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Aristotle Meets Plato in the Library Catalog: Part 2

I will discuss the Colorado Alliance of Research Libraries (CARL) system implementation as the basic housekeeping system at the Pikes Peak Library District (PPLD) on MAGGIE III and how PPLD has used the capabilities of the software in the CARL system to greatly expand and enhance MAGGIE'S PLACE (the computer system at PPLD). But first, a recap of the history of MAGGIE'S PLACE.

MAGGIE'S PLACE

The automation program at PPLD was started in 1975 and the first in-house computer, a Digital Equipment Corporation (DEC) PDP 11/70, was acquired in 1976. This computer was dubbed MAGGIE II with its namesake the long-time head of the technical services department, Margaret O'Rourke. Over the next five years, through the hard work of the employees of the systems division of the library, MAGGIE'S PLACE became one of the most comprehensive and sophisticated library automated systems in existence. Program implementation started with a collection inventory system, then proceeded through circulation, acquisitions, serials, a public access catalog, and continued on to payroll, accounting, word processing, electronic mail, and other housekeeping tasks. PPLD broke new ground for the library world when community resource files were brought up on MAGGIE II in 1978. These files contain community agencies, clubs and organizations, adult education courses, an events calendar, and day-care centers. In 1981 PPLD added a second DEC computer, a PDP 11/44, to initiate the first community-wide public online CARPOOL system in the United States and later brought up a transit information system which provides the online schedules of the city bus system. Also in 1981 PPLD became the first library to allow owners of home microcomputers and business computers to link with MAGGIE for

searching the public access catalog and the community resource files. By 1983 the catalogs at the libraries of the U.S. Air Force Academy and the University of Colorado at Colorado Springs were online in addition to the eight facilities of PPLD.

By 1983 MAGGIE had grown into a system with ninety-seven terminals and 1.8 billion bytes of storage. Unfortunately, this was above the maximum effective capacity for an 11/70 in the kind of activities required by PPLD. In 1983 the voters of PPLD approved a bond issue for a facility that would increase the total square footage of the district by 80 percent. This megabranch would require a minimum of fifty terminals—an impossible addition to MAGGIE II. Fortunately the bond issue included funds for an entirely new computer system. After the passage of the bond issue the specifications for the replacement system were developed, a Request for Information (RFI) was issued, and based on responses from a number of potential vendors, a Request for Proposals (RFP) was distributed.

MAGGIE III Specifications

The RFP was a statement of the functions that were required on the system and the performance standards that were expected. These performance standards were based on the leading edge of development of existing hardware and software. A discussion of these standards follow.

Reliability

It is required that MAGGIE III be available as much as—if not more than—any other system on the market. It is expected that the system would be available over 99.9 percent of the time.

Capacity

The initial system must support 300 terminals operating within stated response time limits, and the architecture must allow growth to 1200 terminals without making initial hardware and software obsolete.

Expandability

It must be possible to add additional devices in increments that provide an even growth curve. In other words, it should be easy to add processor power or disk storage in increments with predictable costs; again, this must be done without making initial hardware or software obsolete.

Speed

The system is required to perform at an extremely high level of throughput. For example, the average charge-out of a book should be no more than two seconds when 300 terminals are on the system.

Mainstreamed

The hardware, operating system, programming languages, and peripheral devices should be standard off-the-shelf products. Terminals should be available from a number of vendors and should be low priced.

Vendor-Supported Housekeeping Programs

In a major departure from past practice, the decision was made to seek software for circulation, for a public access catalog, for acquisitions, and for serials from a vendor, if the program met our needs and ongoing support was available. If these programs were not available, then PPLD staff would continue to develop the programs.

In-house Enhancement

PPLD wanted to retain the ability to develop applications in-house or to add packages from other vendors such as a financial package. A report and query language was required from the computer vendor that would allow PPLD staff to interact with the applications supplied by the vendor. The system should provide a database manager and other utility programs which decrease development time significantly.

Technical Ability

It was required that the system provide the best technical features of any system available on the market and that the architecture for the system would be optimized for PPLD needs.

“User Friendliness”

Even in 1983, the staff of PPLD—and the patrons—had several years of experience with a public access catalog and had developed a number of definite prejudices. To make everyone happy, the system would have to be accurate, fast, and powerful, but simple as well. Since PPLD had over 3000 users accessing the system from their home computers, ease of use took priority. PPLD staff traveled all over the country in order to evaluate the user friendliness of the proposed systems.

CARL Expanded Ability

None of the initial proposals met the PPLD specifications, and it was only when Eyring Research Institute, Inc. proposed a system using Tandem Computer Corporation hardware, the housekeeping software from the Colorado Alliance of Research Libraries, that PPLD signed a contract, mindful of Eyring's expertise in installation, documentation, and training. In addition, Eyring agreed to incorporate some changes that were desired by PPLD staff. A detailed analysis of PPLD staff determined that

the CARL system could provide some capabilities beyond the other vendors.

Database Manager

The CARL Public Access Catalog (PAC) could also serve as a database manager. The unique search routine using word, name, or browse is neutral as to content of the file. In other words, a file of clubs can be searched by word, name, or browse as easily as the catalog of books. Since the CARL system uses the MARC record, which allows variable-length fields within variable-length records, the PAC can be used to file almost anything. The system is easily explained to the average user by stating that it is as if every word and name on the catalog card is indexed, and every possible combination of the words on the catalog card can be used. Perhaps it should be labeled "the vacuum cleaner" approach to indexing since the number of access points to a specific record is in the hundreds (one possible way to calculate the number is to count the words in the record and use that number factored).

A Network System

The CARL Public Access Catalog was designed to allow the user to choose among the catalogs of all of the members of CARL, which facilitates choosing not only among different types of library's catalogs but among files as well. It is anticipated that MAGGIE will be connected directly to the CARL network, thereby providing access to over 80 percent of the titles in public and university libraries in Colorado.

A Database Manager Supervisor

Not only can the user of the CARL system switch among catalogs of different libraries, but the initial search may also be repeated in each catalog automatically. It is anticipated that a global search of all files will soon be possible.

These expanded capabilities of the Eyring system fit the needs of PPLD extremely well. Since PPLD views its mission as one of community information center and community communications center, as well as of traditional published materials center, it is essential to have a system with which to create online database systems. The ability of the system to allow in-house design and creation of new databases in a nominal amount of time places PPLD on the leading edge of agencies providing community information. A new file was designed and implemented, and data loading began in less than ten days by PPLD staff. This file, called "KWIKREF" is for miscellaneous information developed by staff research that the librarians wish to retain indexed by every word and name.

MAGGIE III Implementation

A contract was signed with Eyring Research Institute, Inc. on 29 March 1985; the hardware was delivered four days later and was installed in another two weeks. The CARL software was installed within another two weeks, and a circulation system and a public access catalog system were fully functional five months after contract signing. The hardware for MAGGIE III consists of four Tandem Non-Stop TXP 32-bit processors with four megabytes of memory each, four V8 disk drives with a capacity of 3 billion bytes, a high-speed tape drive, a high-speed printer, and the cabinetry, etc. for 300 terminals. The terminals purchased are primarily Lear Sigler ADM 12s that cost less than \$600. Since the system is quite flexible on the selection of terminals, all of the old terminals from MAGGIE II are usable on the PAC. The system has exceeded performance specifications significantly. It appears that the system will handle more than 500 terminals and maintain the current response time of less than a second to charge a book. The system has been operational more than 99.9 percent of the time in the first nine months, and the public is impressed with the ease of use of the Public Access Catalog.

PPLD is extremely pleased with the implementation of the system. It has performed at levels exceeding specifications in all functions. The Community Resource Files that were present on MAGGIE II have been implemented on MAGGIE III with the significant improvement of consistent screens, terminology, and search strategy among all files. In addition, a catalog of documents created by local government agencies has been implemented. The time to develop a local database on the system appears to be only 10 percent of the time required on MAGGIE II.

A Look at the PAC

A look at the screens of the PAC will illustrate the excellent user friendliness of the CARL PAC. It should be noted that the screens have been merged into exhibits in order to make the presentation more compact. The text is as it appears; I have simply eliminated the majority of the blank lines on the CRT screen.

Exhibit 1 shows the initial screen seen on PAC terminals in library facilities and on home computers linked via dialup. The HELP choice at this point simply explains the contents of each database.

Exhibit 2 shows the screen that appears after selecting number 1, the ON-LINE CATALOG. This screen explains the type of searches that are available. Next on the screen is what appears after selecting *W* for Word search. Different examples are provided for each file in order to be more relevant to the user. The next several lines show the result of the user

(The computer screens have been merged in order to provide a savings in space. The text you see was downloaded directly into the wordprocessor from the PAC)

WELCOME TO THE COMPUTER CATALOG OF LIBRARY HOLDINGS
(version 50)

PIKES PEAK LIBRARY DISTRICT

A project to the Eyring Research Institute and the
Colorado Alliance of Research Libraries (CARL)

PRESS (RETURN) TO START PROGRAM:

PAC WORKING...

Your first step is to select the LIBRARY whose catalog you wish to consult.

Catalogs are currently available for:

1. ON-LINE CATALOG
2. CALENDAR
3. AGENCY
4. CLUB
5. COURSES
6. LOCAL DOCUMENTS
7. KWIKREF
8. HELP...
9. DAYCARE

TYPE the NUMBER of the library you wish to search, and
press the (RETURN) key.

ENTER NUMBER:1
WORKING...
09/22/86

Exhibit 1

entering the words *transportation planning*. The sequence of the words is irrelevant and the user may enter word stems if he or she is not sure of the complete word. For example, *plan* might have been used to expand the search to include *plan* and *plans*. The catalog contains 175 titles under the term *transportation* and ten titles under *transportation + planning*. At this stage the user asks for a list of those ten items.

Exhibit 3 shows the list of the first seven hits on *transportation planning*. When the user selects one of the numbers the screen containing the record is displayed. This screen is the complete MARC record, with call number, facility location, and status. At the bottom of the screen the system provides the option of repeating the search on another database. By entering S, the user may return to the screen to choose another database. When the user enters the number 7, the search is repeated on the LOCAL DOCUMENTS database as shown on exhibits 4, 5, and 6. Because of the large number of documents in the database on *transportation planning*, it is

02:40 P.M. SELECTED CATALOG : ON-LINE CATALOG

The computer can find books by NAME or by WORD

NAMES can be authors, editors, or names of persons or institutions written about the book

WORDS can be words from the title, or subjects, concepts, ideas, dates etc.

You may also BROWSE by TITLE, CALL NUMBER, OR SERIES.

Enter N for NAME search
 W for WORD search
 B to BROWSE by title, call number or series
 S to STOP or SWITCH to another Library catalog

There is also a quick search -- type QS for details

Type the letter for the kind of search you want,
 and end each line you type by pressing <RETURN>
 SELECTED CATALOG : ON-LINE CATALOG

ENTER COMMAND>> W
 WORKING...

REMEMBER -- WORDS can be words from the title, or can be subjects, concepts, ideas, dates, etc.

for example -- GONE WITH THE WIND
 SILVER MINING COLORADO
 BEHAVIOR MODIFICATION

enter word or words (no more than one line, please)
 separated by spaces and press <RETURN>.

>TRANSPORTATION PLANNING
 WORKING...
 TRANSPORTATION 00174TITLES
 TRANSPORTATION + PLANNING 00010TITLES

For the 00010 items that have
 TRANSPORTATION + PLANNING
 Press <RETURN>, or type <Q>UIT for a new search.
 WORKING...

Exhibit 2

necessary to add additional terms to narrow the search. The user can scan short entries for all items if he/she wishes.

Exhibits 7 and 8 show the search *transportation planning* repeated on the Agency Database with the list of short entries in that file. The system provides an interesting information resource scanning facility. I doubt that most transportation planners would think of the Girls Club or day-care centers as entities involved in transportation, but the file shows that is certainly the case.

Your initial search was:

TRANSPORTATION PLANNING

Select the catalog you wish to try next:

1. ON-LINE CATALOG
2. CALENDAR
3. AGENCY
4. CLUB
5. COURSES
6. LOCAL DOCUMENTS
7. KWIKREF
8. HELP...
9. DAYCARE

TYPE the NUMBER of the library you wish to search, and press the <RETURN> key.

ENTER NUMBER:6

WORKING...

this takes a sec...

SELECTED CATALOG: LOCAL DOCUMENTSB

TRANSPORTATION 01134TITLES

TRANSPORTATION + PLANNING 00761TITLES

For the (00761) items that have

TRANSPORTATION + PLANNING

Press <RETURN>, or type <Q>UIT for a new search.

WORKING...

TRANSPORTATION + PLANNING 00761TITLES

You may make your search more specific (and reduce the size of the list) by adding another word to your search. The result will be items in your current list that also contain the new word.

to ADD a new word, enter it,

<D>ISPLAY to see the current list, or

<Q>UIT for a new search:

NEW WORD(S): COLORADO

WORKING...

TRANSPORTATION + PLANNING + COLORADO 00137TITLES

You now have: TRANSPORTATION + PLANNING + COLORADO 00137TITLES

Exhibit 4

You may make your search more specific (and reduce the size of the list) by adding another word to your search. The result will be items in your current list that also contain the new word.

to ADD a new word, enter it,
<D>ISPLAY to see the current list, or
<Q>UIT for a new search:

```
NEW WORD(S): SPRINGS
WORKING...
TRANSPORTATION + PLANNING + COLORADO + SPRINGS 00081TITLES
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You now have: TRANSPORTATION + PLANNING + COLORADO + SPRINGS 00081TITLES

You may make your search more specific (and reduce the size of the list) by adding another word to your search. The result will be items in your current list that also contain the new word.

to ADD a new word, enter it,
<D>ISPLAY to see the current list, or
<Q>UIT for a new search:

```
NEW WORD(S): HIGHWAYS
WORKING...
TRANSPORTATION + PLANNING + COLORADO + SPRINGS + HIGHWAYS 00009TITLES
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You now have: TRANSPORTATION + PLANNING + COLORADO + SPRINGS + HIGHWAYS 00009TITLES

You may make your search more specific (and reduce the size of the list) by adding another word to your search. The result will be items in your current list that also contain the new word.

to ADD a new word, enter it,
<D>ISPLAY to see the current list, or
<Q>UIT for a new search;

```
NEW WORD(S): D
```

Exhibit 5

The Future of MAGGIE'S PLACE

There are several new databases on the drawing boards and, based on the implementation of the current databases, it appears that new ones will be created on a regular and frequent schedule. Plans may change depending on circumstances, but at present the several databases are planned.

Facts

Pierian Press has provided a demonstration tape of the data contained in its serial entitled *A Matter of Fact*. It appears that loading this data into the PAC will be relatively routine. Pierian Press will send out updated

PREPARING YOUR DISPLAY -- HOLD ON...

1 Agency colorado depa Title: u.s. highway 24 bypass colorado springs,	PPLD PENROS LOHIST - nd CRDO+HWY/EI-T83(1976)
2 Agency pikes peak ar Title: study of access routes to peterson field	PPLD PENROS LOHIST - nd REG+PPACG/SP-P37(1967)
3 Agency planning divi Title: transportation plan, city of colorado spr	PPLD PENROS LOHIST - nd CS:CD-PL/SP-T61(1986)
4 Agency ridefinders t Title: a proposal for alternative transportation	PPLD PENROS LOHIST - nd ORG+RIDE/SP-G16(1984)
5 Agency department of Title: traffic and preliminary engineering study	PPLD PENROS LOHIST - nd CRDO:HWY/SP-G16(1986)
6 Agency pikes peak ar Title: colorado springs long-range plan update s	PPLD PENROS LOHIST - nd REG:PPACG/SP-T851(1984)U
7 Agency colorado depa Title: widefield, el paso county; draft environm	PPLD PENROS LOHIST - nd CRDO+HWY/EI-W42(1971)

<RETURN> TO CONTINUE DISPLAY

ENTER <LINE NUMBER> TO DISPLAY FULL RECORD
<Q>UIT FOR NEW SEARCH 7

WORKING...

AUTHOR(s): AGENCY: COLORADO DEPARTMENT OF HIGHWAYS
TITLE(s): TITLE: WIDEFIELD, EL PASO COUNTY; DRAFT ENVIRONMENTAL
IMPACT STATEMENT ADMINISTRATIVE ACTION

PUB DATE: SEPTEMBER 30, 1971
ABSTRACT: THIS STATEMENT DISCUSSES THE PROPOSED ROUTE FOR
THE EXTENSION OF STATE HIGHWAY 16. THE EXTENSION DISCUSSED
CONTINUES HIGHWAY 16 EASTERLY TO INTERSECT THE EXTENSION OF
MARKSHEFFEL ROAD. BOTH ROUTES HAVE BEEN ACCEPTED AS PART OF
THE COLORADO SPRINGS METROPOLITAN AREA TRANSPORTATION STUDY
FOR THE COLORADO SPRINGS AREA.

OTHER ENTRIES: KEY WORDS: TRAFFIC - PLANNING; HIGHWAYS; SOCIO-ECONOMIC
ANALYSES; MASS TRANSPORTATION; CRDO+HWY/EI-W42(1971)
DOC TYPE: ENVIRONMENTAL IMPACT STATEMENT
GEOG AREA: WIDEFIELD
FEATURES: MAPS, PHOTOGRAPHS, DIAGRAMS
GOVT LEVEL: STATE
XDONOR: XPPACGLIBRARY

CALL #: CRDO+HWY/EI-T83(1976) LIBRARY: PENROS LOHIST

Exhibit 6

tapes as a subscription with fixed prices. By the time this article appears in print, the users of PPLD will be routinely searching the data contained in the "FACTS" database by any word or name. It should be very popular with home users since there will be tens of thousands of facts with citations of sources available in their own homes.

Reviews

The editor of Pierian Press has indicated that they would like to create a database consisting of most of the book reviews contained in magazines

<RETURN> to continue, <Q>UIT for a new search, or <R> to REPEAT this display

Q

You began with a W search on:

TRANSPORTATION PLANNING

Type S to try your search in another catalog, or
 R to repeat your search in LOCAL DOCUMENTS or
 <RETURN> for a new search:S
 Your initial search was:

TRANSPORTATION PLANNING

Select the catalog you wish to try next:

1. ON-LINE CATALOG
2. CALENDAR
3. AGENCY
4. CLUB
5. COURSES
6. LOCAL DOCUMENTS
7. KWIKREF
8. HELP...
9. DAYCARE

TYPE the NUMBER of the library you wish to search, and press the <RETURN> key.

ENTER NUMBER:3

WORKING...

this takes a sec...

SELECTED CATALOG: AGENCY

TRANSPORTATION 00027TITLES

TRANSPORTATION + PLANNING 00002TITLES

PREPARING YOUR DISPLAY -- HOLD ON...

1	Pikes peak area council of governments	PPLD AGENCY FILE
2	Downtown colorado springs, inc.	PPLD AGENCY FILE

ALL ITEMS HAVE BEEN DISPLAYED.

ENTER <LINE NUMBER> TO DISPLAY FULL RECORD

<Q>UIT FOR NEW SEARCH 1

WORKING...

TITLE(s): PIKES PEAK AREA COUNCIL OF GOVERNMENTS
 ADDRESS: 27 E. VERMIJO, 5TH FLOOR
 CITY,ST,ZIP: COLORADO SPRINGS, CO 80903
 HOURS: 8-5 M-F
 TELEPHONE: 471-7080
 PARENT ORG: PPACG
 DIRECTOR: DAVID L. PETERSON
 CONTACT: DIAN SUKALSKI

OTHER ENTRIES: FUNCTION: REGIONAL PLANNING AGENCY FOR EL PASO, PARK AND
 TELLER COUNTIES; REGIONAL CLEARINGHOUSE FOR FEDERAL
 FINANCIAL ASSISTANCE (A-95 REVIEW); OFFICIAL CENSUS DATA
 USER CENTER PROVIDING CENSUS DATA, MAPS, STATISTICS, ON
 HOUSING AND POPULATION; PROVIDE PLANNING SERVICES IN
 TRANSPORTATION, AGING, ENVIRONMENTAL QUALITY, HOUSING,
 STATISTICS/ECONOMIC FORECASTS, ETC; MAINTAIN EXTENSIVE MAP
 LIBRARY AND PLANNING LIBRARY. HANDICAPPED ACCESS.
 ELIGIBILITY: LOCAL GOVERNMENTS, PRIVATE ACCESS.
 APPLICATION: PHONE, WALK IN
 KEYWORDS: PLANNING GOVERNMENT LOCAL
 DATE ENTERED: 06-Mar-81
 DATE UPDATED: 08-Apr-86
 AGENCY: PIKES PEAK AREA COUNCIL OF GOVERNMENTS

CALL #: AGENCY FILE

LIBRARY:

 <RETURN> to continue, <Q>UIT for a new search, or <R> to REPEAT this
 display
 You began with a W search on:

Exhibit 8

throughout the United States. They would supply monthly update tapes of PPLD so that current reviews would be available in the PAC. It would be an extremely valuable source for librarians involved in book selection, and the public would be able to view a number of reviews of a book prior to selecting its reading material.

Voter Information

The Pikes Peak area has many representative government divisions in which the citizens need to participate through elections. There is a plethora of districts as well as the cities and the county. El Paso County alone has twenty-six school districts. The polling places for elections can be difficult to find.

City Code

The city attorney for Colorado Springs has asked PPLD to assess the feasibility of providing dial-up access to the city legal code. This code is modified practically every time the city council meets and it is very expensive to reprint the code every two weeks.

LINK

There are many people willing to teach those who want individualized instruction on almost any topic. The LINK file would simply be a directory of people and their talents.

Conclusion

User friendliness must move beyond traditional, esoteric cataloging practice as embodied in the card catalog. It means simple commands that are very powerful, operating on multiple databases that are relevant to the local user community. There is little question at PPLD that the methods of Plato and Aristotle exist side by side in the online catalog. MAGGIE'S PLACE has entered a new era.