms selected by library or region, which carried all information previously gathered by the project staff, so that as additional issues of a title were encountered in the field, cataloging could be upgraded to incorporate new information. When the preservation phase of the project got underway, it was necessary to produce management reports that could identify candidate ti-

tles for preservation microfilming and track work throughout the preservation process.

It was important that the project adopt a system that could be used immediately in support of data entry and cataloging but which could be further developed to add functionality. This was needed because catalog records were being created at the same time that survey responses were being keyed and other data were being received from other sources. The system had to facilitate the import of MARC and non-MARC records and allow record overlay in either direction. Records were often supplemented with information keyed from secondary sources, such as extensive notes on editors and publishers, unverified information about publication patterns, other frequency editions, and related titles. Such information would later be confirmed by catalogers in the field and added in defined MARC fields to cataloging records. Holdings records were supplemented with information on format and condition that would later assist in the selection of candidate titles for preservation microfilming.

Once the fieldwork was completed, future needs required that the database be able to produce reference lists of titles and holdings selected by library, city, county, region, subject, language, or ethnic audience. Finally, the system had to serve as a production platform both for a comprehensive bibliography of California newspapers and a research database covering California's newspapers at the conclusion of the project.

SELECTION CRITERIA

Although a formal request for proposal was not required, criteria for the system selection were established by project management for use in evaluating software packages and reflected the functional needs that project management foresaw. The system needed to

- import data in both MARC and ASCII text formats,
- export USMARC bibliographic records

- and ASCII text files,
- provide relational capabilities for flexible linkage of records in different databases,
- accommodate large text fields,
- permit ongoing changes to record structures and indexes when new needs were defined,
- enable project staff to define search keys and design specialized reports to serve the needs of field canvassers, librarians, and researchers,
- be accessible from the same PC-compatible computers used by project staff to access the OCLC system and run Windows applications, and
- be accessible by project staff located at remote sites as well as by catalogers in the field.

Following a comparative evaluation of software, the Cuadra STAR system was selected. STAR is an information management and retrieval system used by many librarians, museum curators, and information professionals, and database producers and publishers (Cibbarelli 1992). While not strictly a relational database system, STAR has strong relational functionality. Unlike many relational databases, it supports variable field lengths and repeatable fields. It supports user design of record structures and local definition of indexes, reports, and global operations for importing and overlaying records and changing record content. In addition to the basic package, the CNP also purchased MARCPLUS, a MARC database record template, with facilities for import and export of USMARC records. Initially, the system ran on a 486sx PC under the SCO UNIX operating system. Later, when the application had grown, both in size and value, it was converted to a more powerful Sun SPARC platform running under the Solaris UNIX operating system.

CNP DATABASES

The CNP system application was defined to consist of four primary databases: MARCNEWS, NEWS, HOLD, and CONTACT.

MARCNEWS was the MARC database composed of authoritative serial

CONSER records imported in batch mode records from the OCLC-held CONSER database (see figure 2). Originally, CONSER records are created and entered by CONSER-participating library catalogers, which includes the CNP project catalogers.

The second database, NEWS, contained a record for each California newspaper title identified by the project, as well as out-of-state titles cataloged at libraries by the field teams. Titles in this file were keyed or imported from a number of sources, including the project's survey of libraries and publishers, secondary historical sources, union lists, and local library systems (see figure 3). When these newspapers were cataloged in OCLC, the newly created MARC records were imported into STAR and overlaid on existing records in the NEWS file. In this process, certain defined non-MARC note fields were retained (see figure 4). The NEWS file was larger than MARCNEWS, as it included titles that had not been fully cataloged by the project and, in some cases, those for which issues had not been identified.

The third database, HOLD, was composed of holdings records, supplemented with information about format and condition. Holdings data were keyed into STAR from survey responses, union lists, and inventories (see figure 5). These records were later replaced by OCLC local data records that were prepared by project catalogers after the issues were inventoried and cataloged on-site (see figure 6). While local data records in OCLC represent library collections only, records in the HOLD database included the collections of microfilmmers, publishers, and private collectors as well. This made it possible to compose a more complete list of issues filmed, as well as those available for filming. Holdings records were linked to bibliographic records by NEWS record numbers and, once titles were cataloged, by OCLC record numbers. The system's linked design (and a STAR system function named Supersearch) meant that holdings could be reformatted and displayed with associated bibliographic records retrieved in a search (see figure 7).

Record: 5928

OCLC: 8260154 Rec stat: c Entrd: 820322 Used: August 15, 1995
 Type: a Bib lvl: a Gov Pub: _Lang: eng Source: d S/L ent: 0

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NEWS 2515
001 ocm08260154_
003 OCoLC
005 19950815171825.0
008 820322d18461848cauwr_ne_____0____0eng_d
010 bb |a sn_84025963_
040 bb |a SMI |c SMI |d NPV |d NPU |d DLC |d NPX |d NPA |d PPM |d
    DLC |d YOX |d NJW |d YOX |d MFN |d DLC |d CNK
041 0b |a engspa
049 bb |a CNKA
050 00 |a Newspaper
130 0b |a Californian (Monterey, Calif. : 1846)
245 04 |a The Californian.
260 bb |a Monterey, Calif. : |b Colton & Semple,
310 bb |a Weekly
362 0b |a Vol. 1, no. 1 (Aug. 15, 1846)-v. 3, no. 15 (Nov. 11,
    1848).
500 bb |a Published in San Francisco, Calif., May 22, 1847-Nov. 11,
    1848.
500 bb |a First newspaper published in California.
515 bb |a Suspended with May 29, 1848 notice; resumed with July 15,
    1848 issue.
530 bb |a Also available on microfilm from the Library of Congress
    Photoduplication Service.
546 bb |a In English and Spanish.
651 b0 |a Monterey (Calif.) |x Newspapers.
651 b0 |a San Francisco (Calif.) |x Newspapers.
752 bb |a United States |b California |c San Francisco |d San
    Francisco.
752 bb |a United States |b California |c Monterey |d Monterey.
785 07 |t California star (San Francisco, Calif. : 1847) |w (DLC)sn
    84027218
785 07 |t California star & Californian |w (DLC)sn 87062203
850 bb |a DSI
  
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Figure 2. MARCNEWS Record (Exported from OCLC)

It also meant that NEWS record numbers could be edited in the holdings records to link holdings to a different bibliographic record when a title change was identified. A defined global operation then matched the edited NEWS record number in HOLD with the related bibliographic record and replaced the OCLC control number in HOLD with a revised OCLC control number (see figure 6).

Last, the CONTACT database included a record for each library collection, museum, publisher, microfilmer, and individual contacted in the survey or identified for contact in the course of fieldwork. The database supported the organization of fieldwork, tracked progress, and recorded action items. Records carry names, addresses, and phone

numbers, responses to the CNP survey questionnaire, and the dates and results of phone contacts and fieldwork on-site (see figure 8).

This database was employed to produce mailing labels, which could be selected by county, type of institution, or other search criteria. By means of a designed report, labels could be sorted by zip code, institution, or another defined field. A code assigned by the project to each CONTACT record links it to holdings records. A second linking field, the OCLC four-character collection code, was added to the CONTACT record once the CNP profiled a library for participation in the U.S. Newspaper Program Union List in OCLC. By employing this linking field, a global cross-load operation

Record: 2515

TITLE	The Californian
PUBLISHER	Colton & Semple
PLACE	San Francisco, San Francisco County, California
PLACE	Monterey, Monterey County, California
FREQUENCY	Weekly
DATES PUBLISHED	Vol. 1, no. 1 (Aug. 15, 1846)-v. 3, no. 15 (Nov. 11, 1848).
GENERAL NOTE	First newspaper in California. Moved to San Francisco in May 1847; sold by Semple, and became a competitor of the California Star. Suspended from May 26, 1848 to late June 1848 during the Gold Rush; resumed publication in Aug. 1848.
PUBLISHER NOTE	Rev. Walter Colton, editor and Dr. Robert B. Semple, publisher, 8/15/1846-4/17/1848; H.I. Sheldon, 8/1848-Extras 8/3/1847, 6/2/1848; Flysheet 5/29/1848. Moved from Monterey. United with California Star to form California Star and Californian. Ed: Robert B. Semple, 5/22/1847-7/12/1847; Benjamin R. Buckelew, 7/17/1847-9/1/1847; Robert Gordon, 9/8/1847-12/1847; Benjamin R. Buckelew, 1/1848-3/1848; J.D. Hoppe, 3/1848-5/10/1848; Henry L. Sheldon, 5/17/1848-6/2/1848, 7/15/1848, 8/14/1848-11/4/1848; Edward C. Kemble, 11/11/1848. Pub: Robert Semple; 5/22/1847-7/12/1847; Robert Gordon, 9/8/1847-12/1847 (B.R.B. and J.D.H. Mar-May?) Benjamin R. Buckelew, 7/17/1847-9/1/1847; B.R.B. 1?/1848-5/10/1848; J.D. Hoppe and Co. (Jacob D. Hoppe, Henry L. Sheldon and Joseph Dockri II) 5/17-29/1848, 7/14/1848-10/17/1848; Henry L. Sheldon, Benjamin F. Foster and W.E. Weaver, 10/14/1848-11/4/1848; Edward C. Kemble 11/11/1848.

Figure 3. NEWS Record (Data Keyed from Secondary Sources)

supplied the collection name to OCLC-style local data records imported into the HOLD database once OCLC cataloging and union listing took place (see figure 6). Imported local data records were defined by the project as verified holdings, in contrast to keyed holdings, which were viewed as preliminary information subject to verification. Keyed holdings were dropped from the HOLD file at the conclusion of work with a collection by means of a global delete operation. This was done after condition statements, filmers, storage locations, and notes were cross-loaded to imported local data records.

SYSTEM SUPPORT OF FIELDWORK

Prior to conducting fieldwork, which includes inventory and cataloging operations, the CONTACT database was searched to generate a list of libraries, publishers, and individuals identified in

the place to be visited. For work in a large city, such as Los Angeles or San Francisco, a search might be defined for a specific zip code or codes, while for a sparsely populated county, records for the entire county might be retrieved subsorted by city. Appointments were made to visit each library, museum, publisher, or individual holding newspapers, and records in the CONTACT file were updated to reflect current information, such as updated addresses, number of titles held, hours of operation, or interlibrary loan policy, acquired during the phone conversation. A note was added to record the date of the phone contact and any subsequent field visit. In the course of phone interviews and field visits, information about additional collections and contacts in the county were often uncovered, and this information was added to the CONTACT database for later pursuit. Once the collections to be canvassed were identified,

Record: 2515

OCLC NUMBER 8260154
 SN NUMBER 84-25963
 UNIFORM TITLE Californian (Monterey, Calif. : 1846)
 TITLE The Californian
 PUBLISHER Colton & Semple
 PLACE San Francisco, San Francisco County, California
 PLACE Monterey, Monterey County, California
 FREQUENCY Weekly
 LANGUAGE Spanish
 BEGINNING YEAR 1846
 ENDING YEAR 1848
 DATES PUBLISHED Vol. 1, no. 1 (Aug. 15, 1846)-v. 3, no. 15 (Nov. 11, 1848).
 GENERAL NOTE First newspaper in California. Moved to San Francisco in May 1847; sold by Semple, and became a competitor of the California Star. Suspended from May 26, 1848 to late June 1848 during the Gold Rush; resumed publication in Aug. 1848.
 PUBLISHER NOTE Rev. Walter Colton, editor and Dr. Robert B. Semple, publisher, 8/15/1846-4/17/1848; H.I. Sheldon, 8/1848- Extras 8/3/1847, 6/2/1848; Flysheet 5/29/1848. Moved from Monterey. United with California Star to form California Star and Californian. Ed: Robert B. Semple, 5/22/1847-7/12/1847; Benjamin R. Buckelew, 7/17/1847-9/1/1847; Robert Gordon, 9/8/1847-12/1847; Benjamin R. Buckelew, 1/1848-3/1848; J.D. Hoppe, 3/1848-5/10/1848; Henry L. Sheldon, 5/17/1848-6/2/1848, 7/15/1848, 8/14/1848-11/4/1848; Edward C. Kemble, 11/11/1848. Pub: Robert Semple; 5/22/1847-7/12/1847; Robert Gordon, 9/8/1847-12/1847 (B.R.B. and J.D.H. Mar-May?) Benjamin R. Buckelew, 7/17/1847-9/1/1847; B.R.B. 12/1848-5/10/1848; J.D. Hoppe and Co. (Jacob D. Hoppe, Henry L. Sheldon and Joseph Dockri II) 5/17-29/1848, 7/14/1848-10/17/1848; Henry L. Sheldon, Benjamin F. Foster and W.E. Weaver, 10/14/1848-11/4/1848; Edward C. Kemble 11/11/1848.
 OCLC NOTE Published in San Francisco, Calif., May 22, 1847-Nov. 11, 1848.
 OCLC NOTE Suspended with May 29, 1848 notice; resumed with July 15, 1848 issue.
 GEOGRAPHIC Monterey (Calif.) - Newspapers.
 GEOGRAPHIC San Francisco (Calif.) - Newspapers.

Figure 4. NEWS Database (Overlaid with Cataloging Data)

and, in some cases, after an inventory had been conducted by the project, work forms were produced by searching on collection codes carried in holdings records in the NEWS database (see figure 9). When a title had previously been cataloged and a full MARC record was available, a MARCNEWS record was also printed. This work was conducted by student assistants at the CNP headquarters office. When titles were thought to have changed or be related, but the evidence was insufficient to establish linking entries in the cataloging record, that information was put in note fields of the NEWS re-

ords to inform field teams of research to be conducted in the field. Although the project's original plan was to have field teams access the system online via dial access or telnet to the system server in Riverside, the uniform difficulty of securing phone lines or network connections at the site of newspaper collections where the work took place (often in storage or remote areas of a library or publisher's office) made this means of access impractical. Instead, work forms were printed and carried into the field. If a reasonably accurate or comprehensive inventory of a collection had previously been done by

Record: 4485

NEWS#	871
INST CODE	bancr
INSTITUTION	UC Berkeley, Bancroft
HOLDINGS	3/27, 9/2, 9/23/1857; 9/28, 11/9-12/31/1858; 2/4, 11/1/1859
FORMAT	film
NOTE	Edges brittle. Feb. 4, 1859 issue badly stained.

Figure 5. Holdings Record Keyed into HOLD Database

the library or the CNP field team, the forms were sorted in shelflist order using that inventory. Otherwise, forms were sorted by city of publication, then title. A separate printout of the county's newspapers was produced, so that the team could update the list with any new information that is gathered in the course of fieldwork (see figure 10).

At the conclusion of work at a library (after records have been loaded into the STAR system), the project delivered a printed reference list of newspaper titles and holdings (see figure 11).

REFERENCE USES OF THE NEWS DATABASE

As the project has progressed, and the NEWS database has become the most comprehensive source of information about California newspapers, an increasing number of reference queries have been received from librarians, researchers, and genealogists from across the country. If the CNP is unable to identify newspaper issues sought by a researcher, the query is posted to a record

in the NEWS database so that a response can later be provided when additional issues are located in the field. In responding to reference queries, the project has fostered contacts with persons knowledgeable about California newspapers and their locations; this information can be used to identify additional issues for microfilming by the project. The NEWS and HOLD databases have proven so valuable that the CNP plans to make them more widely available on CD-ROM or via the Internet.

PRESERVATION MICROFILMING

One of the most important functions of the system in the support of the preservation process has yet to be realized. The selection process, as well as the management, organization, and tracking of microfilming, will be greatly facilitated by the selection of relevant bibliographic records, associated holdings, condition reports, and management information in the form of specialized reports. The CNP databases do serve in planning for the project's preservation phase. Throughout

Record: 9745

OCLC#	11534768
NEWS#	871
INST CODE	cuyt
OCLC HOLD CODE	CUYT
INSTITUTION	UC Berkeley, Bancroft
HOLDINGS	<1857:3:27, 9:2, 9:23><1858:9:28, 11:9-16> <1859:2:4, 11:1>
FORMAT	film
FILMER	LPS
REPOSITORY	NRLF
NOTE	Edges brittle. Feb. 4, 1859 issue badly stained.

Figure 6. Holdings Record in OCLC Format (with Keyed and Cross-Loaded Data)

Record: 871

OCLC NUMBER	11534768
SN NUMBER	84-38812
UNIFORM TITLE	Mariposa gazette (Mariposa, Calif. : 1857)
TITLE	Mariposa gazette
AUTHOR	Holmes, L. A.
PUBLISHER	L.A. Holmes
PLACE	Mariposa, Mariposa County, California
FREQUENCY	Weekly
BEGINNING YEAR	185u
ENDING YEAR	1863
GENERAL NOTE	Yosemite National Research Lib. has the early issues of this paper which fill in Berkeley's film holdings. Librarian says this is the only paper of central Mariposa County.
OCLC NOTE	Description based on: Vol. 2, no. 32 (Feb. 13, 1857).
RELATED TITLES	Continued by Gazette-Mariposan.
GEOGRAPHIC	Mariposa (Calif.) - Newspapers.
PREVIOUS TITLE	Continues: Mariposa chronicle.
LATER TITLE	Continued by: Mariposa weekly gazette (Mariposa, Calif. : 1863).
HOLDING	Huntington Lib., Rare Books Dept.: 252861. (HUVM) Dates: <1860:8:21>.
HOLDING	Kern County Lib. (KLCA) Dates:<1859:11:1>. Format: film. Filmed by: LPS. Condition: good. (Scattered issues wanting)
HOLDING	UC Berkeley, Bancroft (CUYT) Dates:<1857:3:27, 9:2, 9:23><1858:9:28, 11:9-16><1859:2:4, 11:1>. Format: film. Filmed by: LPS. Master: NRLF. (Edges brittle. Feb. 4, 1859 issue badly stained.)
HOLDING	Yosemite Natl. Research Lib. Dates: 1854-1863.

Figure 7. NEWS Record Display with Associated Holdings from the HOLD Database

the bibliographic phase, holdings records representing microfilm were supplemented on an ongoing basis with information about the condition of film, filming agencies, and the location of master negative microfilm. Searches against the database were used to generate lists of each city's microfilmed newspapers (see figure 12), beginning with the 100 largest California cities and county seats. Such reports have assisted the project to determine the geographic distribution of microfilming to date.

Other more comprehensive reports will support the project's selection of titles for microfilming. Holdings records for newsprint carry information about the condition of the original, specific issues held, whether the issues are bound, and their availability for filming. As selection for preservation microfilming is undertaken, titles that are candidates for filming will have a field marked in the bibliographic record.

Searching on this field will permit project staff to select a list of newspapers for filming from each county, to evaluate attached newsprint holdings, and to make the best selection for microfilming (see figure 13).

Another field added to the bibliographic record has been defined for the notation of issues wanted for microfilming (see figure 14). A report has been defined as a finders' list, selected by searching "not null" values in this field (see figure 15). The selection of titles can be limited to a specific city or county for distribution to the local media of a specific community or communities. Other fields in holdings records have been defined to carry information about the specific issues selected for filming, the date on which issues are retrieved from a collection, whether the owner needs newsprint returned after filming, and the date on which issues are returned (see figure 16). This information will assist project staff in tracking the gathering, collating, and delivering of issues

Record:3233

STAR CODE paspl
 INSTITUTION Henry Hoover Public Lib.
 CONTACT John Smith, Library Director
 CONTACT Betty Jones, Serials Asst.
 ADDRESS 30 Sunny Way
 CITY Hooverville
 COUNTY Riverside
 ZIPCODE 90001
 PHONE (619)232-8294
 NEWSPAPERS? YES
 SIZE 00026
 MAIL? YES
 CATALOGED? NO
 OCLC? YES
 UNION LIST Inland Library System Union List of Serials
 ILL? YES
 FILMING? YES
 FILMING CO. Data Microfilming Corp.
 MASTER NEG Data Microfilming Corp.
 INDEXES The Desert Sun
 INDEXES Riverside Press-Enterprise (Desert Section only)
 CLIPS The Desert Sun
 CLIPS Riverside Press-Enterprise
 NOTE Newspapers are indexed both manually and on computer.
 NOTE The Desert Sun is a Gannett paper and may be indexed online.

Figure 8. Record from the CONTACT Database

Record: 24

OCLC NUMBER
 SN NUMBER 24
 UNIFORM TITLE
 TITLE American and Chinese Commercial Newspaper
 VARYING TITLES
 AUTHOR
 PUBLISHER Kee
 PLACE San Francisco, San Francisco County, California
 FREQUENCY Weekly
 PAST FREQUENCY
 LANGUAGE Chinese
 DATES PUBLISHED 2/16/1883-1901
 RELATED TITLES As Weekly News Ap 94-Ap 95"
 OTHER NOTES
 SUBJECTS
 GEOGRAPHIC
 PREVIOUS TITLE
 LATER TITLE
 OTHER EDITION
 HOLDING Claremont Colleges Dates: 10/26/1888. Condition: fair.
 HOLDING UC Berkeley Dates: 4/13/1888. Format: film (California
 Misc. newspapers (Reel 11, Item 4))
 HOLDING UC Berkeley, Bancroft Dates: 4/13/1888.

Figure 9. Cataloging Data Sheet

Record: 72

OCLC NUMBER 30337734
SN NUMBER 94-51085
TITLE Colton daily courier
VARYING TITLE Colton courier
PUBLISHER F.S. Hosfelt
PLACE Colton, San Bernardino County, California
FREQUENCY Daily (except Sat. and Sun.)
PAST FREQ. Daily (except Sun:)
BEGINNING YEAR luuu
ENDING YEAR 19uu
DATES PUBLISHED Published 3/5/1912-1942
OCLC NOTE "Daily" appears within masthead ornament.
OCLC NOTE Description based on: Vol. 54, no. 259 (Dec. 28, 1931).
RELATED TITLES Continued by Colton courier Continues Colton
chronicle
GEOGRAPHIC Colton (Calif.) - Newspapers.
HOLDING Colton Area Museum (J. Hofer reports holdings here)
HOLDING Colton Public Library Dates: 1912-1942.
HOLDING Huntington Lib., Rare Books Dept.: 494217. (HUVV)
Dates: <1934:5:1>.
HOLDING LAPL, Central, History and Genealogy: FR979. (LPUH)
Dates: <1937:3:29>. (Sixtieth anniversary ed.)

Record: 73

SN NUMBER 73
TITLE Colton page
PLACE Colton, San Bernardino County, California
HOLDING Custom Microfilm Dates: 1971-6/1973. Format: film.

Record: 83

SN NUMBER 83
TITLE Crestline courier-news
VARYING TITLE Crestline courier news
PUBLISHER Desert Community Newspapers
PLACE Crestline, San Bernardino County, California
FREQUENCY Weekly
BEGINNING YEAR 1991
ENDING YEAR 9999
DATES PUBLISHED Began in 1991.
OCLC NOTE Description based on: Vol. 66, no. 30 (Aug. 1, 1991).
GEOGRAPHIC San Bernardino Mountains Region (Calif.) - Newspapers.
HOLDING Crestline Courier-News Dates: 1974-. (Info provided
by publisher)
HOLDING Custom Microfilm Dates: 1967-1979. Format: film.
HOLDING San Bernardino County Lib., Lake Arrowhead Dates:
1/1967-12/1979. Format: film.
HOLDING San Bernardino County Lib., Lake Arrowhead Dates: 6
mos. +. Condition: good.

Figure 10. First Page of Printout of San Bernardino County Newspapers

 Natural History Museum of Los Angeles Newspapers

- El Aguacero. Los Angeles, California. Weekly. Began in 1878.-
 Cf. Gregory, W. Amer. newspapers.OCLC #10213884
 LA Natural History Museum Dates:<1878:3:31>.Condition: fair.
- Amigo del pueblo (Los Angeles, Calif.) Los Angeles, California.
 Weekly. Began in 1861.-Cf. Gregory, W. Amer. newspapers.OCLC
 #10213494
 LA Natural History Museum Dates:<1861:11:30>. Format: film.
- American sentinel (Oakland, Calif. : 1886)Oakland, California.
 Weekly. Began in Jan. 1886; ceased in 1890.-Cf. Gregory, W.
 Amer. newspapers. OCLC #13881968
 LA Natural History Museum (Box 240 A;).Dates: <1889:9:4>.
 Condition: good.
- The Altadena press. Altadena, California.Weekly. Vol. 1, no. 1
 (Nov. 21, 1929)-; Ceased in 1944. Continued by: Altadenan.
 OCLC #30304226
 LA Natural History Museum (vault). Dates:<1929:11:21-1944:4:20>.
 Condition: good. (Scattered issues wanting.)
- The Alliance farmer.Los Angeles, California. Weekly. Vol. 1,
 no. 1 (Mar. 7, 1891)-v.2, no. 11 (Dec. 24, 1891). OCLC
 #11840002
 LA Natural History Museum Dates:<1891:3:7-12:24>. Format: film.
 Condition: poor. (Scattered issues wanting.)
- Alhambra (Alhambra, Calif.)Alhambra, California. Weekly. OCLC
 #30210793
 LA Natural History Museum (Spec. Bundle #6).
 Dates:<1889:7:6><1894:8:4>.
- Acton rooster. Acton, California. Monthly. Published 1891-
 1915OCLC #30306105
 LA Natural History Museum (Spec. Bundle #6).Dates:<1904:8:15>.
 Condition: fair.
- American and Chinese commercial news = Hua Mei hsin pao. San
 Francisco, California Weekly. OCLC #34582275
 LA Natural History Museum Dates:<1883:7:20>. Condition: fair.
-

Figure 11. First Page of Sample Reference List

Record: 201

TITLE Carta editoriale.
 PLACE Riverside, Riverside County, California
 HOLDING Custom Microfilm Dates: 1963-1969. Format: film.

Record: 198

UNIFORM TITLE Citrograph (Redlands, Calif.)
 TITLE The citrograph.
 PUBLISHER Redlands, San Bernardino County, California.
 FREQUENCY Weekly.
 BEGINNING YEAR 1887
 ENDING YEAR 1908
 DATES PUBLISHED Vol. 1, no. 1 (July 16, 1887)-
 DATES PUBLISHED Ceased with Nov. 14, 1908 issue.-Cf. Gregory, W.
 Amer. newspapers.
 OCLC NUMBER 24451032
 HOLDING Calif. State Lib.: BOUND. (CAXA) Dates: <1887:7:16-
 1908:11:7> Condition: fair.
 HOLDING CSU San Bernardino (CSEB) Dates: <1887:7:16-1908:11:14>.
 Format: film. Filmed by: Univ. of Calif. - LPS.
 Condition: good. (Scattered issues wanting)
 HOLDING LA Natural History Museum: Box 236 H-O;. (CNHM)
 Dates: <1889:2:9-1908:10:17>. Condition: good.
 (Scattered issues wanting.)
 HOLDING San Bernardino Public Lib.: Feldheym. (SBDA) Dates:
 <1887:7:16-1908:11:14>. Format: film. Filmed by:
 Univ. of Calif.-LPS. Condition: good.
 HOLDING Smiley Public Lib. (SYYA) Dates: <1887:7:16-1908:11:14>.
 Format: film. Filmed by: LPS.

Record: 8969

UNIFORM TITLE Enterprise (Riverside, Calif. : 1977)
 TITLE The enterprise
 PUBLISHER Press-Enterprise Co.
 PLACE Riverside, Riverside County, California
 FREQUENCY Daily
 BEGINNING YEAR 1977
 ENDING YEAR 1981
 DATES PUBLISHED Jan. 4, 1977-Sept. 7, 1981.
 OCLC NUMBER 27823090
 HOLDING Riverside Public Lib., Main (CRPA) Dates: <1977:1:
 4-1981:9:7>. Format: film. Filmed by: Custom.

Figure 12. First Page Printout of Riverside County's Microfilmed Newspapers
 Search: COUNTY=RIVERSIDE AND FORMAT=FILM

Record: 7732

TITLE California chronicle
 VARYING TITLE Steamer chronicle
 VARYING TITLE Steamer California chronicle
 PUBLISHER Frank Soule & Co.
 PLACE San Francisco, San Francisco County, California
 FREQUENCY Semimonthly
 BEGINNING YEAR 1853
 ENDING YEAR 1858
 DATES PUBLISHED Began with Nov. 21, 1853 issue; ceased with May 12, 1858 issue.—Cf. Gregory, W. Amer. newspapers.
 OCLC NUMBER 10984675
 CANDIDATE YES
 ISSUES NEEDED 1857-1858
 HOLDING Calif. State Lib. (CAXA) Dates: <1853:11:21-1856:12:19><1857:10:5>. Format: bound. Condition: poor.
 HOLDING Calif. State Lib.: SPECIMEN. (CAXA) Dates: <1856:5:20, 8:5, 8:20>.
 HOLDING Huntington Lib., Rare Books Dept.: 55034. (HUVV) Dates: <1854:1:30><1855:5:1, 5:16, 6:1, 7:16, 8:1, 8:18, 9:5, 10:5, 12:20><1856:3:5, 9:5><1857:10:5>. Format: newsprint. Condition: good.
 HOLDING LAPL, Central, History and Genealogy (LPUH) Dates: <1854:4:1>. Condition: good. (Special Collections.)
 HOLDING UC Berkeley, Bancroft (CUYT) Dates: <1853:11:30><1854:1:15, 2:15, 3:15-4:1, 5:1, 6:1><1855:12:20>. Format: newsprint. Condition: poor.
 HOLDING UC Berkeley, Bancroft (CUYT) Dates: <1856:1:5><1857:7:18>. Format: film. Filmed by: LPS. Condition: fair. Master: NRLF.

Figure 13. Title Marked as Candidate for Preservation Microfilming in the NEWS Database

Record: 8784

TITLE Barstow printer-review
 PUBLISHER Caryl Krouser
 PLACE Barstow, San Bernardino County, California
 FREQUENCY Semiweekly, Oct. 9-23, 1958
 BEGINNING YEAR 19uu
 ENDING YEAR 1958
 DATES PUBLISHED -v. 49, no. 22 (Oct. 23, 1958).
 OCLC NUMBER 29348130
 CANDIDATE YES
 ISSUES NEEDED Major gaps from 1938 through 8/12/1943

Figure 14. Issues Needed for Filming Noted in NEWS Record

San Bernardino County
Newspapers Issues Needed for Microfilming

Barstow printer-review. Semiweekly, Oct. 9-23, 1958. Barstow, California. Published from 1900 to 1958. ISSUES NEEDED: Major gaps from 1938 through 8/12/1943.

The Colton chronicle. Semiweekly. Colton, California. Published from 1888 to 1911. ISSUES NEEDED: 1888; 1898-1904; other scattered issues.

Figure 15. Finders List Produced from the NEWS Database
Search: COUNTY=SAN BERNARDINO AND NEED NOT=""

for filming, seeing that they are filmed in a timely fashion, and disposing of newspaper once filming has taken place. Examples of potential reports are:

- Titles delivered for filming before a certain date, but not yet filmed (DELIVERED<8/96 AND FILMED=""")
- A listing of issues retrieved for filming from a specific library (LIBCODE=XXXX AND RETRIEVED NOT=""")
- Filming completed after a specified date (FILMED>8/15/96)

The last report will serve as a notification and queue for cataloging preservation masters subsequent to filming. Other reports, such as one comparing turnaround time among microfilmmers, can be defined as needed. New fields, indexes, and re-

ports will be required, which highlights the advantage that new data structures, indexes, and reports can be modified or created in the CNP system.

CONCLUSION

The CNP system has the capability of managing and associating bibliographic, holdings, and preservation data created in a preservation microfilming project. The flexible system design, the integration of MARC and non-MARC data, and a high level of user control over indexing decisions and report definition model a new system design for managing a broader spectrum of library functions. The system

TITLE	California chronicle
PUBLISHER	Frank Soule & Co.
PLACE	San Francisco, San Francisco County, California
FREQUENCY	Semimonthly
BEGINNING YEAR	1853
ENDING YEAR	1858
HOLDING	Calif. State Lib. (CAXA) TO BE FILMED: <1853:11:2-1854:1:15><1854:2:3-3:18, 4:16-1855:4:22, 6:21, 7:30, 8:31, 9:20, 10:20-1856:2:21><1857:10:5>. Format: bound. Condition: poor. PICKED UP: 06/10/96. RETURN? NO.
HOLDING	Huntington Lib., Rare Books Dept.: 55034. (HUVN) Dates: <1854:1:30><1855:5:1, 5:16, 6:1, 7:16, 8:1, 8:18, 9:5, 10:5, 12:20><1856:3:5, 9:5> Format: newsprint. Condition: good. PICKED UP: 05/07/96. RETURN? YES. RETURNED 08/16/96.
HOLDING	LAPL, Central, History and Genealogy (LPUH) Dates: <1854:4:1>. Condition: good. (Special Collections.) PICKED UP: 07/01/96. RETURN? YES. RETURNED: 08/16/96.

Figure 16. Issues to be Filmed Displayed in Association with the NEWS Database

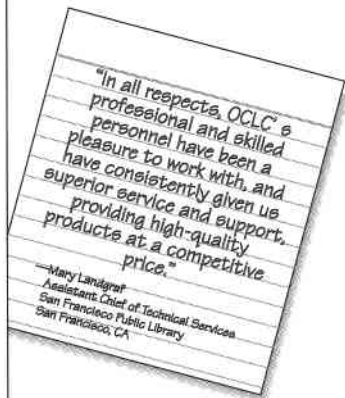
is an indispensable tool for directing current project day-to-day operations, and, in the future, the resulting databases will be the most comprehensive resource for information about California's newspapers.

WORKS CITED

- Bruer, John M. 1995. The role of the computer in the preservation operation. In *Advances in preservation and access*, ed. Barbara Buckner Higgenbotham. Medford, N.J.: Information Today.
- Cibbarelli, Pamela. 1992. Automation in review. *Computers in libraries* 12, no. 8: 49-51.
- Eugene C. Baker Texas History Center. 1990. Barker Center establishes project to preserve Texas newspapers. *Newsletter*, no. 8 (Summer 1990): 3.
- National Endowment for the Humanities, Division of Preservation and Access. 1996. US Newspaper Program. Web site: <http://lcweb.loc.gov/global/ncp/usnp.html>.
- Ogden, B., and Jones, Maralyn. 1991. *CALIPR: An automated tool to assess preservation needs of books and document collections for institutional or statewide planning*. Sacramento, Calif.: Calif. State Library.
- RLG Needs Assessment Task Force. 1993. *Guide to the RLG preservation needs assessment package*. Mountain View, Calif.: RLG.



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