Research Library Collaboration in Colorado – The Birth and Early Evolution of CARL, the Colorado Alliance of Research Libraries

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Abstract

The Colorado Alliance of Research Libraries (CARL) was a pioneering library consortium that evolved from a small informal group of research library directors known as the **"**Taskforce for Interlibrary Cooperation" in the early 1970s. Early projects included shared acquisitions funding, a union list of serials, and a shared public access catalog. Drawing upon published sources, unpublished primary sources, archival records and personal interviews with early participants, this article provides an account of the key individuals of the organization, the technological innovations of CARL, and its legacy within the library community.

Introduction

In late 1973, the library directors of the University of Denver (DU), the University of Colorado at Boulder, Colorado State University (CSU), the University of Northern Colorado (UNC), and Denver Public Library (DPL) met to consider ways of sharing resources. This was the start of what later came to be known as the Colorado Alliance of Research Libraries or "CARL" (1978) and still later as "The Alliance" (1995).

Development began in the early 1980s of a computerized integrated library system to replace a hodgepodge of solutions used at local libraries. With the success of the project, 1988 saw the not-for-profit consortium spin-off a for-profit subsidiary called CARL Systems Inc., whose primary purpose was to develop and market the now fully integrated CARL System. An article request and delivery system called

"UnCover" was also launched that year. In 1995, the consortium divested itself of these two for-profit businesses, selling the CARL Corporation and the UnCover Company plus the "CARL" name to Knight Ridder Information Inc. With that sale, the consortium became "The Alliance."

The regional CARL consortium became a leader in library collaboration at both the local and national level. Its influence helped shape the modern integrated library system marketplace as well as the broader library information industry.

CARL: the Legacy

The CARL system enjoys a substantive legacy in the annals of library automation. At its peak in the late 1980s and early 1990s the system was used by over 420 public and academic libraries and served a significant percentage of the population in the United

States.[1] In addition to most of the major academic and public libraries in Colorado, the CARL system could be found in Los Angeles, Chicago, Houston, Phoenix, Baltimore, Atlanta, San Antonio, and Broward County (FL). Academic library partners included Arizona State University, the University of Maryland, and the University of Hawaii. The system prided itself on its NonStop Tandem computer platforms which were leaders at that time in reliability, transaction throughput, and data integrity/security. Its pre-Web character-based interface was legendary for its simplicity, sophistication, and speed. It effectively served school children up to the most serious academic researchers.

The UnCover system developed by CARL was the first table-of-contents journal indexing system, updated on a daily basis, and included over 15,000 journals. Interestingly, most of the universities in the consortium (as well as Denver Public Library) in an effort to support the expansion of this collaborative database redirected their print journal subscriptions to the consortium office for acquisitions processing. Its launch in 1988 predates the Web-based Internet systems but still offered not only free searching (unheard of in the 1980s) but also fax-based delivery of articles in a matter of minutes from UnCover documents stored on optical disc farms. Once an article was first requested, it was pulled from a participating library shelf for scanning and the image was stored for later delivery in near real-time. With UnCover, many libraries altered collection development practices as it was realized that on-demand delivery of articles could replace subscriptions for some titles, especially appealing in a time of budget crisis. It took several years before a number of spin-off competitors were able to launch their own similar services, but UnCover was still considered the best in class at that time.

The CARL system was the first Integrated Library System (ILS) to offer the ability to locally load indexing/abstracting products as well as full-text materials. These early local advances changed the way commercial vendors offered databases, moving more and more away from the timesharing model (pay by the minute) towards today's flat subscription-based pricing that allows unlimited searching by end users.[2] The CARL legacy is one where the patron became center of the search and discovery experience with easy-to-use search interfaces that did not require librarian-mediated intervention as had been the standard up to that time.

Since the CARL system offered centralized computing that had the ability to jump from one library catalog to another, or to easily access locally-loaded databases, the system also functioned as a catalyst for librarians to cooperate on a host of collection development initiatives over the years. These types of activities were replicated around the country as various installations of the CARL system became regional hubs for library holdings and other integrated computing services.

The emergence of world class products and services from a non-profit consortium in Colorado represents a unique history. Most other ILS ventures (with a couple of exceptions) grew out of commercial initiatives or local libraries (e.g. NOTIS, VTLS). The CARL and UnCover systems, however, were designed right from the start to be consortial and collaborative in nature. During the early years of the consortium the services were embedded in the activities of the consortium but eventually the commercially viable ventures were spun-off as for-profit ventures. Nevertheless, CARL represents a significant successful experiment in library collaboration whose legacy exists to the present.

CARL: the Personalities

Beginning with a vision for library collaboration, a group of leading academic and public library directors in Colorado convened in the early 1970s to consider shared collection development activities and to discuss the future of library automation in the region.

In November of 1973, Morris Schertz, Library Director at the University of Denver (DU), sent out a letter to a number of regional research library directors inviting them to meet at DU to talk about various issues related to collaboration. Below is the text of the letter Schertz sent to Henry Shearhouse, Jr., Director at the Denver Public Library on November 12, 1973. In effect, CARL began with this correspondence.

Dear Mr. Shearhouse:

I would like to invite you to an informal meeting in the Upper Level Conference Room, Penrose Library, University of Denver at 10:00 A.M. on Friday, December 7, 1973, to explore areas of possible cooperation. Lunch will be served.

Please feel free to bring your Associate Directors. We are asking that Colorado University, Colorado State University, and Denver Public Library join us, as well as Kevin Bunnel, Director of General Regional Division Programs at WICHE. (Western Interstate Commission for Higher Education) ….

We are looking forward to seeing you at what we hope will be a very productive meeting.

Sincerely,

Morris Schertz
Director of Libraries [3]

Among the agenda items planned for the meeting were the identification of needs and resources and an implementation plan for library cooperation.

From this meeting in December, 1973, a Task Force was formed to explore ways to incorporate emerging technologies in a collaborative way. As it turned out, this Taskforce for Interlibrary Cooperation (TILC) in Colorado later became known as CARL.

DU librarians would play a central role in the development of CARL, with a number of them eventually taking positions in the new organization. One of those librarians was Ted Koppel, who recently reflected on the unique situation in which Schertz operated.

…[W]hen compared to the other directors that made up CARL at that time, Morris was much more of a free agent. He had the latitude to go off in new directions. He didn't have the built-in levels of administration that a University of Colorado or an Auraria Higher Education Center (University of Colorado-Denver) did -- he was "the director" and could - and did - make decisions freely. Of all the CARL members, DU was the only private university (except for Regis, which came much later). So from the start, he was immune from the state financing hierarchy and Board of Regents oversight. DU pretty much left him alone.[4]

Its status as a private institution allowed the University of Denver to play a pivotal role in the early years of the organization. Schertz's relative autonomy, combined with his past work experiences, made him especially well-suited to push for library cooperation at this early stage. These initial CARL initiatives occurred just two years after the first OCLC shared catalog became available in the State of Ohio. Schertz himself came from a technical services background, arriving at DU in 1969 from the University of Massachusetts at Amherst where he had been Director of Technical Services. Prior to that he had been Head Cataloger at the State University of New York-Buffalo. In the early years of library automation, technical service issues and circulation where key areas of development which needed attention in libraries. Traditional manual workflows and solutions were inefficient and only those with a technical service background really understood the details of how large libraries operated. Schertz was well placed to act as a catalyst in this new venture along with other key players in his organization including Ward Shaw, Trish Culkin and Ted

Koppel. The latter three became the cornerstone of the early technical developments in the consortium as they combined their deep knowledge of libraries along with their self-learned programming skills.

In August of 1973, shortly before he issued his call for a collaborative meeting, Schertz had brought 27 year old Ward Shaw to DU from Colby College in Maine – where Schertz had also worked much earlier in his career - to fill the position of Associate Director for Technical Services. Schertz interviewed Shaw at ALA-Midwinter in Washington, D.C. in January of 1973 and was deeply impressed with his knowledge, enthusiasm and vision. Shaw saw the benefits to cooperation from his work with NELINET, the New England Library Information Network (with which Schertz had also been involved while at Colby). NELINET became the regional OCLC network organization in the northeast and had a leading role in the distribution and training for the newly-formed OCLC shared cataloging project out of Ohio. A member of the executive committee of NELINET, Shaw had just signed an agreement with OCLC calling for 27 libraries to use the OCLC online cataloging system beginning in February of 1973. Given his background in collaboration, Shaw was very much interested in the possibilities of networking in Colorado.[5]

All four of the original invitees responded positively.[6] Schertz chaired the original meetings which were held at DU. Alan Charnes, current Executive Director of the Colorado Alliance of Research Libraries (1991 to the present), notes in an unpublished history of CARL written in 2003 that this was a time when emerging new technologies were appearing faster than an individual library's ability to pay for them, and so pooling resources would make the purchase of new technologies more feasible. It was also felt that grant funding might be more easily secured if applications for funding were made cooperatively.[7]

One of the first projects undertaken by the Taskforce was cooperative purchasing of

expensive materials that a single library might not otherwise be able to afford. To do this, a subcommittee evolved known as CO-LA, or Cooperative Organization for Library Acquisitions. Another early project was to create a union list of serials. Punch cards were produced to generate the data that allowed large bound volumes listing combined serials holdings to be printed. This project was initially completed by Shaw in 1974 and then went through several updates later on. As with most successful collaborations, a capable, enthusiastic team led the way.

CARL: the Technology

What really drove the creation of a more permanent and formal cooperative organization was a desire among Colorado research libraries to automate their card catalogs and to share holdings information. Colorado State University had been considering converting its paper card catalog to microfilm format, but Schertz felt that if indeed the time had come to replace the paper card catalog, then some type of electronic format was preferable to microfilm.[8] A shared central online system opened the possibilities for automating all phases of library operations including circulation, cataloging, serials control, and an online public access catalog. Shaw wrote the software program for this and for a shared circulation system. Schertz and Shaw persuaded the other research libraries in the Taskforce to share the cost of this project. Meanwhile, DU was an early participant in the OCLC system which went live in July of 1975 with 900 libraries. At that point in history, most libraries participating in the OCLC shared cataloging system received cards for filing in their card catalogs or a little later electronic output which could be used to create a computer-output-microform (COM) catalog. The development of the CARL system saw the value of taking this same MARC metadata for the development of online public access catalogs. The data were eventually received on a nightly basis and loaded into the central catalog.

From these early initiatives in collaborative purchasing and the sharing of resources, CARL was officially born through registering its Articles of Incorporation and By-Laws in 1978 as a not-for-profit organization. Its stated goal was "…to promote the progress and advancement of Colorado research libraries. The underlying objective was to develop the mechanisms necessary to manage access to CARL library collections as if they were one collection."[9]   The initial projects of the organization had two main goals: to collaboratively purchase expensive materials which could not be afforded by local libraries through the pooling of funds (microform sets, Sadtler spectra, Beilstein, Gmelin, etc.); and to create a centralized integrated library system to not only manage library functions but, more importantly, to offer online access to each other's holdings.

In 1979 Shaw left DU to become Executive Director of the not-for-profit consortium that was housed at member organizations in the early years (DU and Denver Public Library) but eventually obtained its own separate office space and computer hosting facilities.   His replacement at DU was Trish Culkin, who had made significant contributions to the early projects of the Taskforce. She came to DU in 1970 as a reference librarian but early on became involved in automation projects. Prior to coming to DU, Culkin had been a computer applications liaison at the City University of New York. In 1973, shortly after Shaw's arrival, Schertz had promoted Culkin to a newly created position, Head of Operations Research. Culkin recalls the early years of her professional relationship with Shaw and the emergence of CARL.

> CARL was really Ward Shaw's dream. Ward came to DU in 1973 and once we started working together, we realized we shared many of the same notions [of] how libraries could use technology. We both went to East Coast library schools and had knowledge of the use of computers in libraries. We also had experience with how libraries shared resources through regional networks. Nei-

ther of these concepts were in play in Colorado libraries in the 70's, yet all Colorado libraries were facing severe budget cutbacks. We knew that networking and computers could make a difference.

Ward was the primary mover in creating a library directors' forum from the biggest Colorado libraries to discuss resource sharing opportunities. This forum eventually became the Colorado Alliance of Research Libraries and later, in 1988, the for-profit corporation CARL. The primary focus in the early days was on the joint acquisition and sharing of expensive serial publications and not on automation.[10]

Although many east coast libraries had taken early leadership roles in library automation which inspired both Shaw and Culkin, virtually all of these other library initiatives were stand-alone institutional projects. Shaw and Culkin saw the value of collaboration at a regional level across most library functions: "one collection," sharing central staff and hosting services, and bringing all of the expertise under centralized management.

Culkin goes on to explain the technical, computer-related developments at DU that led to other initiatives of CARL.

> On a parallel track, Ward and I were also creating local library applications for use by Penrose Library at DU. The DU Computing Center acquired a big main frame computer in the mid 70's -- a monster for its day -- and they encouraged faculty prototyping and computer-based faculty research of all kinds. Ward and I took full advantage and wrote several library operations applications that ran on the Burroughs B6800-- a circulation system, a serials use study, a serials checking system to name three.

> These two [local and consortial] initiatives eventually dovetailed. The most ambitious of the Alliance [CARL]

projects needed to be computer-based, and the CARL directors recognized that the work Ward and I had done for DU could be leveraged into research and applications for the Alliance [CARL] libraries.

This led to the decision to incorporate the Alliance [CARL] as a separate 501-C3 non-profit corporation, with a stated mission to serve the automation needs of the Colorado-based member libraries. This new company proceeded to secure headquarters office space, bought its own computer hardware, and hired Ward and myself as the first two employees -- Ward as Executive Director, and me as Director of Research & Development.[11]

CARL had initially contracted with Data-Phase, a Kansas City vendor, to jointly develop a public access catalog (PAC). However, Shaw became convinced that Data-Phase was not going to deliver an acceptable product and began to develop his own system with the help of Culkin. CARL hired additional staff including Terry Parks who had served as systems operator at Denver Public Library. Koppel recalls that at this time the CARL offices were in cramped space on the third floor of the old Denver Public Library next to the employee lunchroom.[12]

Drawing on the remarkable technological skill of Shaw, Culkin and others, the implementation of the first Colorado regional online shared library catalog, with 77 terminals, came into being in 1981. Charnes notes that "no appropriate ILS package was being marketed at the time and programming skills had matured sufficiently in the Alliance to make in-house ILS product development feasible. In fact, this 'bottoms up' development is the common history of many of today's ILS vendors. The first CARL System module was the public access catalog. The prototype was made available for testing in 1983 and soon was in use in all consortium libraries."[13] By 1984, CARL had successfully integrated its online Public Access Catalog (PAC) with an integrated circulation system.[14] These technological developments, however, were not a seamless progression. Charnes explains that Colorado State University had withdrawn from the consortium in 1984 to purchase another automated library system but later elected to rejoin CARL in 1990 and use the CARL product.

Ted Koppel, when asked what accomplishments made in the early days stand out, recalls that

> … [A]fter a while, we built a good, solid system. Some – even many – of the decisions and approaches we made 20 years ago have stood the test of time. The approaches were the right ones even if the technologies have changed. …[Y]ou have to remember that in the 1980s and early 1990s, disk space was very expensive – especially on the Tandem – and we had to be very cognizant of every last byte. We had to build efficient and tight data storage, and not be profligate with our use of space. So approaches like the bib file's map record structure, and the way that words, namewords, and subjects were indexed – were very efficient and "tight" approaches. We built some good technologies over time.[15]

Charnes outlines the more recent achievements of the Alliance consortium that have built upon not only the technological innovations of CARL but also the equally important personal and professional collaborations forged in those early days. He explains,

> …[O]ver the years, the Alliance developed the CARL System, a widely used integrated library system; UnCover Inc., a pioneering article access and document delivery service….For obvious reasons, the Colorado Alliance of Research Libraries became known as "CARL" and the consortium developed integrated electronic library system became known as 'the CARL System' [in

some forms still in use today]. In 1995, the CARL System, UnCover Inc., and related assets including the CARL name were sold to Knight-Ridder Information Inc. After several subsequent changes in ownership, the CARL name and the CARL software are now owned by ILS vendor TLC, (The Library Corporation). Upon the sale of the CARL name, the consortium chose to call itself 'The Alliance' and has done so [since that time] . Nonetheless, many in the library community still refer to the twelve member library collaborative as 'CARL'[16]

CARL is an example of early library collaboration centered on information technology. This consortium and other exemplars have helped pave the way for similar advances on library services not only in the United States but around the world. Trish Culkin observes that:

> I am most proud that [CARL] endures…. I was in a water aerobics class the other day and some of my classmates were raving about this wonderful service at Denver Public Library. You could reserve as many books or DVD's as you wanted on line, they said, and designate any branch you wanted for pickup, and they would send you an e-mail or give you a call, your choice, when they were ready. Well, I wrote that software, or at least the core of it, almost twenty years ago. The fact that it still has new fans today is pretty satisfying."[17]

Today

The modern CARL integrated library system is owned and marketed by The Library Corporation (TLC) and is still used by a

number of leading public libraries in the United States. The UnCover system no longer exists as a separate service but has been integrated into the IngentaConnect scholarly publishing system.

The non-profit Alliance remains a robust organization that acts as a regional library consortium in Colorado and Wyoming and hosts a union catalog called Prospector, offers a shared Alliance Digital Repository based on open source Fedora software, produces and licenses an ERMS/link-resolver/A-Z service called Gold Rush, and still does cooperative purchasing of databases along with other collaborative collection development projects. It is a founding partner in the International Coalition of Library Consortia (ICOLC).

More information about the modern Colorado Alliance of Research Libraries and descriptions of some of its current products are available at the sites listed below.

Colorado Alliance of Research Libraries
http://www.coalliance.org

Prospector
http://prospector.coalliance.org

Gold Rush
http://grweb.coalliance.org

Alliance Digital Repository (ADR)
http://adr.coalliance.org

The Library Corporation/CARL
http://www.tlcdelivers.com/

Ingenta
http://ingentaconnect.com

Notes

1 The Colorado Alliance of Research Libraries,
http://www.coalliance.org/index.php?option=com_content&task=view&id=179&Itemid=132

2 George Machovec, "Locally Loaded Databases in Arizona State University's Online Catalog Using the CARL System" *Information Technology and Libraries* 8 no. 2 (1989):161-171.

3 Morris Schertz correspondence. Penrose Library Administrative Files. University of Denver Archives.

4 Ted Koppel, e-mail message to author, January 5, 2009.

5 Schertz, correspondence, December 12, 1973.

6 Diane B. Lunde, "Responding to the Challenges: Colorado Libraries in the 1970s," *Colorado Libraries,* .18 no. 3 (September 1992) : 85.

7 Alan Charnes, "Colorado Alliance of Research Libraries" unpublished manuscript (2003) : 3.

8 Morris Schertz, e-mail message to author December 15, 2009.

9 Martha Whittaker, "Systems That Inform." Unpublished manuscript. 1990.

10 Trish Culkin, private communication.

11 Trish Culkin, e-mail message to author, January 4, 2009.

12 Koppel, January 8, 2009.

13 Charrnes, 4.

14 Chris Busick, "CARL and Collection Development" *Colorado Libraries,* 11, no. 1 (March 1985): 45.

15 Ted Koppel, January 8, 2009.

16 Charrnes, 11.

17 Culkin, January 8, 2009.