

## Changing roles of the systems librarian at the College of William and Mary: the explosion of technology and position of the systems librarian

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### Abstract

The systems office, at the College of William and Mary's Swem Library, evolved from a hierarchical department to a modified team structure. Along the way, the role of the systems librarian has changed from a department head to a member of a team. A unique blend of timing and personalities made this transition both possible and practical. While the systems librarian now works on the same administrative level as non-librarians, there is still a fundamental difference in how the systems librarian functions within the library. This role of the systems librarian has changed in complexity but still comes down to bridging the worlds of library and technology.

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## Background

The College of William and Mary in Virginia was chartered in 1693 and is the second oldest college in the USA. It consistently ranks as one of the best small public universities in the USA in the US News and World Report rankings. In 1982, 289 years after its founding, the college committed itself to the goal of an automated library system, a system that did not go fully on-line until 1987. At the time the system went live, there were three participating and independent libraries at the college: the Earl Gregg Swem Library (the main library), the Marshall-Wythe Law Library, and the Virginia Institute of Marine Science Library at a satellite campus 15 miles distant from the main campus. Swem Library took the lead in creating the on-line catalog. Since then, the holdings of several departmental libraries representing the sciences, education, business, and music have been added to the library system, along with those of Richard Bland College, a two-year community college affiliated with William and Mary. In 2003, the records of the Colonial Williamsburg Foundation's John D. Rockefeller, Jr Library will be added to the system as part of a consortium arrangement.

The systems office and the position of systems librarian (or systems manager until 2001) were established at Swem Library to implement a union on-line catalog, known as LION, for the college. The library established the systems office with responsibility for the library management system and its host hardware for several reasons:

- the computing center was not in a position to maintain a system with the complexity of LION in addition to the college's administrative systems;
- the VTLS software only ran on an HP3000 minicomputer which was not used anywhere else in the college; and
- an overburdened computer center could not dedicate the staff to guarantee a quick response time when problems arose.

Swem has continued to use library staff to manage LION, its host computer, and all other library automation, though the initial reasons which compelled its independence no longer apply.

From 1984 to the present, there have been only three systems librarians. The core duties of these individuals and their role in the culture of the library has remained remarkably consistent despite the flood of new technologies that libraries have embraced due to their very reason for being – to acquire, process, and distribute information. These core duties have been and still are to investigate new technologies, guide the implementation of those technologies, assist in short and long-term planning, generally provide advice and recommend action, and bridge the cultures of technology and library. There has been a gradual shift out of the systems office of some activities that originally would have fallen to the systems librarian as staff expertise and the performance of desktop computers have increased. However, the fundamental role of the systems librarian as one who understands both technology and the workings and culture of libraries remains much the same.

The role of systems librarian will be examined in three sections corresponding to individuals occupying that position: introducing the systems librarian; expansion; changing the expectations.

### **Introducing the systems librarian (1984-1986)**

A scant ten years ago, there was no systems office as it currently exists. There were two librarians responsible for the library's automation initiative, a systems manager responsible for library automation overall and an automation librarian who handled retrospective conversion and otherwise prepared the collection for automation. We will concentrate on the position of the systems manager, as that is the position that has carried through to today, but this is not meant to minimize the role of the automation librarian. She led the staff through the transition from a manual to an automated system in a time when automation was not common or well understood: a major cultural shift.

The state of technology in the library, if not the entire college, was primitive by today's standards; a 1984 report stated that the entire college had less than 100 microcomputers. The

systems manager and automation librarian raised the college's awareness of the data processing needs in the Swem library. Prior to that, it does not appear that the library was part of the college's overall computer planning. A few desktop computers (Apple IIe, Macintosh, and IBM PC) had made their way into the library's administrative and technical processing areas by 1985 but for many years the primary device used to access the on-line catalog remained the dumb terminal. Today's sophisticated users might be stunned to learn that these dumb terminals were linked to the library system by hard-wired, serial connections. Pre-existing intercom wire was used in many locations within the building.

The systems manager was responsible for setting up the building infrastructure – a computer room with raised floor, power conditioning, fire suppression, wiring the building and establishing links to users outside the library, installing and bringing up the minicomputer to run the new LION on-line catalog, programming, loading software and bibliographic and authority records, training staff, and documenting the new system. The systems manager built the infrastructure from scratch; a staff member who was there at the time described it as a “jeans and sneakers” time for him. The systems manager told me that wiring and configuring multiplexers for serial communication to the host computer “was the chore of the day . . . and not easy.”

Documents from this time show a systems manager very much concerned with the nuts and bolts of building a system and coordinating with the college to establish communication links. Given the state of computing at this time, the library needed a systems manager with industrial-strength technical skills. He also occupied the interesting role of a computer professional who was not part of the college's computer center . . . and was a librarian to boot! Early systems managers did much to demonstrate that librarians could be the equal of computer center staff and Swem's first librarian to occupy that position demonstrated his ability to bridge both worlds facilitated integrating the new library system into the college's computing environment.

The systems manager was heavily involved with the short term planning to bring up the

new library system. At the same time, he was also involved in the core systems librarian duty of long term planning for the newly emerging networking issues that eventually changed the way libraries do business.

### Expansion (1986-1992)

The systems manager and automation librarian both left in 1986, and after a brief period during which the circulation stacks manager temporarily filled in, a new systems manager was hired. The new systems manager came to Swem directly out of library school, but with three and a half years of programming experience including one and a half years programming with the UCLA Library Orion system.

The systems office as it now exists emerged during this period as a department in library's organization chart with the librarian systems manager as the department head and the "professional" in the office. The circulation stacks manager, who showed an aptitude for technology, stayed on in Systems. Later a half-time student was hired, primarily to do an evening system backup.

As with the previous systems manager, the new librarian was responsible for implementing and maintaining all the library's automated systems with the primary responsibility being to maintain the HP3000 minicomputer and VTLS library management system, LION. During this early period when the library was not yet fully wired and LION was not fully functional (this happened in September 1987), the systems manager continued the activities of his predecessor, namely cabling for terminal access to LION, hardware and software upgrades, and data loading.

It was still a much simpler time technologically, but the library and college were exploring technology and ways of integrating it into operations. In the library, automation was emerging from the embryo stage. A 1988 presentation stated that the library had five Macintoshes and five IBM or IBM compatibles; there was no such thing as a building or even campus-wide network as we recognize them now. Access to LION and the college's mainframe system which hosted e-mail was via

digital modem through the college's PBX system. A small ARCNET Novell network supported the acquisitions management system. In some staff areas, a single desktop computer gave access to e-mail, CD-ROM stations had a small presence in reference, and there was no World Wide Web.

The systems staff primarily supported LION. The most time-intensive task was the twice-weekly backup to nine-track reel-to-reel tape, an operation that took most of the night and was rotated among the systems staff. LION required considerable attention as modules were brought on-line and indexing issues resolved, but there were not many configuration options and there was no significant capability to provide customization. As mentioned, the systems staff had to create, run and print all reports. Someone familiar only with the current generation of library systems might be interested to learn that once a report was printed, it disappeared from the minicomputer and the report had to be rerun if something happened to the original printout.

Administratively, the systems manager reported to the assistant university librarian (AUL) for bibliographic control, as did his predecessor. Interestingly, all three systems librarians, 1984 through the present, have reported to the same person whose position has also evolved from associate university librarian for bibliographic control to assistant university librarian for automation and bibliographic control to associate dean for academic services and automation. This person must be credited for providing the vision and the foundation for automation in the library.

The responsibilities of the systems manager were broadly defined. In addition to managing the technical aspects of the systems office, he:

- participated in short-term and strategic automation planning;
- served on library committees;
- represented the library's automation interests at college, local, and national levels; and
- investigated new technologies and ways to maximize current technologies.

The second systems manager came to Swem with strong technical skills and, as did the first, faced many challenges to fully implement

LION. He also established the systems office as the center for all automation in the library. The traditional, hierarchal departmental structure established at this time is still common to library organizational charts. At the time – late 1980s and early 1990s – this structure worked as well as any. In the next section we will see how the demands of technological advancement caused a larger shift in the role of the systems librarian.

### Changing the expectations (1993-present)

In January 1993 I joined Swem Library. I went through library school when the height of technology was a 300 baud modem and an IBM Selectric terminal, and prior to that I was in the Army. I did not have formal training in library systems work. However, before coming to William and Mary I was at a two year technical college where I chaired a committee to develop a computer plan for that college and subsequently moved from librarian to computer programming instructor and the system administrator of an IBM AS400 server that was used in the instructional area. My duties included teaching both credit classes in computer programming and networking and continuing education classes in software applications and working in the college's user support department. Like many systems librarians of my generation, I was self-taught.

Initially, my duties at William and Mary were a continuation of those of my predecessor, but in 1993 the library was on the threshold of a major technological expansion that would eventually lead to a fundamental shift in the structure of the systems office and the role of the systems librarian. To set the scene, the library was committed to moving to the next generation of library management systems, one using client/server architecture. This would require many changes:

- a complete reevaluation and restructuring of the quantity and application of personal computers within the library;
- new connectivity to the server from within and outside the library; and
- staff understanding of complex computer systems and extensive staff training.

The technological demands on the library would far exceed anything that occurred in the previous ten years.

In retrospect, I can see where the seeds of change were sown with the arrival of new paraprofessional staff in the systems office. To replace the previous paraprofessional staff person, we hired a technician with a master's in computer science. We knew we were moving to a much more sophisticated computing environment and we wanted staff who could meet these demands. Later we upgraded the technician position to a supervisory systems engineer. We were able to get another position and hired a technician who reported to the systems engineer. This new person has an associate degree in computer technology as well as experience from several other information technology jobs.

Between 1993 and 1998 the predicted rush of new technologies occurred:

- a new client/server library management system went live;
- dumb terminals were replaced with PCs;
- the building was wired with category five cable;
- the campus installed a new network backbone;
- the library established a Web site (before the campus!);
- the systems office ran a variety of services on three UNIX servers – LION, the library management system, a Web site, Silver Platter databases, an electronic reserves system, proxy server, e-mail, and a domain name server; and
- Novell servers were replaced with Windows NT servers.

This period also gave rise to a growing need for specialization within the systems office that gave rise to our present structure. Increasingly, my duties centered on the library management system. I attended the vendor's (Sirsi) API class which gave me the training to work at the system level. At the same time, the paraprofessional staff was being trained in networking, Windows NT, and UNIX.

When the systems engineer left in 1998 we redefined the position and, at the same time, upgraded the technician position. I assumed all the UNIX server responsibilities previously

performed by the engineer, and the technician took over networking, PC support, and NT server support. Without actually planning to do so, “specialization creep” set in and I became more removed from the PC side of operations and the lead technician had minimal involvement with the UNIX servers.

The new technician came to us with Microsoft Certified Systems Engineer (MCSE) certification and work experience. We now had two trained and experienced technicians who worked well with minimal supervision. Essentially, we each had our individual specialties but worked together as needed.

In 2001 the Commonwealth of Virginia recognized that it was becoming increasingly difficult for state agencies to retain skilled computer specialists because they could get higher salaries in the private sector. Consequently, a new set of classifications were created with new pay structure more in line with workplace realities. The new system also allowed for greater flexibility to reward paraprofessional (i.e. classified or non-faculty) staff for exemplary work.

Simultaneously, during a yearly evaluation review with the associate dean (AD), the technician pointed out that his skill set was equal to the individual to whom he reported. The AD subsequently asked me what I thought about a team organization for the systems office. After a little thought, I agreed. Basically we were already working as a team within a hierarchical structure. Looking at the skill levels of the two paraprofessional staff it was obvious that they operated with a high degree of autonomy and responsibilities.

This discussion occurred before the Christmas holiday. When we returned in January, the library information technology group – generally referred to as the LIT group – was born with little fanfare. The hardest part of redesignating ourselves a team was coming up with a name; all the good acronyms were already taken by other institutions. The three of us now reported directly to the associate dean and I changed my title on my business card from systems manager to systems librarian. The paraprofessional staff upgrades were finalized and both were now at the same grade level, one comparable with the college’s upper level information technology (IT) staff.

Our last staff change occurred in 2001 when the newest member of the team left. His replacement came to us with MCSE certification, a subject master’s degree, and experience in Web development, a skill that the systems office had been lacking. He has since added to his skills expertise in developing Web-based databases using cold fusion and access. With this newest addition to the team, Swem’s systems team is at its present complement.

### **Conclusions: systems librarian as team member**

Swem Library’s three systems librarians have each served during a different stage in the library’s implementation of computer technology. This technology entered the library world in rapid spurts and often torrents rather than in an orderly fashion. The support this technology requires changed the fundamental nature of systems support in Swem. Given Swem Library’s tradition of maintaining in-house expertise and the complexity of current computer network environments, a team structure for the systems office is a natural result.

The library information team emerged “up” from the needs of the department and was not imposed “down” from the administration. I believe this made the transition smooth for the team members. Perceptions varied amongst other library staff outside the systems office. Some feared that this was the first move to impose a team structure throughout the library and were not entirely convinced that it was our idea. Most did not pay attention to the change since, in operation, it was business as usual. Some wondered if I had been demoted. If ego and feelings of importance are tied to position, shifting a department from a hierarchical to a flat team structure would be difficult for the former department head. In my case, I recognized that the staff reporting to me was equally “professional” in their performance, capabilities, and judgment and that the paraprofessional staff vs the professional librarian role was an artificial distinction in our case. The systems office is still the only department in the library that functions as a

team and where there is not a librarian department head.

The complexity of each team member's job has created a team of individual specialists with some overlap, but a core of skills specific to each. One of the team accurately described us like this:

The Swem Library's systems office works a bit differently than most departments. We are a loose conglomerate of disparate skill sets that mesh into an effective unit. Each of us is aware of the skills the others possess, and take full advantage of that expertise when needed. We are constantly working with one another to upgrade our own skills, while guiding and sharing with the others. This process would not work without a highly motivated, dedicated staff . . .

### **Operational structure of the systems office**

The core of the "disparate skill sets" referred to above break down into primary responsibilities as follows:

- Team member A, paraprofessional staff:
  - Windows 2000 servers – operating system and security.
  - Library building networking.
  - Liaison with college IT network engineers.
  - Building planning.
- Team member B, paraprofessional staff:
  - Web development including Web-based database applications.
  - Proxy server.
  - Liaison with college IT NT engineers.
  - Building planning.
- Team member C, librarian:
  - UNIX server – hardware and operating system.
  - Library management system – maintenance, upgrades, and customization.
  - Liaison with college IT Unix engineers.
  - Manage computer room environmental and security systems.
  - Building planning.

Note that each member of the team participates in building planning. Swem Library is in the third phase of a five-phase building expansion and renovation project, and each member of the team is involved in the challenge of creating a computing/networking infrastructure from the ground up. The centerpiece of this new infrastructure is an information commons – an

increasingly standard feature in new library buildings – in which a large number of disparate technologies will converge into a single space to enhance the computing environment of the College.

A team structure is particularly fitting for this type of project when you take into account the level of detail required just to build the physical infrastructure. The team must plan for the ever-changing implementation of computers and peripherals, wired and wireless networking, workstation furniture, and other yet-to-be-developed technologies. With the ability to delegate specifics of the project plan to individual experts, a better long-term plan can be developed that encompasses the ever-changing needs of the academic community. The team works both with internal library committees and with the college's IT department, which is responsible for installing and maintaining the building network and has a stake in the information commons since, in part, it takes the place of the IT operated computer lab that was previously located in the library. While the entire team works with the physical infrastructure, the senior administrators expect the systems librarian to pay particular attention to the uses of technology in planning the new and renovated buildings.

Several Web-based tools support systems operations:

- Goals/projects database.
- Problems/requests database.
- FAQ database.

The goals/projects database is used for more complex or time-consuming activities. It shows the priority given the project, expected date of completion, responsible team member(s), and details of the project. This is an organizational tool that, among other things, ensures that a project does not get "lost."

To support daily operations, the team uses a problem reporting form that writes requests to a database. When a request is submitted, an e-mail message is sent to a shared e-mail account. We try to close out requests as soon as they are resolved and update the database entry with the steps taken. A request for general assistance is usually handled by the first team member in a position to respond. In cases

where requests require more specialized expertise (e.g. LION) the responsible team member responds. This is not as casual as it might appear; the members of the system team know when to defer to another on the team.

Each member of the team is responsible for updating Web-based FAQs for supported software. Our goal is for staff to check the FAQs before submitting a problem report. Given the general reluctance of users to read documentation this is likely to be more of a hope than a reality.

Each team member is a liaison to several departments within the library. The goal is for each team member to know the functions and needs of his areas and for each area to have a point of contact within the systems office. The systems librarian also is liaison to the four administratively independent libraries on issues relating to the library management system.

Peer review is the latest team concept implemented in the systems office. Since the paraprofessionals and the librarian are on different evaluation schedules, peer review was first used with the 2002 paraprofessional evaluations. In March 2003, the paraprofessionals will contribute to the evaluation of the systems librarian.

One concept that has not been implemented in the systems team is that of team leader. Currently the associate dean fills that role, but it is entirely staff-driven. The role of team leader is open to any team member who desires it. In our environment it does not seem to matter that the team leader is not directly involved with work of the office. Rather, she is a facilitator who smoothes the way where needed and represents systems issues to the library administration.

### **The role of the systems librarian**

In most respects, the position of systems librarian at the College of William and Mary is not very different from that of other members of

the library information technology group. He takes the lead in his areas of expertise and “pulls his weight” with respect to user support and the mundane aspects of systems office operations. This latter job responsibility is very different from the prior organizational structure where the library systems manager mostly delegated these tasks to the paraprofessional support staff.

Is there anything that differentiates the systems librarian from the other team members? One fundamental difference is that the systems librarian occupies a professional faculty slot. In an academic setting more often than not the systems librarian (or equivalent job title) will be a tenured or professional faculty. In an informal review of job postings I have collected from discussion groups over several years, I found that 82 per cent of the systems librarian positions required an MLS or equivalent degree from an ALA accredited program.

The expectations of the senior library administrators are a more significant aspect of the position that sets the systems librarian apart from the paraprofessional members of the team. Both the associate dean and the dean of university libraries view the systems librarian as a librarian/technician hybrid who understands the need for information, how it is offered, retrieved, and shared as well as the technical side of processing information. The systems librarian understands the cultures of library and technology and merges the two to help keep the library moving forward.

Looking back at the history of librarians in the systems office at William and Mary it is obvious that a core responsibility has carried forward while the need for that responsibility has increased in complexity. That core responsibility is to represent the interests of the library in a world where information delivery methods are promulgating at a furious rate, but often without an underlying philosophy that considers the use and user of the information.