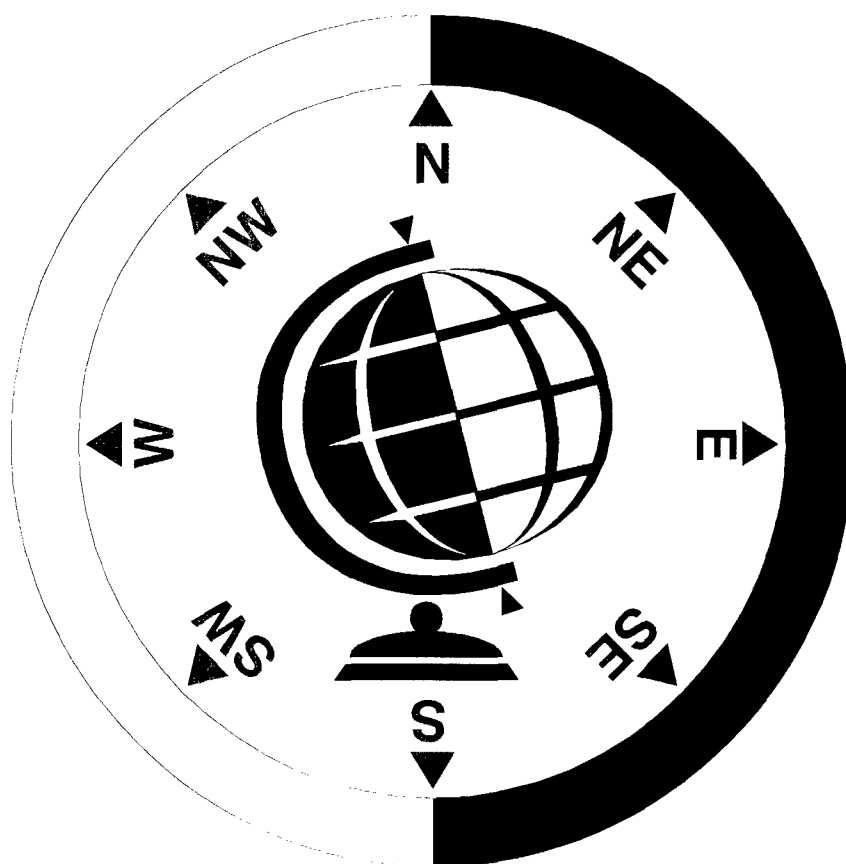# Change and Continuity in Librarianship: Approaching the Twenty-first Century

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20-22 November 1996
Annapolis, Maryland

Change and Continuity in Librarianship:
Approaching the Twenty-first Century

Edited by

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The Fortieth Military Librarians Workshop was held in Annapolis, Maryland, at the Wyndham Garden Hotel on 20-22 November 1996. The theme was Change and Continuity in Librarianship: Approaching to Twenty-first Century. The program featured speakers Walt Crawford (Keynote), speaking on "Millennial Librarianship;" Dr. Keith Swigger, Dean of the Graduate School of Library and Information Studies at Texas Woman's University, on education for librarianship; Barbara Winters, Wright State University, and Arnold Hirshon, Lehigh University, on outsourcing; Wayne Kelly, U.S. Superintendent of Documents, on government documents in an electronic age; and LT General Paul Van Riper on the "new sciences;" plus nineteen other presentations, including updates from FEDLINK and annual reports from librarians representing the three military services.

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TABLE OF CONTENTS

Introduction

by

Richard Hume Werking
Librarian
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This volume contains the papers and other presentations delivered to the fortieth Military Librarians Workshop.   Since 1957 the Military Librarians Workshop has been offered annually, under the auspices of the Military Libraries Division, Special Libraries Association. This fortieth annual conference was sponsored by the Nimitz Library, U. S. Naval Academy, and was held in Annapolis, Maryland , November 19-22, 1996.   In addition to the twenty-one speakers, I would like to thank my fellow members of the Program Committee (Pearce Grove, Bob Lane, Janet Scheitl, and co-chairs Kay Miller and Katharine Wallace), as well as the co-chairs of the Planning Committee (Larry Clemens, and Barbara Yoakum), for their many contributions to the success of the conference.

Slightly more than half of the papers were submitted originally in written form and on an accompanying computer disk, many of them soon after the conference. The others were transcribed from audiotape by Karen Rhoades of Office Resources; these drafts were then shared with the presenters and revised accordingly.

I especially appreciate the many hours contributed by Josephine D. Perkins, the Nimitz Library's administrative secretary. She oversaw the publication effort whereby more than twenty papers were consolidated into a single, massive database, from which this volume emerged. Her patience and good humor sustained us both through many months and many drafts.

Millennial Librarianship:
Maintaining the Mix and Avoiding the Hype

by

Walt Crawford
Senior Analyst
Research Libraries Group

Abstract: The libraries of the twenty-first century will evolve from today's libraries, if sensible librarians cope with change while avoiding simplistic prophecies of the all-digital millennium. The mix of media and resources has been changing in libraries for decades, and will continue to change, but there is every reason to doubt that such change will be cataclysmic or that print will suddenly leave the mix. Despite continued hype from self-proclaimed futurists, the turn of the century should not see a massive or sudden discontinuity in what you do and how you do it.

INTRODUCTION

Millennial librarianship. What a grand concept: libraries for the new millennium. We can conjure up vast and wonderful schemes for that distant future—or, rather, we could have if this were the 20th or 30th Military Librarians Workshop!

At this point, however, the new millennium is either 37 or 49 months away, depending on your assertions about the nonexistent Year Zero. I think it's safe to say that millennial librarianship will be very much like today's librarianship, at least for the first few years.

Oddly enough, there are still those who predict vast, even cataclysmic changes over the next few years—and there must be quite a few who are surprised and disappointed that those changes haven't already happened.

I have three major themes today. First, to clear the air for the evolutionary libraries of the twenty-first century, I'll spend some time deconstructing the revolutionary all-digital library, and add some notes on future myths and futurists. Second, some comments on the changing mix of media, collections and resources will include notes on retaining the traditional values of librarianship. Finally, I have a set of somewhat random notes on the millennial librarian: some qualities I consider important for working your way through the decades to come.

DECONSTRUCTING THE ALL-DIGITAL LIBRARY

Will there be physical libraries in the twenty-first century? Certainly—as long as there are physical campuses in the twenty-first century, and it's hard to imagine those all going away in five short years. What will those libraries look like, and how will they function? In my opinion, a lot like today's, but also quite a bit different, more so as the century progresses. To simplify rather a lot, the libraries of 2026 may resemble those of today as much as those of today resemble those of 1966.

Now think about *your* library in 1966. Consider the services you offer today that weren't feasible in 1966. Consider your ability to provide access to collections far in excess of your own; consider the depth of article-level access to many of the journals in your collections; consider the balance of media and methods in 1966 as compared to 1996.

What's changed in the past three decades? Almost everything and, in some ways, almost nothing. Looking back, you could say that a typical library has undergone revolutionary change in the past three decades, fueled by computers of all sorts, ever-growing cooperative entities, changes in resources, and changes in needs. But it was a slow revolution, consisting of many evolutionary steps and more than a few mistakes along the way. And it was a revolution that affected each academic library differently.

When you look back at 1996 thirty years hence, you will find changes so substantial that they could be called revolutionary—but you will find the basics much the same as they are now, for the simple reason that they work. But that's not what we've been told, by leaders within librarianship as well as by outside prophets. We've been assured that the all-digital library—or, rather, the virtual library—will be with us any day now. Indeed, based on projections of the 1980s, it should be here already: print—that is, print on paper—should already be nearly dead.

What seems to have happened is that a set of assumptions grew over the past two decades or more, based on faulty assumptions about the future and nourished by technological dreams and fantasies. We're now in the position of overcoming some 20 years of nonsense, even while a number of futurists continue to spout the nonsense.

The Mythical PowerPoint Slide

Sometimes, deliberate falsehood can bring out truth. So I'm going to start with an extended lie: a scenario that never happened. There was no single meeting at which all the great library minds concluded that the future should be all digital, and there certainly was no PowerPoint presentation to argue that conclusion. For one thing, PowerPoint didn't exist 20 years ago; for another, these assumptions grew over years of discussions, articles, and speeches.

But let's say there was such a meeting, somewhere between 1976 and 1985, involving all the top people in the library and library school fields. At this meeting, a great guru of libraries and technology presented the following argument, as a slowly building and absolutely compelling PowerPoint presentation. You can imagine the bullets sweeping onto the screen accompanied by suitable fireworks and music....

Here's the primary screen:

- **When** reading from digital devices comes to be as good as or better than reading from print (that is, at least as comfortable, effective, and fast), and
- **When** digital reading and storage devices are omnipresent, and
- **When** digital distribution replaces print publishing for all new materials because it's cheaper, faster, and better, and
- **When** all existing library materials are converted to digital form, and
- **When** digital communications facilities are so fast and inexpensive that transmission of publication equivalents is essentially instantaneous and free, and
- **When** digital finding tools are so good that students and faculty will naturally do all their own locational work, and
- **Given** that publishers won't stand in the way of institutions making single purchased or converted publications simultaneously available throughout the institution, nation, or world, **then:**
- Libraries will and must convert to digital distribution as a more effective way to carry out their missions.

Well, that all makes pretty good sense—although I would argue that most of those "whens" should be "ifs." Actually, in the early days, some of them probably **were** stated as "ifs."

But then two things happened, over a period of years:

1. The "ifs" became "whens," but more importantly
2. People remembered the conclusion without remembering all the premises.

Oversimplification? Of course. But in a very real sense, that process explains how the all-digital future became a common assumption among library people.

It's useful to remember that these assumptions grew during the 1970s and early 1980s, which were remarkable times for libraries and technology. Those were growth years, when everything seemed possible and everything desirable seemed almost inevitable. Barriers of money and technology were scarcely barriers at all. Technology would lower the money barriers, and grant or government funding would take care of the rest.

The Great Technological Handwave and Inevitability

One trend began in the eighties and has continued far beyond its useful life. That is the great technological handwave—the futurist's response to any shortcomings in technology, any unmet needs, anything that's lacking. When you hear, for example, "we can confidently project that such devices will be commonplace in the next two years," you're hearing the great technological handwave. Flat screens with better resolution and readability? Two years from whenever you ask. High-speed interactive communication for every household? Well before the end of the century. And so on...

The great technological handwave turns all those "ifs" into "whens," and turns all the "whens" into "just a couple more years." The great technological handwave also rejects budgetary arguments, since as we all know technology just keeps getting cheaper and cheaper until it's essentially free. I'll get back to "essentially free" in a little while.

The cousin of the great technological handwave is that magic word "inevitable." The great digital convergence? Inevitable. The death of print? Inevitable. Which is another way of saying, "you probably won't like this, and I can't make a compelling case." If the case is strong, the I-word is pointless. These days, inevitability is invoked whenever one questions the common assumptions of the past; what once was desirable is now inevitable. When you hear "inevitable," substitute, say, "rowrbazzle." It means just about as much, and it's more fun to say.

As for the great technological handwave? Understand that technological improvement is neither smooth nor entirely predictable, and that even vastly-improved tools rarely catch hold immediately. Unless you really did fly to Annapolis in your personal helicopter from your solar-powered household, or sat back as your car drove itself on today's digitally-controlled freeways, you would do well to treat the great technological handwave with a smile and deep distrust.

Deconstructing Inevitability

What happens if the premises arguing for library conversion to digital means fail? Logically, if the premises are invalid, then the conclusion is false. So we must either validate each premise or conclude that the premise really isn't necessary; otherwise, the argument for converting to digital libraries is wrong. Let's look at these inevitabilities in a little more detail.

Reading from Digital Devices

One absolute article of faith in the 1970s, 1980s and early 1990s was that the DynaBook, or its equivalent, was just around the corner. This device would offer better readability than a book, better ease of navigation than a book, sufficiently light weight and high battery life that it is as portable as a book, and rapid replacement of contents so that it functions as a universal book. Every projection I've seen would have such a device on the market by now, at an extremely modest price.

It didn't happen, and there's every reason to believe that it won't. Reading from digital devices, whether portable or desktop, suffers in several areas—among them light, resolution, speed, and impact—and there has been essentially no improvement in any of these areas in the last five years.

Many futurists have conceded this point; they now admit that people will print out anything longer than 500 words or so. It's just too hard to read from a computer, and it doesn't seem likely to get a lot easier. And if every long text is printed out, there are enormous economic and ecological disadvantages to the all-digital library.
Strike one.

Omnipresent Electronics

What ever happened to Sony's BookMan, their portable digital book? What ever happened to DynaBook? Why aren't we all using Personal Digital Assistants?

The answers are complex, but the overall situation is clear. The PDAs being produced today and designed for tomorrow can't possibly function as book replacements: the screens are small, hard to read, and awkward to navigate for lengthy text. It's increasingly clear that the public as a whole has no need for or interest in such devices.

Two-thirds of adult Americans, and a higher percentage of children, use their public libraries. Roughly two-thirds of adult Americans purchased books last year. I'd guess that an even higher percentage reads magazines or newspapers. Is it possible that electronic tablets could achieve such ubiquity in the next few years—or even the next couple of decades? I doubt it.
Strike two.

The Death of Print

We've heard about the death of print for years now, too often from within our own field. While print has been dying, the publishing industry has been growing. More books are being published and purchased, more magazines circulate more copies, more revenue makes a substantial industry even larger.

We're now almost through a five-year period in which, according to one academic library expert, "the market for information printed on paper can be anticipated to shrink by 50 percent." Well, since it's a good deal larger now than it was in 1992, 1996 should be one astonishing year—the print market will have to shrink by some 60 percent in a single year. Actually, since we're almost through the year, with no news of any grand shrinkage, it's already too late.

Print publishing is actually several related industries, and most of them are healthy and growing. For a variety of reasons, not the least being people's preferences, I don't see that changing for the reasonable future. Publishers don't spend much time talking about the death of print any more; that was last decade's news. Sure, they want to be in the new markets that complement print, but they know print isn't going away.

Strike three, if you're counting—but this is real (or virtual) life, not a baseball game. We have four more "whens" to deal with.

Universal Conversion

When will all existing library materials be converted to digital form? Not in my lifetime, probably not in yours, and quite likely never. The task is too big and too expensive, and the reward keeps diminishing. In *Future Libraries: Dreams, Madness, and Reality,* Michael Gorman and I deal with conversion questions in some detail. The expensive digital conversion efforts being mounted by the Library of Congress and a cluster of university libraries provide a strong indication of what's happening. To wit, *collections* of material will be digitized, specifically material that can't be made available otherwise: unique photographs, manuscripts, brittle books of unique importance, and the like. RLG is involved in such efforts, as are many others.

These projects will yield digital collections that enhance and extend libraries. They will not yield digital libraries, and there's no indication that such efforts would ever scale up to complete conversion.

As far as I can tell, the Library of Congress will continue to acquire new print materials much faster than it digitizes old ones. If anyone still has universal conversion as a goal—which I doubt—then we're moving backwards.

Strike four—unless you're one of those who believes that all publications have half-lives, and that anything more than ten or fifteen years old is worthless anyway.

Digital Communications

We come now to the fifth "when," and it's a doozy: when communications are essentially free and with unlimited bandwidth....

Who's providing those unlimited pipelines? Who's paying for the technical support to keep them operational? Where did we ever come up with such nonsense as "essentially free"?

Here's the truth: "Essentially free" is another way of saying "phenomenally expensive, but the incremental cost becomes small." Yes, a $2,500 PC purchased today is some 75 times as powerful as the $2,500 PC of 1986—but that doesn't mean you can buy a useful PC for $50! Technology doesn't work that way; increased performance for a price doesn't mean that prices keep going down for acceptable performance.

"Essentially free" is a technological handwave. It's always wrong. If it is possible to build an international network that could actually provide everyone with universal video-speed communications capabilities, from any point to any point, it would probably cost hundreds of billions of dollars—and as projections of the possible revenue become more realistic, the will to spend that money vanishes. "Essentially free" is essentially nonsense.

We're up to **strike five**, if you're still counting.

Digital Finding Aids and Disintermediation

The penultimate precursor to all-digital libraries is a particularly nasty one: the idea that everyone will be his or her own reference librarian, thanks partly to the superb improvements in digital finding tools. The term is disintermediation, and it's one of the most dystopian ideas I know of.

What a terrible future, and what an insult to professional librarians. Of course, lots of people will do lots of their own research. They always have, they do now, why should it be different in the future? But to suggest that reference librarianship is passé is to suggest two things:

- First, that reference librarianship is no more of a professional skill than wiring a lamp or changing oil in a car—that it's something anyone can do with no real training, and

- Second, that skilled research is something that everyone *wants* to do, enough so that they will not only gain the skills but retain them.

Both suggestions are nonsense. If anything, online resources—and especially the Web—require more skillful reference work than do traditional resources. I would expect there to be more need for professional reference work in the future. One particularly difficult aspect of today's public service is convincing people to go beyond the flash of CD-ROM and online sources, and helping them understand *which* resources make sense for their needs.

In well-funded libraries with large clusters of PCS and terminals, we might even see a future in which roving reference librarians, and unusually well-trained support staff, offer on-the-spot research advice and assistance to users, not waiting for them to approach a reference desk. Such roving librarians could serve as the critical first stage in multilevel reference work.

I am especially pained when I read articles or hear talks supporting the idea of disintermediation, and the need for librarians to help users become their own wholly independent researchers. Somehow, I doubt that plumbing or electrical conventions have a lot of speeches about the need to teach everyone to do their own plumbing or electrical work. Is quality reference work really that much less professional than good plumbing and electrical work?

8

As to the quality of digital finding tools, well, that's clearly a mixed bag and likely to remain so. I'll have a little more to say about that later. Oh yes: **strike six**, for what it's worth.

Publishers and Rights

Finally, there's that crucial "given": that digital resources won't raise new issues for rights, payment, and so on. Once you buy a book or something else, you can lend it out as often as you'd like, with no further payment required. Better yet, with digitized materials, many people can read or use the item simultaneously—what a cost savings!

But it won't happen that way. The Association of American Publishers, for one, has made it clear that their view of digital resources in libraries is strictly pay per view, with libraries essentially serving as distributors for the publishers.

To some extent, the publishers' attitude is absolutely justified. It's unreasonable to expect publishers to survive—or the editorial, acquisition, publicity, and other publishing functions to continue—if they face the possibility of a single copy being sold, then distributed universally. For that matter, what non-academic author will write if the total compensation is royalty on a single copy?

Unfortunately, it's not a sufficient answer to say that digital resources can be made available with simultaneous user restrictions, so that only one reader can use them at a time. For online indexes, that methodology makes perfect sense; it's how RLG typically sells Eureka and Zephyr services, for example.

But what does single-use mean for digital book replacements, where the user will probably read from print? The single-use restriction lasts long enough for a reader to download the file; then another user can happily download it while the first is printing it locally. The net effect is still publication without repeat sales.

What the publishers want is a hefty fee each time the file is touched or downloaded or examined to any real extent. Is that unreasonable? Perhaps not: when you add the cost of printing to the download fee, the end-user's cost is likely to be comparable to what he or she would pay to buy the item now. But for the library, as compared to any circulating or reference collection, it's a terrible idea.

Publishers have accepted (if not always graciously) the idea that one copy of a book will be read *sequentially* by quite a few different people. They produce mass-market paperbacks to encourage people to buy copies of some books, at a price less than that of photocopying a library book and yielding a much more convenient (and legal) product. This continuing balance has worked to the mutual benefit of publishers and libraries.

In a digital age, things will be different—and I see no likelihood that the differences will favor libraries. Publishers issue papers calling for cooperation with libraries, but only on publishers' terms. And, I say again, those terms are at least partly reasonable.

Well, that's the last of the seven premises leading up to the inevitability of all-digital libraries. Do such libraries still seem inevitable, in the foreseeable future? Not to me.

Who's Responsible?

If the all-digital library as a near-term certainly doesn't seem to make much sense, then why do we still hear voices calling for virtuality? I can offer a few hints, although certainly no answers.

Within the library community, there are still a number of library school faculty and others who bought into the joys of the digital library years ago, and who have never recanted or even reconsidered. I'm encouraged by the increasing recognition that an all-digital future may not be either desirable or certain, but there are still those who see it as both.

There are also, to be sure, the professional futurists—in particular a group of writers who seem to read each other's stuff and essentially refine each other's ill-supported assertions. Such futurists tend to be masters of the technological handwave; they are also typically simplifiers, reducing life to a few key factors that they consider important.

There's another group of people who can't give up the all-digital dream: the techno junkies, those addicted to new technology and all its wonders. It's loads of fun to talk about technolust, but I'll say no more about these sad victims of changing times.

Closing the Slide

That's probably too much time spent debunking a mythical presentation. While the presentation was never quite as simple as the eight points raised here, I believe that the history is fundamentally correct. Librarians have come to believe that libraries should, will, and must move rapidly to convert to all-digital means, based on a set of premises that was always optimistic and simplistic. Those premises now appear to be fundamentally unsound. Given unsound premises, the conclusion also appears unsound.

These dreams of the future were dreams, and they posited a simplified future that makes little sense. We must move beyond simplistic dreams to complex realities. But first, let's look at two more myths that confound rational library planning.

Future Myths

It's expedient to use shorthand, to simplify situations and use up-to-date jargon. It can also be dangerous. The danger of "virtual libraries" as a term is that people with money tend to assume that such libraries have no real costs, and certainly no real staff.

Words matter. Subtle distinctions matter. With those comments in mind, here are two more contemporary myths.

Information Wants to be Free

Take away the cost of distribution—and, as already mentioned, that will become "essentially free"—and information becomes so cheap as to be, well, free. Where did this one come from? From the writers who turn raw data into useful information and knowledge, but do so on a strictly volunteer basis? From the editors who refine that writing out of the goodness of their hearts? From the librarians who spend evenings organizing and making sense of information—while presumably earning livings flipping burgers, along with all the writers and editors?

In fact, digital distribution isn't even free or close to it—and, in a mixed economy (as opposed to a socialist state), nobody's giving us all a living so that we can spend our time freely massaging free information. Organized data, information, knowledge: these things simply do not "want to be free," not if people want to eat.

Universal Self-Publishing as a Grand Solution

There's another Web-related myth, or perhaps it's the realization of a bizarre dream that some scholars and people who should know better have had. With the Web and the Internet, we're all publishers; the Web is, in essence, the world's largest experiment in self-publishing. At last, authors can be free of all that stifling editorial interference and gatekeeping from editors and publishers. Isn't it wonderful?

My hope is that a couple more years of Web activity will show people the virtues of editors and publishers. Gatekeepers are there for a reason, and that reason isn't that books and magazines cost so much to publish. Remember Sturgeon's Law: 90% of everything is crap. Then remember that Sturgeon's Law applies to *published* material. If you figure that at least 50 to 75% of written material doesn't get published, you're up to 95 to 98% garbage on the Web—which, actually, sounds about right.

If there really does prove to be a substantial Web-using population willing to pay for good quality, which is a possibility, then I think there will be real markets for Web editors: people who make livings by selecting sites or rewriting material for coherence and clarity. I might find such a job interesting—but for now, I won't quit my day job.

THE CHANGING MIX

So much for the all-digital library and the myths that feed the revolution. While the revolution may be a myth, change is the reality for any vital library—in the future as much as in the past. Let's spend a few minutes on the changing mix of media, collections, and resources.

New Media and Old

When all you have is a hammer, everything looks like a nail. When all we had was print on paper, everything that needed publication looked like a book, magazine or pamphlet. Think of CD-ROMs as drills and online distribution as saws. They increase the toolkit; they provide newer and sometimes better ways to get things done.

But when you add a drill and a saw to your toolkit at home, you generally don't throw away the hammer. There are still things to be pounded and cases where nails provide the best finishing touch. And so it is with print on paper.

CD-ROM and online distribution represent many possible media; as the all-digital futurists preach, bits are malleable. That means that digital media and distribution can be effective in many areas, perhaps even solving problems we didn't know we had. It does not mean they are equally effective in all areas. One crucial step toward arriving at common ground for the future is to differentiate among print publications, recognizing those where digital methods would in fact be superior. There are many such cases; in the grand scheme of things, including parts and reference manuals and all the other stuff outside mainstream publishing, such items may represent the majority of what takes up paper.

But be clear about this: moving submarine manuals to CD-ROM and insurance files to optical disk has no effect whatsoever on the book, magazine, and newspaper industries—except the beneficial one of reducing excess demand for paper, thus possibly bringing down the price.

Electronic distribution *should* displace print in some areas, just as it has for many print indexes. When material is best dealt with on the single-line or single-paragraph level, when the body of stuff to be dealt with is enormous compared to the individual usefulness, then CD-ROM makes more sense than paper and online may be the best choice in some cases. In general, however, we can assume that electronic distribution and digital publishing will complement print, making their marks as new media—just as each new medium has done in the past.

With relatively few exceptions, new technologies complement older ones, displacing them over time and to the extent that the new technologies offer clear advantages. When it comes to communications, that's especially true. Print did not destroy the oral tradition, although it extended its reach. Radio news did not destroy newspapers. Even though television has apparently hurt newspaper circulation to some extent, there are still many profitable newspapers. Neither did television destroy radio, which is more popular now than ever—although it did change radio's direction. Television and home video surely changed the motion picture business—but in complex ways still not fully understood, and ways that have not destroyed the motion picture industry by any means.

Combined Media & Resources

Some folks will say that the Internet—and especially the Web—make CD-ROM and its cousins purely interim media. Soon, very soon, we'll just download whatever we need whenever we need it.

Maybe someday, but there are good reasons to believe that this future just won't pan out. More likely, at least for the next years and decades, are hybrid media: ways to take advantage of the best of different media.

Go into the computer section of any bookstore, and you'll see one current hybrid medium: books with CD-ROMs attached to the back jacket. You'll even see some of those in other departments. It's a particularly good combination when a book can be enhanced by examples in digital form. These days, I'd expect to see more books about music that have audio CDS on the back jacket, just as several audio and music magazines come with audio CDS.

The newest hybrid medium is the online-CD hybrid. For example, Microsoft Encarta and Compton's Interactive Encyclopedia work perfectly well as school-level CD-ROM encyclopedias. But each one also offers users the opportunity to get newer information, by clicking from an article to a related Internet site. Those are only two examples; others are emerging fairly rapidly.

13

It can work both ways. Some commercial online services are becoming CD-ROM based, with the bandwidth-intensive graphics distributed on disc to support the online interaction. Again, this is a sensible combination. CD-ROMs cost very little to produce and distribute—figure 60 cents per disc and 32 cents postage, once you exceed a few thousand copies. A full CD-ROM contains 660MB of data: that's the equivalent of roughly 60 hours of continuous downloading at 28.8 kbps.

Cliff Lynch said it years ago: never underestimate the bandwidth of a 747 full of CD-ROMs. And for those of you trying to get your e-mail or telnet to another computer, every megabyte that a Web user retrieves from CD-ROM is a megabyte that doesn't use Internet bandwidth over and over again.

In a future of many media and resources, such combinations make sense both short-term and long-term. They do pose some tricky issues for libraries, but these can be overcome.

Collections and Resources

As should be clear by now, I see a future of multiple media, many kinds of users, and many needs: a future of print, video, CD-ROM, audio, digital information, and probably more to come. There are no easy rules or guidelines for surviving this complex and unpredictable future. Flexibility is vital. Any new building must allow for flexible communications and wiring, with ducts to serve future wiring needs and with the recognition that new media and technologies will sit alongside present media and technologies.

One critical step (for those few libraries not already involved in this area) is to build and maintain an ongoing watch over the balance between collection and access. No universal rules or ratios make sense. I have no suggestions as to appropriate ratios. My suggestion here is that this balance should be considered as an ongoing dynamic—and that the balance should be maintained based on the resources of your own area and the needs of your own users, not on some supposed target for all "libraries of the future."

THE MILLENNIAL LIBRARIAN

In *Future Libraries,* Michael Gorman and I summarize the mission of libraries in the phrase "to serve and preserve." The tasks before you librarians are to serve and preserve, but also to build the libraries that will carry out those tasks in the future.

Appreciating People

Millennial librarians must continue to pay attention to the most important aspect of library service: people. People have preferences, and the history of technological innovation shows clearly that people's preferences matter. People don't all have the same preferences, and many of us take some pride in maintaining individuality.

If people's preferences and individuality didn't matter, there would only be one television channel, watched entirely on one kind of television set; there would only be one brand of frozen food; there would only be one detergent; and there would only be one national newspaper. We would all read *Weekly World News* before getting in our Chevrolets—because there would only be one kind of car as well.

I'm sure there are a few addled futurists who really do prefer to read lengthy texts from the screen—but there aren't many of them, and these are people who really do think that viewing an art collection on CD-ROM is somehow better than going to a museum. They do not represent most people's needs, tastes, income, or buying patterns.

The presence of people also explains why most new media complement older ones, finding their own niches rather than wiping out what went before. People don't usually change drastically or rapidly, especially if there's no compelling reason to do so. And why should they?

Using What's Best; Using What's Wanted

Libraries should use whatever medium or resource is best—best for the library's needs, best for the resources themselves, and best for the users' preferences. For the foreseeable future, that means a mix with print collections as a major, perhaps the major, element. It also means a mix that includes library-owned sound recordings, library-owned video in some form, library-owned digital publications, and a changing set of remote resources. It means extending the local collection through local and regional resource-sharing agreements; it means acquiring certain items "just in time"; and it means providing access online where local collections won't do the job. The mix will be changing as long as there are changing local needs and changing media—but it will continue to be a mix, since no single solution will work.

Numeracy and Common Sense

The strongest weapons against nonsense are common sense, numeracy and literacy, research, and analysis. Every librarian should be numerate, able to deal with numbers in the real world; a remarkable amount of futurist nonsense falls apart when ordinary numeracy is applied. Who better to combat nonsense with research and analysis than librarians? First, apply some common sense. If a projection sounds absurd, assume that it is—and look for the problems with the projection.

Sometimes, they're obvious. Any time you see a projected growth pattern that keeps ascending indefinitely, or that shows a constantly increasing upward slope, you can assume it's nonsense. Curves for development and acceptance of technology are almost always S-curves: a modest beginning, an inflection to a fairly steep growth (depending on the technology) and, sooner or later, a second inflection. That second inflection *always* happens: otherwise, we'd all be up to our eyeballs in hula hoops, CB radios, digital watches, and what have you.

The second inflection can be moderate—as in personal computers, where sales are still growing at surprising rates. It can be typical, moving to a flat or slightly declining curve, when a market becomes fairly saturated—as in television sets or automobiles, where most new sales are replacements. Or, unfortunately for some developers, it can change to a slow or rapid decline—and, as Atari found out and other game manufacturers may find out soon, a declining curve can become a rapid free-fall. Seen many eight-track tapes lately?

Think things through. Sense will always defeat nonsense if it is applied consistently, creatively, and intelligently.

Continued Change

Remember "paradigm shift", that great catch-phrase of the early 1990s? Remember the group of library leaders, many of them our best and brightest, who spent a couple of years discussing the need for a new paradigm for librarianship? That discussion faded away, oddly enough merging into an ongoing (and enervating) discussion of the future of library schools.

As an observer, I was bemused by the way many people thought about a paradigm shift. To some, it was a wonderful and simplifying thing. We'd jump from *here*—what libraries and librarians have been—to *there*—what was needed for the new century. That's it: you're part of the new paradigm. Oh good, now we can stop worrying about change.

That's nonsense, of course. All good librarians will be learning throughout their careers, and all good libraries will continue to change. That's a paradigm you can live with. It's also the paradigm for the present as well as the future. If you can't cope with change, you don't belong in this field—but then, how have you coped with the last two or three decades?

CONCLUSION

Any thoughtful observer will say that electronic distribution of information will be used more in the future than it was in the past, but that does not suggest that books will or should cease to be published or read. For that matter, diverse electronic distribution makes more sense than the idea that you always fetch things over one big network whenever you want them. CD-ROM and other digital publications make useful additions to the diverse ways that libraries serve their patrons.

So do microfiche and microfilm (with their abundant limitations); so do videocassettes, videodiscs, compact discs, print magazines, and books. So do online searches—of the national bibliographic database, of commercial databases and of Internet resources.

Tomorrow's libraries will evolve from today's well-managed libraries, using ever-improving technology to support traditional service values. These extended libraries will be much stronger thanks to an evolving mix of media, technology, collections, and access. I call it evolution, but the long-range effects may look revolutionary.

Education for an Ancient Profession
in the
Twenty-first Century

by

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INTRODUCTION

I am pleased to be with you today, and I'm grateful to you for the invitation to speak about our professions: your profession as librarians and mine as an educator of professionals. The theme of your conference, "Continuity and Change," is a good description of what I think about most days when I head for the office: what should we continue today, and what should we change? I appreciate the opportunity to share my approach to that pair of questions.

The first thing I want to say is that we should temper our excitement about the advent of a new century, and a new millennium, as we in the West count time, with the recognition that librarianship is an ancient profession. Libraries may have existed as long as 5,000 years ago, and librarianship is certainly at least 2,400 years old. When we think about the future, it's useful to think about the past, too, and to ask ourselves, why have libraries and librarianship lasted?

The usual answer to the question is that the history of libraries is tied to the book, in some form, whether papyrus scroll, vellum codex, or mass printed paperback. Now that print, especially books and journals, is dead or dying, the argument goes, librarianship is in the same morbid state. Our discussions often focus on how near death the book is as a useful technology and how quickly e-stuff (the electronic virtual cyber stuff) will supplant it. Many librarians have bought into that argument and its premises -- after all, many became librarians because they loved books, so even many librarians think of librarianship as a bookish profession.

But as someone who once considered himself a historian, I find it difficult to accept monocausality in human affairs. I concede that librarianship is shaped in part by technology, including the technology of print. I recognize that every technology creates its own class of experts, and that the expertise related to creation, publication, and dissemination of print is quite different from the expertise related to electronic systems. But librarianship has been driven by more than the technology of information. Librarianship is not just about technology. It is about social design to exploit the benefits of technology.

FOUR SOCIAL PRINCIPLES UNDERLYING LIBRARIANSHIP

Librarianship has become ancient because libraries and librarianship are based on social principles that work. These are not laws of librarianship; they are principles that librarianship has observed and embodied. They are sensible, not only to librarians but to those who support libraries. And, as you must always remember, the supporters of libraries are not librarians, just as I must always remember that the supporters of higher education are not faculty or students.

These are the principles underlying librarianship:

1. Human knowledge is cumulative and must be preserved from generation to generation.

Or, as Patrick Wilson said, "Experience teaches, but not much." [1] We learn much more from the recorded experiences and ideas and imaginations of others than we could possibly learn on our own. Even preliterate societies recognized this principle, which they made operational through storytelling and ritual.

2. Sharing is good social policy.

Sharing is too sensible an idea not to be observed, in every society. The most valuable resources are most effectively and efficiently used when shared. Few societies allow individuals to hoard essential resources. Whether sharing takes place in a full polity, as in the case of highways, public libraries and parks, or within private organizations, such as law firm libraries or corporate research laboratories, the managers of societies at various levels recognize the value of sharing resources. There are many examples: in the 1980s, computing company competitors got together to create the High Sierra standard for CDROM, which enabled a whole new realm of information and entertainment technology; more recently, the computer manufacturers have worked together on standards for the Universal Serial Bus. The shared resource in these cases is an abstraction: a standard.

3. Intellectual commerce is a good thing.

It would be exaggeration to say most societies believe intellectual freedom is a good thing -- that would be an overstatement even for American political society, where the principle is constantly disputed. But intellectual commerce -- the exchange of ideas and methods, openness to new thinking (whether freely or for sale) -- is universally seen as a valid principle. Even major capitalist competitors recognize the principle.

4. Organized effort is more productive than the sum of individual effort.

Societies use formal agencies to accomplish their purposes, bringing together the talents and energies of sets of people to accomplish tasks that individuals alone cannot perform. Synergy was recognized and valued long before the word was created.

In sum . . . .

These four principles are not the only principles on which librarianship relies. But they do explain the persistence of libraries and librarianship across the centuries. Librarianship provides a coherence among these principles. The principles are operationalized in other professions, institutions, and activities as well. What is unique about librarianship is the selection of a set of social principles that cohere therein. Given these principles, librarianship is a logical profession for any time. The specific forms librarianship takes, the details of its practice, do vary from setting to setting.

DIFFERENT SHAPES, DIFFERENT SONGS

In the new settings of the next century, librarianship will evolve, clearly. These principles which called librarianship into being are not likely to change. My purpose today is to discuss with you some of the factors that will give specific shapes to education for American librarianship in the future.

Notice I said "shapes," not "shape." Johnny Carson (whom some of you older folks may remember as the predecessor to Jay Leno) used to perform a standard bit, in which he reported "News from the Future." One of his news items was a report that, "Musicologists in the year 2020 discovered that all of country music is just one song."

For a long time, library education has been pressured to be one song.

The pressure is still there, but we library educators have already begun making different choices in new conditions and we have begun approaching new opportunities in individual ways. We've stopped singing the same song because we interpret the contexts of professional education differently for our own local circumstances.

20

THE CONTEXTS OF UNIVERSITY-BASED LIBRARY EDUCATION:
A DEAN'S PERSPECTIVE

The main contexts in which library education exists are the professions, the university, the libraries' publics, and technology.

1. The Professions

The themes and issues in the professions that will affect education for librarianship are these:

* the ongoing tensions between educators and practitioners;
* the levels of educational needs in the profession;
* the role of the professions in managing their own education ;
* the emergence of new professions .

Ongoing tensions between educators and practitioners

There is a traditional tension, sometimes suspiciousness, between educators and practitioners. Practitioners often see educators as too oriented toward theory, while educators often think practitioners take only the short view of things. Each camp sees the other as lagging: educators often see practitioners as behind in theory, librarians often see educators as out of touch with practice. Interestingly, as the rate of technological change has accelerated, it is now often the case that professors and their students are technologically ahead of what is happening in practice. Some of our graduates complain they can't use the technological skills they learned in library school because their employers haven't adopted new electronic tools. The tension between professional education and professional practice is healthy, and it is not likely to go away. It is the source of useful discussion about what should be taught, to whom, and in what formats. We are each other's best critics, in an ongoing, fruitful dialog.

Levels of educational needs in the profession

Talk about the profession's educational needs is centered mostly on the education of entry-level librarians. We generally agree that the appropriate credential is an M.L.S. that is accredited by the American Library Association.

The question often posed is, what are the essential competencies for a librarian? There have been hundreds of articles written on this topic in the last twenty years. The profession has tried to force conformity on the library schools through the ALA standards for accreditation, which include the provision that an accredited program should supply the competencies listed by the ALA divisions and associated information professional organizations, such as ASIS. Incredible numbers of hours of effort have gone into attempts to draft such documents, most recently by the Public Library Association and by the Library Administration and Management Association.

At Texas Woman's University, we take a "platform" approach. Rather than attempting to teach a core of "essential competencies" (which the profession has been unsuccessful in defining for us), we view the core as a platform for the electives, that is, students learn in the core what they will need to know to succeed in the electives. Each student designs her or his own degree program through selection of electives. The M.L.S., then, is a platform for a career, not the capstone of an education. Our students graduate knowing that the M.L.S. is but the first step in a career-long process of education.

Continuing education will be necessary not only because technology and practice change, but also because librarians move through different stages of responsibility and opportunity in their careers. A major challenge for library education -- which may or may not be the responsibility of university library schools -- is to provide the continuing education that is so vital. Librarians' knowledge needs evolve as their careers mature, and as working conditions change. Right now, there is a serious need for a formal structure for continuing education, perhaps including certification of some kind at various stages. In the next century, meeting the need for continuing education will be as important as meeting the need for education of new librarians.

Role of the professions in managing their own education

Whose responsibility is continuing education? Currently, CE is provided by library schools, professional associations, networks and consortia, state libraries, and entrepreneurs. Quality and consistency are highly variable, and coordination of effort is practically nonexistent. Should library schools be more involved in CE? Should we divert resources from degree programs to certificate or CEU programs? CE is implicit in many of our mission statements, but at least in the public sector it is not built into our funding mechanisms, so CE becomes an entrepreneurial activity.

The management of CE raises the question, to what extent will librarians take charge of their own educational system? If a professional association can provide quality CE, could it not also take on the challenge of providing all professional education? It has been seriously suggested that the California Library Association, for example, should develop an aggressive CE program. Why stop there? Why should not CLA also consider going back to an older model of professional education and offer entry level education as well, in a field-based model, perhaps in concert with a university, but perhaps not?

Emergence of new professions

Librarianship is the profession most relevant to librarians, but it is not the only one that concerns library educators. There are many new information-related professions appearing, some of which have names and some of which still do not. Andrew Abbott explained all this to those who had not yet noticed in his book *The System of Professions,* and the world of library

education has not been the same since library educators read it. Abbott explained the nature of turf battles between established and new professions. [2] Some of these new professions are finding homes in academe as enterprising deans and faculties create new majors. Some are still unnamed and homeless. Some are finding homes outside the traditional educational system.

Take technology training as an example. A popular Generation-X bar in Denton, Texas, is Rick's American Bar and Grill. Rick's has a number of Internet terminals available for rental by the half-hour, so customers can surf, eat, drink, and socialize all at the same time. Rick's offers Internet training courses as well. The President of my University recently sent me a copy of a handbill noting that Rick's charges as much for tuition for a twenty-hour training session as we do for a three-hour course. We don't serve beer and burgers during our course, but we're accredited. Is Rick's a serious competitor? Should we look at what Rick is doing as a model for our own entrepreneurial activity, or should we see Rick's as a competitor now offering our product, education? Would one of you hire someone who got her training at Rick's? What are the implications for libraries as well as library schools of alternative information-resource training sites such as Rick's?

In general, should we look at new professions as threats or opportunities? Various library schools have responded in various ways. Some have created new degrees, some are wringing their hands in fear of competition.

2. The University

The most relevant themes and issues in the University context are:

* the accountability movement;
* competition with other academic units;
* opportunities for new academic programs;
* competitors for enrollment;
* the research mission of professional schools;
* the existence of the faculty .

The accountability movement

The accountability movement has come to universities. Like libraries and the military, we can no longer count on support because we are intrinsically "Good" for society. Public higher education, which is where almost all the viable library schools now are (that's one reason we're viable), finds itself in competition in state legislatures with K-12 education, health care, and prisons. In Texas, as in other states, we're coming in fourth. In the Texas legislature, as in other states, there are proposals afloat to establish productivity standards based on such factors as percent of undergraduates taught by tenured faculty, percent of students graduating within a specified number of years for each degree level, ratio of employed to unemployed alumni, etc.

Competition with other academic units

One result of external pressures is that internally university components, like library schools, find themselves in stiffer competition than ever before with other academic components. When attractive new program ideas, like Health Informatics or Information Resource Management or Telecommunications, come along, library schools scramble to be sure they don't lose some of their academic turf, and that they continue to compete for resources. In the short term, to compete for these new areas, they may have to curtail activities in library education. In academe, we generally don't get venture capital. We try something, and if it works, we may get the resources to continue it -- or we may get a pat on the back for having done more with less. But, upfront investments are rare.

Opportunities for new academic programs

The temptation to divert resources to new programs, and away from existing programs like library science, isn't simply a matter of competition. It's also a matter of what is intellectually interesting and socially useful. With limited resources, the decision to continue a solid program in librarianship may also mean a decision to pass up intriguing new opportunities in other fields. Different schools may decide that issue in different ways. Some of the library educators who are walking away to develop other fields of research and teaching are doing so simply because they find these new academic programs more intellectually rewarding, or novel, or challenging, or more productive for their sponsors.

Competitors for enrollment

Accountability often means numbers, so library schools find themselves in competition with one another in some places for enrollments. The advent of distance learning is having an interesting but so far unpredictable impact on this competition. I now look at markets throughout Texas and even the nation, as we think about distance learning using the Internet. Universities such as Drexel with its "asynchronous" learning system, and Syracuse, with its combined residence and email program, are now my competitors.

As if that weren't complicated enough, I also have to think about radical alternatives to library education. What if, for example, the California Library Association were to go into the library education business? What if the Texas State Library were to ask the Texas Higher Education Coordinating Board for degree granting authority? What if the American Library Association went into the library education business, and instead of accrediting schools simply accredited itself? What if the National Library of Medicine were to decide to take on training of health sciences librarians? What if Lexis/Nexis or Knight Ridder or Microsoft decided to start offering educational programs instead of the introductory training and continuing education programs they present now? All these, by the way, are things that I think are good ideas. And rather than view them as competition, I think about how I might sign on with them as a partner.

The research mission of professional schools

A critical aspect of what's happening in universities is the nature of research being conducted. Seventy-five years ago, one of the arguments for establishing library science programs in graduate universities was that they would then produce the research and generate knowledge essential for improvements in practice. Currently, many library educators are not producing the kinds of work demanded by librarians in practice. For years, much of the research published has been simple description, based on surveys of dubious quality. Library educators, like librarians generally, tend to follow intellectual fashions rather than setting them. Many are now discovering the seductive subjectivity of qualitative research models that spread like a virus, to use Bill Summers's term, from literary criticism into the social sciences. At the very moment when libraries' publics are asking for hard empirical data about the value of libraries and library services, many of our scholars are engaging in "naturalistic inquiry" research methodologies, methodologies which proudly reject the possibility of generalizable or even testable results. Theory is abandoned in favor of data collection, narrative presentation, and personal interpretation.

Whether library education continues to prosper in university settings may depend on the extent to which library practitioners find the research conducted there to be valuable to them. They may instead find that the work of applied researchers, such as consulting firms and contract researchers working under sponsorship of problem-focused grants, will be more valuable. If the research that library schools produce loses credibility, library schools' strength in universities will suffer.

The faculty

In 1989, Elizabeth Futas and Fay Zipkowitz published an article in *Library Journal* entitled "The Faculty Vanishes." [3] Their major point was that a look at demographics of library educators revealed that there would be a serious shortage of faculty in the late 1990's and early 2000's, due to retirements and the revolving door between library education and library practice. They were correct, and that is a serious matter. Finding senior faculty to fill positions is very difficult. As challenging as that is, there are more intriguing aspects of the faculty existence question. As legislators and many in the public question tenure and the work loads of faculty, and as cost pressures and pressures to be more flexible and timely in offering new programs in new places, the idea of a faculty comprising a small corps of full-timers associated with a large corps of adjuncts becomes much more common. One can imagine a very small tenure-track faculty working with a very large and fluid body of part-time faculty who teach what is needed when and where it is needed. Many more practitioners -- professionals like those in this audience -- may be called upon to serve as instructors in library education.

3. The Libraries' Publics

The third context of themes, issues, and possibilities that informs library education planning is the public's view of libraries. By public, I mean the clientele that libraries serve, and I do not mean only municipally funded public libraries. Each of you has a public, and how they think about the content and value of library services affects your practice, just as it affects the way we in library education go about designing library education. It is a great guessing game.

The important themes and issues relating to the libraries' publics are:

* focus: materials, publics, libraries, librarians;
* assessment.

Focus: materials, publics, libraries, librarians

While many in librarianship continue to worry about such issues as "the image of the librarian" and how to sell the ideology of the American Library Association, our publics are not much interested in those things. The important issue for libraries' publics is whether the focus of library activities and services is on the materials and services they want or on the materials and services librarians want to offer.

The libraries' publics expect concrete evidence of the value of libraries. They want client-centered collections and services that meet their needs as they understand them.

In library education, we have to do a better job of educating librarians who will understand that effectiveness of the library as perceived by the library's public is a major professional concern. That means, in curriculum, we must teach client-centered rather than librarian-centered library management. That is simply said, but there is surprising resistance to the idea, partly because the ideology of the American Library Association, which pervades the texts and documents in our profession, is really focused on the ideals of librarians more than it is on the notion of service as valued by those served.

Assessment

The key research question for all types of libraries is, how do you demonstrate that a library is a value-adding adjunct to your organization? At the other end, the design question is, how do we build libraries that are client-centered, value-adding, evaluatable organizations? In library education we do a good job of teaching professional knowledge, skills, and abilities. We have a lot of work still ahead of us in terms of teaching assessment.

Successful education for librarianship in the next century will educate students who can answer these questions.

4. Technology

The relevant attributes of technology are that it is:
* compelling;
* ubiquitous;
* deceptive;
* glamorous;
* expensive;
* extensive.

So much has been said about the impact of technology on librarianship that it is hard to know what to add. Obviously, a major task for library education will be to assure that students have access to and learn to use all the new electronic technologies. Collectively, the university library schools are doing this well already.

We all know that electronic technologies have made a striking addition to the inventory of information tools. Whether, or how soon, that addition will replace the traditional technology of print is still guesswork. There is still a major debate and economic struggle going on within the computer and telecommunications industry over the nature of information technology, the extent to which it will be integrated, whether computing power will reside in mainframes, desktops, client servers, on the networks, or in some amalgamation of all these. We should remember that most technologies are increments to our inventory, that seldom does one technology actually replace another, and that new technologies usually make their own niches, rather than occupying the niche of a previous technology.

REPRISE

Remember the four social principles underlying librarianship, which I mentioned earlier:

1. *Knowledge is cumulative and must be preserved.*
2. *Sharing is good policy.*
3. *Intellectual commerce is a good thing.*
4. *Organized effort is more productive than the sum of individual efforts.*

Technology does not change these principles. Rather, we should view technology in terms of social principles, rather than looking at principles in terms of technology. For example, one of the vaunted features of the new electronic technologies is that information becomes

27

instantaneous and dynamic. But to be useful to civilization, somehow knowledge must be fixed, or it can't be cumulative. How will we build cumulatively on knowledge in electronic form, and how will it be preserved when it is sold as dynamic, and when the technologies that enable it change so often that information is easily lost simply because it can no longer be read? Education for librarianship must avoid being swamped by training to use information tools. Library education will fail if it focuses on technological competencies so much that it ignores the fundamentals -- some of which need new names -- like bibliographic control, bibliographic instruction, controlled vocabularies, authority files, archival preservation and readers' advisory.

The principle of sharing scarce resources has been at the core of librarianship. In the writing era, the obvious scarce resources are manuscripts, books, collections of books and journals, and space for books and journals. The less obvious scarce resources that have been shared through libraries are expertise in selection, expertise in organization, thorough knowledge of information sources, and expertise in access.

The sharing principle remains in the new information age. What resources are scarce in the information age?

The first is attention. As Herbert Simon said, "the resource that information consumes is attention." [4] What will it mean to say we learn to share attention? That is a question for which I do not have a complete answer, but I am convinced it is a correct question, and that the answer has to do with selection of objects of attention, with knowledge representation, and with analysis of information needs. We should keep in mind that human needs change much less rapidly than technology does. Furthermore, the answer has to do with time management. Time is the dimension in which attention exists. We can measure it only in duration. Time is thus the currency of attention. If information consumes the resource of attention, we pay for that resource with our time. Neither time nor attention is a renewable resource -- once you've used it, it's gone forever.

Selection of objects of attention is concretized in the knowledge and skills required for reviewing new materials. A popular T-shirt phrase is, "So many____, so little time." Choice is in fact the essence of human condition: more options than any individual can pursue. In the information age, we fill the blank with knowledge containers. Reviewing and selection are essential. The work of scholars like Dr. Betty Carter, a colleague of mine at TWU, become more valuable than ever. In her articles and reviews, Dr. Carter restores the book review to its tradition as a contribution to the cumulation of human knowledge. A form that had sunk to episodic, opinionated snapshots is now restored to its place in literary scholarship, in the work that she and her colleagues do.

Shared knowledge representation means the construction of new ways of classification and indexing, to build a knowledge infrastructure that will give meaning to abundant information by organizing it in contexts we can use. An example is the NLM Unified Medical Language System Metathesaurus that provides access to many indexing languages through one interface.

Analysis of information needs will have to become a much more sophisticated activity than simply studying circulation patterns, conducting focus groups and surveys, or otherwise observing how readers and researchers have behaved in the past.

Attention is a scarce resource. But information consumes other resources too. Just as books and space for them have been scarce resources, technology of the e-age will be scarce too, and there will be a need for organizations to facilitate sharing. The scarce technological resources will be (already are) bandwidth, switches, connectivity, and interoperability. The goal of the telecommunications industry is to sell metered bandwidth. H. Van Taylor, President of Southwestern Bell, says there is no "killer app" to justify domestic or universal office delivery of bandwidth, so bandwidth will be sold as needed.[5] While it is technologically possible to have enormous bandwidth at every home and office, it is not economical, just as for many decades it has been technologically possible to give every reader a copy of any book or journal desired, but never economically possible.

Switching, connectivity and interoperability will remain scarce resources because the number of networks will continue to expand, and the devices, authorizations, and expertise necessary to operate across networks will continue to be scarce. While politicians and pundits talk about one network linking every home, school, and office, work goes on to develop ever more exclusive and idiosyncratic networks. Internet II is being designed. In Texas, just in the public sector, as in other states, we have separate networks for the major universities, the K-12 sector, and for the Educational Regional Service Centers that provide support to school districts in terms of materials and CE. These networks will be interoperable but still discrete, so that navigation across them will be restricted by policies, not by technology. When Apple introduced the Macintosh, they called it "the computer for the rest of us." The Internet may become "the network for the rest of us", as more specialized and exclusionary networks are created to assure limited access not only to communications bandwidth but also to the knowledge accessible through those networks. Gateways will be limited in number; libraries will have a role to play as gateways to a variety of networks.

The ancient profession of librarianship has always played a key role in designing structures for intellectual commerce. It was, after all, the librarians at Alexandria, then called philologists, who invented much of the infrastructure we still use: alphabetical order, dictionaries, canons of literature, grammar books, etc. That infrastructure now also includes licensing agreements, intellectual property protections and arrangements for access to intellectual property, protocol translation facilities, information standards, and a host of other infrastructure management tools that we need to invent or adapt, and about which we need to provide instruction, both to new librarians and, through continuing education, for old hands.

Librarians also will be called on to know much about the content of the work of the clients they serve. The failure of Apple Computers under John Scully, and the near-collapse of American industry under the weight of a generation of MBA's who knew "how to manage" but precious little about the industries in which they worked, are single and multiple examples of the disasters that can befall institutions when they are managed by those who are ignorant of the substance of the business. Planning for library education will have to include provision for learning about the content of records as well as about their management.

The ancient profession of librarianship will continue to organize human effort for maximum productivity. The specific settings may change, but management of human effort will continue to be critical. Librarians, particularly mid-career librarians and mid-level managers, will continue to need education in management. Libraries as organizations of professionals will continue to be important.

PLANNING FOR THE FUTURE

As the parties involved in education for the ancient profession assess these contexts with their intertwined issues and themes, each will come up with a different program, a unique direction and mission.

Among these different approaches, what is the unity of librarianship? The unity of librarianship lies in the complex interactions of specialists and institutions that culminate in adding value to knowledge records: physical access, selection, preservation, organization, presentation, dissemination, and destruction.

The unity does not lie in the competencies or qualifications of any single librarian, and it certainly does not lie in the core curriculum of any M.L.S. program, which is where librarians traditionally have expected it to be.

The unity of librarianship is that it is a profession, a corps of complementary professionals, not that it is a corps of similar librarians. Librarianship is a system. It is not you or I, it is not your library or my library school.

Similarly, in the next century the unity in education for librarianship will come from our systematic and complementary activities and efforts, rather than from similarity among all our programs. We will each approach education for librarianship differently, and we will each emphasize different facets. The "we" will include many more entities than the 55 ALA-accredited master's programs. Our professional world will be ever more complex and varied. That is the nature of evolving systems.

Thanks for your attention.

Notes

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4. Herbert Simon, "Designing Organizations for an Information Rich World," in *Computers, Communications, and the Public Interest,* ed. Martin Greenberger (Baltimore: Johns Hopkins University Press, 1971), 37-72.

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Response from a Recent
Library School Graduate

by

Stephanie Havron
Assistant Electronic Services Librarian
Air University Library

Thank you for the opportunity to respond to Dr. Swigger's paper. I am going to highlight several areas he discussed as well as present my views on library issues from the perspective of a recent graduate.

Dr. Swigger provided an excellent summary of numerous aspects of our profession, such as technology, continuing education, management, resource sharing, university-based education, values of libraries, assessment, intellectual commerce, and planning.

Some issues that are of particular interest to me are continuing education, management, resource sharing, planning, and technology.

I agree with Dr. Swigger that continuing education and training are important. In order for us to meet new demands for information from our patrons and better use technology, we must continue to educate ourselves though training sessions, conferences, and networking.

I also agree with his view that a library should be client-centered rather than librarian-centered. I believe you have to ask the "quality " questions -- "Who are our customers?" and "What do they want and need?" At Air University Library, we support the military school's curriculum, and therefore structure our service policy to revolve around serving the students.

I also agree that our resources are shrinking -- with reduced budgets and staff, we need to implement successful resource sharing strategies such as state-wide library networks, linked online catalogs, and Internet resources. I believe that technology will help share resources and aid in communication.

I also support Dr. Swigger's concepts for planning for the future. I think that as librarians we need to decide what we want to accomplish and go to work. For instance, at Air University Library, our director has a long range library modernization plan that implements certain precise steps to modernize our library with the appropriate technologies. Examples of this include ordering multimedia presentation stations, rewiring the library with twisted pair cabling, subscribing to relevant on-line full-text databases, and implementing an Air University Library home page.

In his discussion of technology, Dr. Swigger "concedes" that librarianship is shaped "in part" by technology. I believe that technology has dramatically shaped the roles librarians now play in society. According to Dr. Swigger, the relevant attributes of technology are that it is "compelling, ubiquitous, deceptive, glamorous, and expensive." Based on my experiences, I believe more appropriate terminology might be "controllable, universal, straightforward, routine, and cost-effective." The reason I feel this way is that if you examine technology and treat it as an additional resource that must meet the same selection criteria as books and journals, it will be controllable by patrons, universal and straightforward in usage, a routine resource, and cost-effective in terms of manpower and time.

He also states that "a major task for library education will be to assure that students have access to and learn to use 'all' the new electronic technologies." Also, although Dr. Swigger states that "library schools are already doing that well," the library school I attended (and I must admit it was excellent) covered only some of the technology, primarily library systems, electronic mail, and database searching. It was assumed that specific technological skills would be learned on the job. For example, it was not until I started my job at Air University Library that I learned technology such as creating web pages, scanning images and text, DOS, UNIX, Windows, Microsoft Office, and creating multimedia presentations and guides. This produced a certain amount of stress, although it provided a great learning experience. Additionally, the technology I did learn is geared toward serving the customers in my library.

I believe that the issue of technology relates directly to our customers. Focusing the library's technology collection in order to serve its population can limit the overwhelming amount of technology to only what is necessary. We can do this by treating technology as an additional resource and weighing it with the same measures of relevancy that we do books and periodicals. This in turn makes using and learning the selected technology a manageable task.

Now, more specifically, as a recent graduate, there are three issues that I consider to be highly relevant -- knowledge of resources, technology, and continuous learning.

Knowledge of basic reference sources, both print and electronic, is important. Careful selection and knowledge of the finest books and technology will enable me to serve my patrons better. For example, if I am helping a patron locate information on types of aircraft, it helps if I know that we have books, reference books, CD-ROMs, and Internet resources on that topic. By knowing the most appropriate resources, I can find the information and evaluate which resources will best serve their needs.

Technology is also important to me; it will help me organize, distribute, and easily access information. For example, I helped create the Air University Library home page which allows our library to organize online resources such as the catalog, bibliographies, and curriculum support. Our home page also allows us to distribute this information and provide easy access to library information for anyone.

As a recent graduate, I place great importance on continuing my education. I seek out opportunities for learning and training sessions or conferences given in my field. In graduate school it was emphasized that we should remain current in our field; however, in my job as a technology librarian, it is imperative that I seek out new forms of technology that will best fit our collection and network with experts who will help our library implement these technologies. I enjoy attending training and conferences because they will help me and the library improve.

In the short time I have been working, I have experienced many changes, and I accept change as *rapid* and *constant*. Flexibility, knowledge, and technology are the keys to handling these changes.

In conclusion, as a recent graduate I believe that I can look forward to a successful library career by continuing my education, sharpening my knowledge and skills, listening to my supervisors, responding to my customers' needs, and remaining flexible and open to new technology and ideas. Furthermore, as Dr. Swigger discussed, if we as librarians use enhanced resource sharing, continue library education, plan for the future, and focus on client-centered management, we can strive to maintain continuity and accept change.

Response from a Library Director

by

Chester Pletzke
Director, Learning Resource Center
Uniformed Services University of the Health Sciences

The Uniformed Services University of the Health Sciences was established by Congress in 1972, for the Department of Defense and the Public Health Service. When the University was first established, the feeling was that there was no need for a library, since we are across the street from the National Library of Medicine and the National Institutes of Health. I understand from some of the people who witnessed the scene that there was a meeting held at the National Library of Medicine. The founding fathers of the institution were told by the librarians in the area that, indeed, you need to have a library if you are going to have an institution. So, the library was born, thanks to the efforts of the librarians in the Bethesda area: the National Library of Medicine, the National Institutes of Health, and the National Naval Medical Center.

We started with books, journals, microfilm and microfiche. Then, in medical libraries computers came in about 1980-81. (I still have a vintage Apple computer that was built in a garage out in California, and it's a collector's item. Someday, when I need some more money to buy journals, I indeed intend to sell it.)

Medicine is very much virtual. We actually have a file server that will be coming up that is built on the University of Iowa's Virtual Hospital. Its purpose is to provide physicians with a virtual information system, wherever they may be worldwide, and we are linked into that. We strongly believe in the use of technology. We have to harness it, and we have to be able to use it.

At the University, the Learning Resource Center is a strong point. We have a staff of about eight computer professionals who were once laboratory technicians who had to use computers in their labs, got interested in them, went back to school, got computer degrees, and then began to hunt for jobs. At the same time, I began to realize that I did not know every-thing about computers and needed to hire people. Hence, in addition to hiring librarians, we have also brought these computer professionals on board.

Continuing education is extremely important to all of us. One of the things that we did in the University, and we did very specifically for the library staff, is to have a continuing education plan for each and every individual so that we could bring them along. Because all of our staff have computers on their desktops and have to use them, they have to be aware of what the Internet is, and what Medline is; that is where our customers are. Our customers want help;

they want to be able to go and ask anyone on our staff and will assume that anyone on our staff knows what's going on. Thus we have to master the technologies. We have to continue our education, and our education is a variety of things.

One of our librarians is very interested in colors and, as a hobby, makes quilts. He has found that colors relate extremely well to home pages, and he has helped in the design of our home pages. We also have another librarian who came to us from a major university, receiving his doctorate in linguistics. He is very good at doing HTML, JAVA, etc.; indeed he thrives on it. He is developing his own education and has become a major asset to us. These are only two specific examples of how members of our staff are connecting their interests and education with their work at the library.

Currently we are looking for a recent library school graduate, and the librarians whom we are interviewing have to really have good inter-personal skills; that is really of paramount interest for us. You have to be able to relate to your customers. You have to understand what it is they want, and how they want it. You have to have patience when you're dealing with a lot of people who want everything immediately, and who want everything on their desktop. Physicians and medical students really do have these demands.

We would love to digitize our collection in military medical history to make some of the unique resources available, although finding several terabytes to store all of that as images is a problem. In addition to wanting someone who is conversant with this technology, we also want some of the traditional skills. We need someone to organize and index this military medical history database that we intend to bring out. Hence we are eagerly looking for people with that type of skill.

That is essentially my reaction to Dr Swigger's presentation. I think, again, I would emphasize that you have to use technology, whatever it may be. You also have to stress the human importance, the human essence of things. And, if it takes having the bar and grill in the library, you have to do that. In fact, we do have people who bring food in, bring drinks in. But we haven't sold beer or wine--yet, although we're thinking about it, because we have to pay for the paper editions of journal subscriptions. And, in medicine, they are very expensive.

Outsourcing

by

Barbara Winters
Director, Central Services Division
Wright State University Libraries

and

Arnold Hirshon
Vice Provost for Information Resources
Lehigh University

INTRODUCTION

We have two caveats. First, we have one hour to talk about a topic that it took us five years to write a book about. Second, Arnold and I share some concern that, while we might not necessarily be preaching to the choir, we are certainly speaking to an audience of the initiated in the area of outsourcing. Before we begin, we'd like to find out:

- How many of you have outsourced pieces of an operation?

- How many have abolished whole departments or operations in favor or outsourcing?

- How many are interested in this topic because you're afraid you'll be outsourced?

You may ask why we were asked to speak to this topic. We actually did an outsourcing project that abolished an entire department. And the project can report successful outcomes, even three years after implementation. And finally, we wrote a book about it.

FORMAT FOR OUR PRESENTATION

We had originally planned to a "Point/Counterpoint" format but found that to be impossible, considering how much face-to-face practice that takes, and given the geographical distance between us. However, the presentation should be interactive and spontaneous. I know I've never hesitated to disagree with Arnold, nor he with me.

All the slides we're using today are available at our website:

http://www.lehigh.edu/~arh5/bookad.thm
http://www.lehigh.edu/~arh5/outsourc/index.html

Here's how we will divide up the time we have today:

1. Outcomes -- Winters
2. Reengineering Overview -- Hirshon
3. Outsourcing Overview -- Winters
4. Cost Estimation -- Hirshon
5. Getting Started: Competitive Procurement -- Winters
6. RFP Specifications -- Winters
8 Outsourcing Cataloging -- Hirshon
9. RFP: Final Steps -- Winters
10. The Human Factor in Outsourcing -- Hirshon
11. Human Resource Questions Related to Outsourcing -- Hirshon

And, as Elizabeth Taylor reportedly said to her latest husband on their wedding night, we promise we won't keep you long.

OUTCOMES

I well remember the day that Arnold Hirshon and I were traveling together in his car to Columbus, Ohio, for an OhioLINK meeting. We had been pricing real costs-per-title for cataloging materials at a processing center for hospital libraries in the Dayton area. We had determined that real costs, based on the amount of staff time required and equipment costs, were only $4, $5, or $7 for the types of materials cataloged (depending upon the type of copy available). I said to him, "I wonder what cataloging a title is really costing us." So, in the car, without the benefit of any budget reports, or even a calculator, we calculated that, at a total salary plus benefits of about $350,000, and not counting other cataloging costs, and estimating that we cataloged 20,000 new titles/year, we were spending an estimated minimum of $17.50 to catalog

each new title. This was an estimate done at an extremely macro-level. And yet, it was enough to confirm that we had a serious problem. I remember making a comment that, "We'd be better off to mail the materials to ourselves and serve as our own processing unit." That was how outsourcing of the cataloging operation at Wright State University began.

Of course, we also looked at a range of alternatives. Based once again on broad estimates, we believed, for example, that we could accomplish the same kind of cost savings by reducing in-house staff to four staff members, who would be expected to catalog 21 new titles per day. We rejected that alternative, because we realized that legitimate uses of sick and vacation time on the part of the four staff members would result in increasing an already-existing backlog. Nor could we any longer ignore the "benefit" of getting materials to the shelves in a more timely fashion than we had previously been able to do, especially since we were getting a number of faculty complaints about our six-month turnaround time. So, we wrote a clause in our cataloging RFP that required a two-week turnaround on books and four weeks for non-book materials. People ask about other "benefits," such as having greater control over the quality of the work if it is done in-house. Again, assuring the level of quality you want with outside vendors is a matter of writing a contract that specifies quality control expectations, and then monitoring the vendors' work to make sure they're in compliance. What were the results?

- The contractual relationship did save us money. We now have three years of experience managing our cataloging contract, and I can assure you that our real savings approximated our projections. If you want to have more information about how this can be so, you can look at our monograph, which was published in September. We were able to keep the money to reinvest in library services.

- The contractual relationship greatly improved turnaround time, which is now two weeks for books and four weeks for non-book materials.

- The contractual relationship eliminated all backlogs.

- The contractual relationship improved cataloging quality. We had previously had a 25% error rate; however, we wrote a 5% maximum error rate into the contract and had fiscal and contractual leverage to guarantee that the error rate was not exceeded.

- Contract negotiations allowed WSU to improve user access to the library's collection. For example, we were able to require the editing of certain MARC fixed fields that had not been edited locally, and these governed the way the system retrieved and/or limited searches.

REENGINEERING OVERVIEW

Perhaps the most important caveat about outsourcing is that it is not a goal, but rather one of a number of possible solutions to a particular problem. A library should rarely, if ever, set out to outsource. Rather, the library should begin by exploring its desired outcomes and processes, and only later determine whether outsourcing is a practical means to achieve the desired end.

Outsourcing is a tool, not an objective. A manager should not set out to outsource, but rather to examine the current operations. Outsourcing will be successful only if it is done within a larger context of organizational change, or in a word, *reengineering*. The recent national movement toward outsourcing has been spurred in great measure by the *reengineering* of corporations and non-profit institutions. Michael Hammer and James Champy, the best known proponents of reengineering, define it as "the *fundamental* rethinking and *radical* redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed." [1] According to the authors, reengineering assumes that major changes in the external environment force the need for radical changes in organizational processes. The five key concepts behind reengineering are as follows.

- A strong customer orientation is fundamental. The organization tries not only to meet the customer's expressed needs, but also to go beyond to predict customer needs.

- Reengineering is results oriented. The library seeks to change its internal processes, and to do so with a mind toward achieving the general organizational goals.

- Process reengineering starts from scratch. Every operation must be open for discussion. Reengineering allows for no preconceived notions, no retention of legacy systems, no institutional dinosaurs, no sacred cows.

- The organization must seek radical improvements in the whole process. Marginal productivity increases are not sufficient, nor is the viewing of only some of the discrete tasks. Reengineering discards the concept of the division of labor, which was more appropriate to early manufacturing processes when businesses had to rely upon unskilled labor to achieve a task. In highly intensive information-based organizations, staff are expected to be skilled in multiple areas and able to accomplish a process from beginning to end. Reengineering also decreases the layers of middle management because highly trained staff do not require the same level of supervision as in the past.

- Reengineering creates team-based case workers. Reengineering any operation can be a very wrenching experience. Why would an organization want to reengineer when the status quo is so comfortable? The reason is simple. The economic conditions facing libraries today are changing, and we must explore new options. Reengineering is necessary to improve productivity, particularly when libraries are expected to perform more work with less money and staff. Other libraries may need to improve the quality of their services.

Reengineering and Total Quality Management (TQM)

There are some key differences in approach between the Total Quality Management (TQM) approach and reengineering. The basic principle of TQM is incremental change. TQM is very effective when the organization needs to make gradual improvements in customer service. TQM assumes that the general operations are effective, and that only changes in detail are needed to make them better. Reengineering is wholesale change, with a broad view of processes across the entire organization. In reengineering, the organization first looks at the information needs of customers, then seeing whether the enabling processes are effective for providing customers with the information they seek. For example, where TQM might look to see how to improve productivity of an operation by 20 percent, reengineering questions whether the library needs to maintain that operation at all.

The Reengineering of Technical Services

Libraries are tradition-bound organizations that tend to value evolutionary changes rather than engage in the radical and wholesale reexamination of our principles or processes required by reengineering. However, in an electronic information world where change is constant and dynamic, incremental change is no longer sufficient. Libraries will require radically new ideas to thrive, or even to survive.

Technical services has too long been defined in terms of functions, and not in terms of client services. The business of technical services has never been collection management, acquisitions, serials, cataloging, or preservation. These were our way of organizing operations to accomplish specific organizational functions. Eventually, this method of organization became a blindfold. In essence, the business of technical services is to enable library users to locate and obtain the information they need quickly and easily. Viewed in this way, it becomes clearer that our functions are not the same as our purpose, and that some of our functions are not truly core services. For example, while enabling library users to locate information easily is the purpose of cataloging, that does not in itself make cataloging a core service of the library. While the final output of cataloging—the catalog records and the catalog itself—may be a core service, the in-house operation of cataloging itself is not. A library needs a catalog, but not necessarily its own cataloging department to generate the catalog. Libraries are in the information business, and the

41

organization of information is core to the library's mission, but the system for organizing that information is already defined by national standards. Those standards can be further expanded through the articulation of local practices. Once these standards and practices are defined, the generation of the actual component records becomes a matter of production according to specifications, not one of design.

This argument could be extended to the acquisitions process, as well. While a library must acquire new books and journals effectively so its clients can locate the material quickly and easily, the library does not necessarily need to run its own acquisitions department to do so.

If the library does not have to perform some of these non-core functions itself, it opens up the opportunity to consider whether there are other commercial or non-commercial services available elsewhere that can do it as well as, or better than, we do. However, it is essential to remember that reengineering is the means, and outsourcing is but one potential end.

Reengineering Caveat: Focus on Outcomes

In any reengineering effort, it is important to focus on the preferred outcomes. Any radical change should involve purposeful experimentation, and result in predictable changes and in good, not just quick, results. While it is critical that the organization engage in creative decision making and risk taking, there must be a purpose behind it. Risk-taking is to be rewarded, but the risks should be well understood. Foolhardy risks can be worse than taking no risks at all. Good results may take some time, but the opposite of quick results need not be elongated and laborious decision making. Good decisions can be reached and implemented fairly quickly, and well understood by all involved. The alternative courses of action should be well known, and the reason for choosing the primary option should be well understood. It may take some time before the full implications of the change are realized. While the initial reengineering or outsourcing may take three to six months, it may take one or more years before all of the benefits of the changes are fully realized.

OUTSOURCING OVERVIEW

Definition

Outsourcing is the contracting with an outside vendor or agency to perform some aspect of work (usually non-core mission-related function) that the organization is unable to or uninterested in providing for itself.

Again, we remind you that outsourcing is the *outcome of the reengineering process.* It is not an objective in and of itself and is not a solution for everyone.

Should You Do It?

In general, we would say outsourcing is the appropriate solution when it costs less than an in-house operation and when one or more vendors have demonstrated they have quality standards equal to or exceeding the organization's standards.

Benefits can include the following:

- improved productivity. A vendor can flatten out the highs and lows of production that you see with an in-house operation.

- the freeing up of managers to focus more attention on the core mission of the library.

- the expansion of local expertise. A library the size of Wright State University's, for example, could hire few people with the ability to catalog materials in a foreign language. Through our contractor, we can purchase only the amount of expertise required, rather than having someone on staff to catalog in a foreign language on those rare occasions when we receive materials in that language.

- savings of financial and human resources, which can be redirected to other parts of the library, such as service areas.

Always compare well-managed outsourced operations to current operations. Never compare a well-managed in-house operation to a poorly managed outsourced one. In short, *"Don't just look at the bottom line!!"*

Outsourcing Steps

1. Establish the library's goals. Are they strategic, or tactical, or both? What is the reason for considering outsourcing? Possibly, it is to reduce a backlog, or to lower costs, or to improve quality.

2. Evaluate the current costs and operations. Arnold will speak to this point in detail. I want to say only one thing about this. Analysis can be done at the macro-level. Macro-level analysis can keep you from analyzing whether you should even be doing a function or not. In other words, you can spend a lot of time studying the costs for a function you might just do without. We used to have a librarian at Wright State

43

University who, number of us noted, was very good at improving processes that never should have been done in the first place! So, no kind of analysis replaces the need for the global view and for clear thinking "outside the box."

3. Prepare the RFP. Both of us will speak to that in detail later.

4. Select a vendor from among the respondents.

5. Write a contract with the vendor. We won't spend much time here, because we believe that military librarians would no doubt have significant amounts of experience with contract writing.

6. Engage in detailed process reengineering, i.e., tailor internal operations to the specific processes employed by the new vendor. This will become symbiotic and ongoing as vendor processes change.

7. Implement the contract. It is very important to have a good contract manager.

8. Maintain communications with staff throughout the process.

COST ESTIMATION

Once the process reengineering team is assembled, it must gather information about the current processes. It is essential not to attempt to gather so much information that the team gets bogged down in over-analysis or in documenting a process that may be scrapped anyway. The analysis should encompass the core processes, not every detailed process. It is not necessary to know everything about what you are doing now to know how to change it for the future.

If the library is considering outsourcing an operation with the expectation of saving money, it is essential to set a savings target and to benchmark outsourced costs against the current cost of operations. Outsourcing can be a contentious issue, especially if a large portion of an operation of an entire department is directly affected. The efficacy of outsourcing may well be viewed skeptically by others (including those staff whose jobs will be affected). Therefore, give the benefit of the doubt to in-house operations by *overestimating outsourcing costs and underestimating in-house costs*. (Examples of when and how to do this are given below.) Obviously, this must be done in moderation, but doing this may help to avoid embarrassment later should the promised savings not fully materialize because of incomplete or inaccurate calculations.

How to Estimate Current Costs

There are essentially two ways to estimate current costs. One method is a *time-task analysis,* in which staff keep diaries or other records of their activities for a period of time (such as a week or a month) to document the amount of time spent on each activity. For all of the supposed scientific accuracy of such a system, time-task analyses in practice are time consuming to compile and incomplete measures for extrapolating longitudinal data, such as the amount of time spent each year by a particular person doing a particular operation. And they are inaccurate, because the whole is greater than the sum of its parts.

The cost-estimating method we advocate here is to compile a *total output measure.* This type of measure begins with the total budget allocated to an operation each year. For example, to estimate the costs of cataloging, you would compile the total personnel budget for all staff involved in cataloging plus the related operating costs (such as the cost of record production, computer technology, etc.). *Total output measures are more useful than detailed time-task analyses* because they not only are easier to compile but more accurately reflect the total activity over a longer period of time. The total output measure seeks to compile major costs in groups, and it eliminates the small costs that are unlikely to have a significant impact on the bottom line or the final decision.

What Costs Should Be Compared?

The objective of collecting cost data is to permit an accurate comparison of significant current costs (or the expected costs after the reengineering of an operation) with the expected costs of outsourcing. Therefore, when estimating current operating costs, it is important to compare only the in-house costs that are under consideration to be outsourced. We call this an *apples-to-apples* comparison.

What Should Be Included as Personnel Costs?

When calculating personnel costs, it is essential to remember to calculate the *full compensation,* which includes not only the *salary* of the employee, but also the *fringe benefits.* Only in this way can you derive a true cost of current operations.

Calculation of Indirect Costs (Overhead)

Indirect costs, also referred to as "overhead costs," are those costs for which the library may not have to pay from budgeted funds but that represent real costs of the operation. Some examples of indirect costs include the space consumed by the people performing the operation, custodial services to clean the work area, telephones or computers for the staff, etc. (Fringe

benefits are not an overhead expense because this is a direct expense related to staff salaries.) While the library might reasonably argue that outsourced savings from staff salaries and fringe benefits should accrue to the library budget, it is doubtful that cost savings from space will be returned to the library unless the library is paying rent on the space to an outside agency and the space is to be returned to the agency.

Should overhead costs be included in the cost estimate? We believe this is a local decision. In a public library that must fight for every construction dollar, this may be a real expense, especially if the library is renting space from an outside contractor and can save the money being paid in rent. For an academic library, it may be harder to get people to understand that space constructed many years ago and that will be retained for library use regardless of the outsourcing decision is a relevant cost.

Estimating Other Costs

Given that personnel costs represent 80 percent of the expense of most technical services operations, this clearly is the most critical factor to estimate accurately. While there are many associated operating costs that one could estimate, it is important not to get too bogged down trying to estimate every small factor.

What Is The Cost Per Item?

In some operations, such as cataloging, the comparison between in-house and outsourced costs may be more relevant if seen as the cost per title cataloged and not simply as the total annual cost. With the total output measured method, it is simple to derive the cost per title by dividing the total cost per year by the number of items cataloged per year.

GETTING STARTED: COMPETITIVE PROCUREMENT

Definition

Competitive procurement is the process of describing, generally in writing, goods or services to be procured, so that bids submitted by potential contractors can be evaluated against the description and an award of contract made to the most responsive and responsible bidder. This process can (and should) occur at the library's initiation and should be implemented with the librarian in control of the process. Why? This method guarantees that the ground rules are the same for all bidders and that no vendor has an unfair advantage.

Competitive Procurement Steps

1. Competitive procurement usually begins with the drafting of a request for proposals (RFP) that clearly states mandatory and desirable specifications.

2. Sole-source bids. Sometimes during a review of the marketplace, or through the issuance of a request-for-information, you'll find that there is no competition for services provided, e.g., purchase of rare book materials. Most parent organizations simply require that the library prepare a statement verifying the sole-source nature of the purchase.

3. Set an action schedule. Senior management establishes this. Determine the date of implementation and work backward to set the schedule. Note that many vendors guarantee quoted prices for only 90 days after the date of their response to the RFP, so you need to take this into account.

4. Survey the marketplace. Have a good idea of how many vendors are likely to respond. If you don't, consider issuing an request for information (RFI) to gather more information before you go forward with your RFP. Or, perform an informal survey, by looking at vendor websites or visiting vendor booths at professional meetings.

5. Don't lock yourself into outsourcing. It's only one of the tools of reengineering.

6. Avoid pre-selection. It is in your best interests to keep the process competitive and open to scrutiny.

7. Make RFP specifications inclusive, but not exhaustive. You can eliminate very good vendors by trying to be exhaustive.

8. Tell the vendors how you want their responses to be organized.

9. If necessary, hold pre-bid conferences to answer any bidder questions related to the process or to the RFP. Sometimes, this step can result in addenda to the RFP, which must be sent to all bidders. In some cases, vendor presentations are important.

10. A major rule of competitive procurement is to never award contract based on low bid alone. You are purchasing a service, not a good. Be sure your vendor can provide the service your library requires.

RFP SPECIFICATIONS

Boilerplate

Boilerplate is detailed, standard wording of a proposal, contract, or other document; phrases or units of text are used repeatedly. This part of the specifications gives general and institutional requirements for the contract, which would be the same from contract to contract. No doubt this audience has experience with military boilerplate.

Books And Serials

We wrote two whole chapters on this. I will summarize by saying that, with each type of procurement, the manager has to ask himself or herself lots of questions:

Books:
- approval or firm order?
- languages other than English?
- how do I want materials shipped?
- what kind of management reports will I need?
- what kind of pricing structure works best for me (e.g., flat discount?, vendor pays shipping?)? How do my invoices need to look (i.e., what kinds of information have to appear on them?)?
- should I ask vendors to submit copies of their internal quality control procedures? If I have this information, what am I going to do with it? How will I compare among vendors?

Serials:
- what type of service do I need (full service or "pass-through agency"?)?
- as with books, what sort of coverage do I want (e.g., languages, types of publishers, etc.)? Should I just leave this open-ended and ask vendors to indicate the types of publishers they handle?

Discount rates will depend upon the amount of business you intend to award. You can specify that vendors should indicate a discount based on various incremental ranges of volume of business, which you can specify (e.g., $50,000 or less, $50,001-$100,000, etc).

Ask vendors to specify what types of services they offer and to specify what, if any, surcharges apply to each type of service

OUTSOURCING CATALOGING

There are at least three basic types of cataloging services that a library may choose to outsource in the effort to obtain bibliographic records:

1. *Retrospective conversion* of card catalog records that are not yet in the MARC format.

2. *Older materials never previously cataloged.* A library may have a limited (even if large) number of materials that it never previously cataloged, but which it now wishes to make available and catalog as a special project.

3. *Ongoing cataloging of newly received materials.* There are basically two methods for obtaining bibliographic records on an ongoing basis for newly received materials:

   a. *Purchase the cataloging record with the material.* When receiving material, either on firm order or through an approval plan, the library may choose to contract to have the cataloging record sent along with the book. This "shelf-ready" method, so called because the spine label and bar code label have already been affixed to the book, is probably the cheapest method for purchasing cataloging records. There can be complications. If the library obtains the material through an approval plan, purchase of cataloging records at the same time is cost-effective only if the return rate for the approval plan is very low. If it is not, the library will not only pay the vendor for bibliographic records that are not needed, but the library will also need to remove the records manually from the catalog for items returned to the vendor. Shelf-ready materials are available from bibliographic utilities (such as the OCLC PromptCat program) and from book vendors (such as Baker and Taylor, Blackwell/North America, and Yankee Book Peddler).

   b. *Purchase the cataloging record after receipt of material.* In this case, the library sends the material to be cataloged after the physical item has been received by the library to a cataloging agency to produce the cataloging record. There are a number of vendors who currently provide this service.

Although we have had a very successful experience doing so, we do not necessarily advocate outsourcing all cataloging. Libraries that wish to do so must be very careful in the preparation of the RFP, choosing the vendor, writing the contract, and monitoring the quality of work provided by the vendor. This is not for the faint of heart. Those who would seek to outsource an entire department should proceed with care and caution.

About Outsourcing Cataloging

Commonly asked questions about outsourcing cataloging, and our answers to them:

- What is the difference between the OCLC TechPro and PromptCat Services?

  We do not advocate any particular cataloging service. However, since OCLC services figure so prominently in the cataloging marketplace, a brief overview of both the TechPro and the PromptCat services is useful. For records produced using PromptCat, OCLC works with specific approval plan vendors to provide a cataloging record (if it exists in the OCLC database) for items shipped by the vendor. If a library contracts with OCLC TechPro, OCLC actually catalogs each item according to specifications established by the requesting library. These two OCLC services can be complementary. For example, the library may choose to purchase PromptCat records whenever they are available, and to use TechPro to catalog all others.

- Can outsourcing eliminate the need for all in-house cataloging operations?

  No. Regardless of how you outsource, you will still need to maintain some in-house cataloging operations, such as monitoring of quality control, preparation of the local RFP, negotiating with the vendor, and the occasional record cleanup that must be done in the local catalog. Depending upon the size and complexity of the operation, it may be practical to disperse some of these operations to another department in the library. For example, the responsibility for adding new copies or volumes to a set may become a responsibility of acquisitions or circulation. Even if a library out-sources all of its cataloging, most libraries will probably still want to retain someone with some expertise in cataloging to help guide the program.

- In what format will the library receive the cataloging records?

  The format in which the library will receive the cataloging records depends very much upon local systems and local choices. Cataloging records are normally either sent on tape for loading into the local system or sent electronically (such as via FTP). The exact method of record transfer may depend upon the "record loader" used by the local library, and the library's willingness to upgrade or change loaders to make the most effective use of the technology.

- How much money will a library save by outsourcing its cataloging?

  There are no absolute guarantees that outsourcing will save a library money. Cost savings (if there are savings at all) will vary significantly depending upon both the method of outsourcing selected and the efficiency of the current library operation.

For example, an extremely effective in-house cataloging operation may not save much by outsourcing. The only way to know whether the current operation is extremely effective is to conduct cost studies. However, in situations where the library is in a position to accept automated cataloging without making further changes to the records, it is doubtful that the in-house cost of cataloging could ever be competitive with vendor-produced records.

- What if the vendor goes out of business or suddenly raises the prices?

   The library needs to negotiate carefully with the vendor to ensure the viability of the company from which it is about to purchase services. After the library outsources, it must constantly stay aware of current developments in the marketplace. Outsourcing is currently a very effective way to manage an enterprise. As with all management decisions, it must be made based upon current circumstances; the library must be flexible enough to change should the prevailing conditions require a new course of action.

- Is outsourcing of cataloging the right choice for every library?

   There is *no* choice, including outsourcing, that is always right for every library. Each library must review a host of factors, including the services it must provide, the effectiveness of its own current operations, and its budget objectives. Outsourcing will likely prove attractive for many libraries, but it is not for every library in every circumstance.

RFP: FINAL STEPS

Establish an evaluation team, which will:

- determine evaluation criteria and how criteria will be ranked;

- create an evaluation workform;

- eliminate any vendors who do not meet mandatories;

- complete individual evaluations;

- reach group consensus;

- hold vendor negotiation sessions (best and final);

- draft a recommendation for awarding the contract.

   The manager should sign any letter of agreement or contract.

51

THE HUMAN FACTOR IN OUTSOURCING

Outsourcing not only requires consideration of technical specifications, but more importantly it affects the lives of the library staff whose jobs are directly involved, as well as those with whom they work. People whose jobs are outsourced often feel displaced, disoriented, fearful, and quite possibly very angry. Other employees, whose jobs may not be directly affected, may become fearful that their jobs will be next. Outsourcing may also be affected by the library's compensation plan, and may cause the need for changes in staffing levels or performance evaluation systems. These human resource factors can be quite complex, and can serve to make the entire outsourcing process very complicated. The manager who is contemplating outsourcing must be prepared to cope with these many issues and, above all, to help the affected staff cope with the situation.

From the moment that the library begins to consider outsourcing, it should keep its human resources department apprised and involved. It should not go to them after having made all of its decisions (or worse, after it has discussed the possibility of this with the staff).

Another key step is to involve *in advance* all the people in the chain of command responsible for the operation slated for outsourcing. The library should not assume their support-- it should speak with them to ensure it.

HUMAN RESOURCE QUESTIONS RELATED TO OUTSOURCING

Among the most commonly asked human resources questions about outsourcing, and our answers to them:

- If outsourcing will cause personnel problems, why should the library do it?
  Ignoring problems does not usually fix them, but merely prolongs them.

- Will outsourcing lower morale?
  While reengineering and outsourcing can be bitter pills to swallow, often the alternatives are no better. Managers may have to face the difficult decision of whether to keep morale at its current level by retaining an unproductive operation, or to improve organizational effectiveness by outsourcing but run the risk of reducing staff morale.

- What effect does organizational culture have on the outsourcing decision?

    Organizational culture may have a great effect on the decisions related to outsourcing. A creative, productive staff may be able to do some aspects of the work faster, cheaper, or better than an outsourcing vendor.

- If the library decides to outsource, what will happen to the existing staff?

    There are a few possibilities of what could happen to the current staff, and it depends in great part upon what the library *wants* to have happen with the current staff. If the library wants to try to retain all or most of the staff, it may be able to phase in the outsourcing as vacancies occur.

- Can the library outsource if there are union contracts, civil service regulations, or restrictive personnel policies?

    Outsourcing is not done in a vacuum. Nearly every library must cope with federal and state laws and regulations governing changes in the workplace. Many libraries must deal with outsourcing within the context of a union or state civil service requirements. Even in the least restrictive environments, such as libraries at private academic institutions, there typically are rules that limit the changes the library may wish to make. These rules, regardless of their source, must be accommodated, and the library administration should remember that these rules were rightly put into place for the protection of the employee. This having been said, it is also true that it is extremely rare that a union contract or civil service procedures would absolutely prevent a library from outsourcing. What the contract might do is mandate certain steps that the library must follow before it can outsource.

- How does bumping work, and how can it affect the outsourcing process?

    Outsourcing does not necessarily result in a reduction in force or reallocation of staff, but if one of these does occur, unions or civil services regulations usually dictate a system to determine what will happen to displaced employees. Most commonly, the person with the greatest seniority has the option to assume a job currently held by another person in another department who has lower seniority.

- How are staff likely to react to consideration of outsourcing, and how should the library deal with the situation?

    Reengineering of any sort increases organizational ambiguity and therefore raises the level of fear and distrust within the organization. The specter of outsourcing may cause some people to reexamine what they are doing and why they are doing it, but more often they will become self-protective. The decision should not take years to make; if the library is seriously considering outsourcing, staff will appreciate it if the decision is made within no more that a few months--and preferably within a few weeks. The faster the library can make its decision, the faster the staff can move ahead with their lives.

FINAL THOUGHTS

Perhaps the most important lesson is to recognize that outsourcing is neither a panacea nor a bogeyman. Both before and after outsourcing, problems may exist in the library or on the staff. Reengineering technical services at the local level, such as by outsourcing the production of cataloging records, will not eliminate major structural problems with technical services at the national level, such as problems with national cataloging standards and practices. Outsourcing will not solve those problems, nor do we imply that it will. Outsourcing is an effective way to cope with the existing systems of acquisitions and access, but it is not intended to fix underlying structural problems. That must be done through a concerted national reengineering effort. This looms as perhaps the greatest challenge of all to the profession. It will be interesting to see whether the profession at large is willing to rise to the occasion.

Notes

1. Michael Hammer and James Champy, *Reengineering the Corporation: A Manifesto for Business Revolution* (New York: HarperCollins, 1993), p. 32. (emphasis added)

Contracting Out

in

Air Force Libraries

by

Barbara D. Wrinkle
Director
Air Force Library and Information System

Welcome to the chaotic world of Air Force Libraries. If anyone in this room thinks they are going to escape the fall-out from what is happening in the Air Force, I caution them to think again. DOD is a very competitive work environment and what happens in one service has strong ramifications for all branches of the Armed Services.

Outsourcing and privatization are not new concepts. There has been an annual requirement to review commercial activities and offer candidates for cost comparison or direct conversion studies for at least the past ten years. Until recently, most of the outsourcing involved aircraft maintenance, engineering services, vehicle maintenance, food services, and laundry services.

In November 1995, the Chief of Staff of the Air Force, General Ron Fogelman, sent a letter to all Air Force Major Command Commanders, emphasizing a broader corporate commitment to outsourcing and privatization. The three main objectives are to improve the performance, quality, and efficiency of support functions; generate savings for modernization; and focus on Air Force resources and core activities, while sustaining readiness.

In March 1996, the Air Force Management Engineering Agency -- the "manpower" organization -- released a major study identifying opportunities for privatization, outsourcing, and civilization in all Air Force support functions.

Privatization is the process of changing a governmental function to private control and ownership. The government gives up all management and financial control. It will sell or lease on-base facilities to private companies, and the company assumes responsibility for utilities and upkeep.

The Air Force considers outsourcing as the most economical source. It is the transfer of a function that has been performed in-house to a contractor, but the Air Force retains full control and responsibility. Current studies of Air Force outsourcing initiatives reveal that 60 percent of the functions are contracted out, and 40 percent remain in-house, for an overall savings of 29 percent.

Positions normally identified for military personnel are now being converted to Department of Defense employees, especially those in finance, personnel, manpower and quality assurance evaluators for contractor oversight.

There are only three criteria which can keep a function from being considered for outsourcing and privatization: (1) the function is inherently governmental (the act of governing, i.e., command and control; and monetary transactions and entitlement); (2) legal restrictions to outsourcing; and (3) the function is tied to a readiness tasking.

The current attitude reflects "If the operation doesn't deploy or engage in warfare, it could be contracted." Therein lies a major conflict! Outsourcing is treated as a business decision, but it is a cultural question. The outsourcing decision-makers have little or no contact with the individuals who are impacted by their decisions. They do not have to face anyone to see how their lives are impacted by job loss, change in economic status, loss of esteem, and pride in their work. You and I are left to deal with the day-to-day issues.

The Air Force identified libraries as commercial activities with the explanation that a library is a library is a library. If a library is provided outside the gate, then the Air Force does not need one . At the same time the Air Force identified libraries as mission-essential and as vital for mission and education support. Basically the Air Force has identified that libraries are needed on base; however, it is up to the local installation commander to decide if it would be in the best interest of the Air Force to contract out staff functions, but maintain Air Force control.

Until this time we had four technical (Arnold TN, Eglin FL, Rome Laboratory NY, and Vandenberg CA) and two general (Thule AB Greenland, and Vance OK)contracted libraries.

Three general libraries (Eglin AFB FL, Maxwell AFB AL, and Randolph AFB TX) were identified for A-76 studies in FY94. Unfortunately the librarians were not informed until the studies started in October 1995. This was very traumatic for all staff members.

A Task Force was formed to write a standard Performance Work Statement (PWS) boilerplate for Air Force-wide use if the installation identified the general library for a cost comparison or direct conversion of their manpower function. We developed the draft, January-- April 1996, and then progressed through the long, slow coordination and review process. We hope to release in December 96.

A number of hot issues have been debated during this process. I highly recommend that anyone working on a PWS ensures these areas are addressed. They are key elements we live with every day; however, others outside the library arena do not realize the importance. These issues are the following.

- Staff qualifications.
  - (a.) Education -- very few people are aware of the educational requirements and standards for librarians and other staff members. Be sure to identify requirements for all staff members and be able to justify repeatedly.

  - (b.) Physical requirements -- very few people are aware of the requirements for standing for long periods of time, bending, stooping, pulling and pushing book carts, and reaching to shelve or retrieve materials.

  - (c.) Duty hours -- need to identify evening and week-end duty hours

- Training. You need to identify requirements for all staff members. It is critical to identify technology requirements, and it is a continuous training process to maintain currency.

- Quality Assurance Evaluators (QAEs). QAEs must have technical knowledge and experience in the area being contracted out that are sufficient to permit them to observe contractor performance and determine whether the service does or does not meet the contract standards. The Air Force states that selectees must have the specialized knowledge, skills, and abilities required to successfully perform QAE work; however, they have not recognized that librarians should be appointed as QAEs.

- Technical evaluation team. A qualified team of individuals, including librarians, should evaluate proposals to ensure that a contractor can meet the specifications of the contract.

- Qualified contractors. Currently there doesn't seem to be a pool of qualified contractors for general libraries. Most contractors have worked in technical and special libraries.

- Historical data. We do not have adequate historical data to prove if contracting will be successful in all libraries. Marketing data used by the Air Force is inadequate. You need to ensure you are comparing the same type of libraries with similar services and collections.

- Legal ramifications for the current staff. You need to check with your local legal office to learn their interpretation of how working on the PWS and other areas of contracting out affects eligibility to work for a contractor, or the ability to form your own business and bid on the contract.

Current status: We have twenty-one general libraries undergoing direct conversion initiatives, eight general libraries involved in cost comparison studies, and one multi-library study (multiple libraries located on a base, but are different types of libraries serving diverse customers). The numbers change frequently.

Recommendations:

(1) Know your organization's mission, vision and strategic plan. Identify how you fit into the organization and how you are serving various groups within the organization. What value are you bringing to the organization?

(2) Know the key decision makers in your organization and on your installation. Let them know what you do for the organization, how you can improve their decision making process.

(3) Identify your core competencies. Look at your programs and services. What do you do best, and what are the things that do not add value to the library? Streamline processes, ask your customers what they need, provide exactly what your customers need.

Can following these recommendations save you from contracting out or outsourcing? Probably not. But I have noticed that librarians who have taken the time to address these issues and functions are not currently being considered for contracting.

Response:
Outsourcing and Contracting Out from the
Federal Government Perspective

by

Michael L. Marshall
Executive Secretary/Staff Specialist in Laboratory Management
Navy Laboratory/Center Coordinating Group (NLCCG)

In my remarks today, I'd like to spend a few minutes discussing outsourcing from a federal government perspective, especially lessons learned from contracting out so-called "Commercial Activities." These are activities that provide goods or services generally available from the private sector, for example, some of the library functions we are discussing today.

My interest in outsourcing grows out of my work with the group of senior military and civilian executives that manages the largest part of the Navy's technical community. The group is called the Navy Laboratory/Center Coordinating Group, or NLCCG for short. Currently, this community consists of about 55,000 civilian and military personnel. About 40 percent are scientists and engineers who provide the Navy with the latest technology. Last year, the NLCCG community was responsible for work worth about 11 billion dollars. About 40 percent was performed by government employees, while the other 60 percent was done on contract. Of course, not all of the money spent in-house goes to the scientists and engineers. Some of it goes to support them by providing services such as human resources, plant maintenance, information systems, financial services and the like. And this is where my interest in outsourcing lies, because, as the Defense budget declines, we've got to find ways to do our work more efficiently, and outsourcing is one tool that can help accomplish this if properly used.

As I indicated a moment ago, the NLCCG community's work is already heavily outsourced. Even so, the Navy is pushing to increase outsourcing, as is all of DoD. Perhaps some of you are familiar with two recent Defense Science Board studies, both of which concluded the Department could save substantial sums by contracting most of its support and maintenance services. One study claimed 10 billion dollars in annual savings, the other 30 billion. (Incidentally, the first of these specifically mentioned library services as an outsourcing candidate.) These studies come on the heels of others, all of which claim that substantial savings can achieved by contracting out work to the private sector. So you can see the pressure to outsource is building in the DoD.

Because of the NLCCG's interest in this subject, I began to look into the literature about a year ago, focusing primarily on the Commercial Activities (CA) Program established by the Office of Management and Budget (OMB). Some of you may recall that the DoD vigorously pursued the CA Program from 1979 until about 1990, and many government functions of a commercial or industrial nature were outsourced. However, the cost comparisons called for by Circular A-76 proved burdensome and time consuming. And, because of the Program's negative impact on government employees, it became very unpopular with Congress, which imposed a number of constraints on its implementation. Ultimately, the difficulty of implementing the CA Program in the face of such constraints, and a lack of sufficient budgetary pressure during the 1980s, led to a wind-down in the Program by about 1990. Recently, however, the growing pressure on the Defense budget and studies such as those I just mentioned have given the CA Program new life. Thus outsourcing is once again a very hot topic in the public sector, as it has been for some time in the private sector.

Contracting for commercial services in the public sector is quite different from contracting for such services in the private sector, and since I am most familiar with the rules in the federal government, I will confine my remarks to that setting. One of the major differences is that there are limits, albeit very fuzzy ones, on what can and cannot be contracted out. One public sector rule is that "inherently governmental" work must remain in-house. Despite all that has been written on inherently governmental work, the term remains poorly defined and largely subjective. The General Accounting Office (GAO) has stated that *the basic principle to adhere to is that the government should not contract out its responsibilities to serve the public or to exercise its sovereign powers,*" but such advice hasn't proved very helpful.

A private sector company can, on the other hand, contract out almost anything. I came across one example, a company called Topsy Tail which is involved with hair-care products, that is an eighty million-dollar-a-year business with only three employees. It contracts for practically everything it does, from manufacturing its products to servicing its retail accounts. Another difference is that in the federal government, you can contract out only after a public-private competition is staged and the private sector wins. This competition must generally be carried out under a set of detailed rules contained in OMB Circular A-76 and an accompanying "cost-comparison handbook." By the way, this handbook is about an inch thick, which says a lot about the complexity of the A-76 rules.

The process goes something like this. First, the agency defines it work requirement. Next, a review is carried out to determine the most efficient way to provide the requirement using government workers. The resulting organization is called, in Circular A-76 parlance, the Most Efficient Organization, or MEO. Next, the cost of performance using this MEO is calculated. Finally, the MEO cost is compared with the private sector bids. If it is more economical to have a contractor provide the activities, they are to be contracted out. If not, they remain in-house, but the government has to implement the MEO developed during the cost study to streamline operations and reduce costs.

Of course, the overall goal of the CA Program is to create "savings," but how are they defined in this context? Well, if the government wins the competition, the difference between the original cost of the function and the cost to operate the function under the MEO represents the savings. On the other hand, if a contractor wins, the savings is the difference between the cost to operate the function under the MEO and the winning contractor bid. I'm sure you can start to appreciate why this A-76 cost-comparison methodology proved so burdensome and time consuming, a point I will return to shortly.

What I did for the NLCCG was to take a look at a number of studies that were conducted on the CA Program. It turns out that because of Congressional concern there were lots of studies by the GAO and others. I obtained copies of most of these, reviewed their findings, and wrote the results up in a report for the NLCCG. Here are a few of the valuable lessons I learned.

Perhaps the most significant thing I learned was that the competition process itself, not outsourcing *per se*, yielded the savings. In fact, the government bid was the lowest in about half of all CA competitions staged, and closer to 60 percent in the case of Navy CA cost studies. This is a lesson that many today have missed as they seem to think it is outsourcing in and of itself that produces savings. The data just don't support this conclusion. Interestingly, one of the GAO reports on the MEO concept noted that the fact that contract cost is less than the cost of an inefficient in-house function does not ensure that taxpayer money will be saved by contracting it out. As the GAO observed, it may be more economical to simply reorganize or reengineer the in-house function than to outsource it. A number of papers I have recently reviewed on outsourcing in the private sector have also reached this conclusion.

I said a few moments ago that the cost comparisons called for by Circular A-76 were burdensome and time consuming. GAO looked at this and found the CA process could take years to complete, and almost always reduced the morale and productivity of the employees whose jobs were at stake while the cost comparison was ongoing, something that is hard to quantify but which can have a significant impact on bottom-line savings. Specifically, the GAO found that DoD averaged two years to complete an A-76 cost comparison, and many took longer. In fact, the GAO found that of the 940 cost studies the DoD had ongoing in January 1989, 44 percent were started in fiscal year 1983 or earlier, representing six years or more in progress. As you might imagine, conducting such comparisons can be costly, and most savings claims to date have not been discounted to reflect these costs. One Navy think tank has estimated that study costs for relatively simple functions, such as those involving 10 or fewer people, can amount to 11 percent of the annual cost of performing the function.

There are also costs associated with the ongoing process of administering outsourcing contracts. These costs cover such things as preparing quality assurance plans, reviewing contractor performance and compliance with the terms of the contract, processing contract payments, negotiating change orders and renewals, and so forth. So, it should be no surprise that accurately estimating administration costs has been a major problem. In the past, the A-76

methodology prescribed a formula approach to the estimates, calling for them to be computed at four percent of the contract price. However, the GAO found these costs were often higher, more typically between six and seven percent, some even higher. It appears these costs are pretty much in line with reports in the private sector. The Meta Group of Stamford, Connecticut, which consults on outsourcing, looked at this issue and concluded that customers should count on spending five to seven percent of the value of an outsourcing contract just to manage the contractor.

Contracting for Commercial Activities involves further cost implications which impact net savings, so let me briefly say something about these. It is a truism that contracting out eliminates government jobs. But the GAO found that the effects of contracting went beyond those working in the function outsourced. When contracting out leads to involuntary employee separations, called a Reduction in Force or RIF, other employees may be affected by the process known as bumping-and-retreating. Under Civil Service rules, factors such as qualifications, seniority, and veterans status may well determine who ultimately goes out the door and who stays. Experience has demonstrated time and again that the RIF process can be extremely disruptive to the affected organization, not only while the process is ongoing, but afterwards as well.

At one time, most affected government workers found other government jobs. One GAO study examined a random sample of 31 functions converted to contract and found that three-quarters of the displaced government employees obtained other government jobs and only five percent were involuntarily separated. Moreover, the others usually went to work for the contractor. In 1984, the DoD reported that of the 9,650 employees affected, 94 percent were either placed in other government jobs or retired. Of the remaining 615, about half obtained employment with the contractors. These numbers were typical of the CA experience of the 1980s.

Today, however, things have changed. Currently, with the focus on declining budgets and cutting infrastructure, it is unlikely that these historic employee placement numbers will be achieved. More likely, the number separated through RIF actions will be much larger, and fewer of those separated will find work with the contractors.

In addition to lower productivity and poor morale, contracting out large numbers of functions will almost certainly have other cost implications. For example, the government will incur costs for severance pay, relocation pay, retraining, and retention of pay and grade, all mandated by some regulation. Since the number of government jobs is declining, displaced employees (other than those retiring or taking buy-outs) will probably take greater advantage of retraining and relocation opportunities, thereby driving up these costs to the government. And what of the employees involuntarily separated? Past experience suggests many seek unemployment compensation and/or public assistance, both of which the separating activity will have to help pay for in whole or in part.

Finally, the economic impact on the surrounding community can entail further costs to the government. This is especially true in the case of the Defense Department since by law the Secretary of Defense is required to provide Congress with a report showing *"the potential economic effect on the local community and Federal Government if more than 75 employees are involved"* in the function contracted. If past experience is any guide, producing such economic impact studies can be time-consuming, costly, controversial and, in many cases, highly political.

Let me conclude with two points. First, contracting out, whether it is done in the private or public sector, is a complicated business. It should be done carefully and for the right reasons. Second, contracting in the public sector typically involves a lot of special rules that do not apply to the private sector. I have used the federal government setting to illustrate some of these rules and their potential consequences for the contracting-out process.

Response:
Outsourcing Libraries in the
U.S. Army Corps of Engineers

by

Carol McMillin
USACE Library Program Manager

I am happy to share with you our experience within the U.S. Army Corps of Engineers in outsourcing six of our scientific/technical libraries. I will qualify my remarks, by letting you know that I am not an expert on library outsourcing.

In the Corps of Engineers today, we have forty-seven libraries, of which six are Government Owned, Contract Operated, (GOCO). Our first library to become a GOCO operation was the Wilmington District (North Carolina) in 1985. It was our only contract library until 1995, when four additional libraries became contract operated. Today we have contract libraries located in Wilmington, Los Angeles, Galveston, Mobile, Pittsburgh and Seattle. For a year we had seven GOCO libraries, as our Detroit District Library was also contract; however it has subsequently closed. In all seven cases, the library was converted to contract status as the result of vacancies that could not be filled. Down-sizing mandates prevented management at these districts from filling these vacancies with government employees. In all seven cases, the district had a well-established library that had previously been staffed by a government librarian. Contract librarians were hired at all seven sites to provide full library services including reference, current awareness, collection development, acquisitions, cataloging and collection control. Three of our current GOCO library contracts provide for one library technician, as well as one librarian.

Until recently, outsourcing within the Army Corps of Engineers was viewed by the government librarians with great suspicion and fear. They felt threatened by and vulnerable to these changes. However, we have learned that contracting out a library can be a very positive experience — a solution. The Corps' GOCO libraries had all been without staff for months, even years, and there was no hope of re-establishing the manpower slots at these sites. The contract librarians who have been hired are well-trained professional librarians, who are providing good library service to their customers. Outsourcing has certainly been a better option than having unstaffed or closed libraries. The fact that management recognized the need for library services and found a way to provide them is good news.

Within the Corps all libraries come under the Information Management umbrella. And as you might expect, that puts our libraries under the supervision of a non-librarian, usually an automation or telecommunications specialist. As Library Program Manager, I am responsible for policy and oversight of the libraries, but I do not control or disperse their funding or manpower allocations. Therefore, I do not make the decisions about contracting. I can only hope to influence the decision-maker, who is usually the Chief of Information Management (CIM) or the local Commander.

When our libraries were outsourced, in all cases the Performance Work Statement (PWS) was written by the Chief of Information Management, a non-librarian. In 1994, when most of the Performance Work Statements were written, the original PWS, written for Wilmington, was passed around as the sample. Also, when they were being established I was not given an opportunity to review them, not because of a conscious effort to exclude, but from a sense that it was not necessary since it was their contract not mine. I have since requested and received copies of the Performance Work Statements and have concluded that while they were all well-intentioned and covered all the library services, they are very general and do not address timeliness or quality of the work to be performed. I believe these issues of quality and timeliness are potentially very serious omissions. For example, are you providing a quality service, if your customer needs a book or report within a week and you deliver it two months after the request? As long as the contractor and the contract librarian want to do a good job and support the needs of the customer, the Corps site using that contractor will be well served. So far, with one exception, this has been the case. The contract librarians have been very professional and customer oriented. However, our experience has shown that in some locations there is a high turnover — probably due to the lower salaries paid to the contract librarians. In the Corps, not only have the non-librarian Chiefs of Information Management written the Performance Work Statements, they have become the contact monitors. This has also presented some additional challenges for our contact librarians.

Each of our library contracts currently is with a different company or individual. Four of the six are with outsourcing companies (A-8 Firms) that specialize in non-library areas, such as Human Resources, Logistics, and Management Specialists. Two of the four contractors manage only one library (our USACE library) and two manage one additional library. The two latest library contracts are owned by the librarian, who bid on the job and won the contract award.

A recurring issue for at least four of our GOCO libraries, is training. It was not addressed in the Performance Work Statements. The government agency has been reluctant to use their scarce training dollars on contractors because they claim they contracted for a fully trained librarian. You know that in the library world, where changes happen daily due to advances in technology and information management, we all have to continually train. The contact librarians are having a hard time getting training because the government will not approve it, and the contractor usually denies it, because training would have to be funded out of the profit.

So far, outsourcing has taken place within the Corps of Engineers without the government librarians playing any role in these changes. The USACE Library Program felt that was very unfortunate, so we have developed an alternative plan we hope will put us back into the picture. About two years ago we formed a Strategic Planning Team to help establish Library goals and objectives. We had planned to do strategic planning, but early on we realized we first needed a tactical plan to address some very immediate problems and concerns. We have Corps sites that do not have a librarian, yet they have not contracted for professional library services. We urgently needed to ensure that the engineers and scientists at these sites could receive full library services. Our tactical plan was written to remedy this situation without requiring the outsourcing of the entire library function. This plan established Library Service Centers at three sites where we had large well-established libraries. These Centers were introduced to provide library services on a cost-reimbursable basis to the sites without a librarian. The plan provides for full library services including reference, acquisitions and cataloging services. We acknowledged that all of our Library Service Centers were already busy and had no "free time" to take on this additional work load. So in our plan, we stated that the Library Service Centers could contract out part of their workload. For instance, if Library A took on the acquisitions and cataloging for two other sites staffed only with a library technician, Library A might outsource the cataloging work with OCLC. This would make the librarian at Library A the contract and quality assurance monitor for the outsourced cataloging. The Tactical Plan offers, to Corps sites without full library services, an alternative to outsourcing the entire operation. It also saves the local CIM from writing a Performance Work Statement and taking on the role of contract monitor. The Library Service Centers are willing to take on all these responsibilities, and it puts a subject matter specialist in control of these library contracts.

Our Tactical Plan also calls for a formal agreement between the Library Service Center and the site receiving the services. A Memorandum of Understanding (MOU) is signed, and funds are send to the Library Service Center. The USACE Library Program was pleased to offer a plan that provided quality Library services, saved the CIM the hassle of contracting out the Library, and placed the outsourcing within the control of the USACE Library Program. However, for eighteen months after the Tactical Plan was written, the Plan was not used. But at the beginning of my presentation, I mentioned that our contact library at Detroit had recently closed, and I am happy to tell you that last month we convinced Detroit to use our tactical plan. Detroit has signed an MOU with our Buffalo District Library and sent them some start-up funding to provide Library services. Unfortunately, we don't have any data yet to judge how well this is working, but I can tell you the Information Manager at Detroit was very pleased with the offer. We will work closely with Detroit and Buffalo to monitor our progress, our lessons learned, and hopefully our successes.

Our Library Program has made one additional change concerning outsourcing. By rewriting the engineering regulation that governs the Corps libraries, I am now part of the review process for any new Performance Work Statements that are written for Corps libraries. The Library Program has tried to position itself to be a part of any future library outsourcing effort.

The Library Program has also come a long way in its thinking about outsourcing libraries. We are working closely with our GOCO libraries to include them in the Program, and we want to work with our GOCO librarians to maintain the high standards under which our libraries have always worked. Outsourcing government libraries is an issue that involves a lot of emotion for library customers, library managers and especially librarians. We all have strong opinions on if and how outsourcing should be done. I was not a proponent of the idea at first, and I do not advocate outsourcing as the answer in all cases. However, our Library Program has realized that times and situations have changed within the Corps, DOD, and all of the federal government. We are downsizing and getting smaller everyday. Our manpower allocations are diminishing, and government spaces will not be re-established for libraries. The outsourcing of libraries is a fact of life that will continue and increase. Our contract libraries in the Corps are run by professional librarians who are providing a valuable service to the engineers and scientists. We believe our government librarians should continue to provide the leadership and be the change agents for our Program, but we have also come to recognize the GOCO librarians as part of our team. Outsourced libraries can and do provide good service to their customers and are a positive alternative to closing the doors of unstaffed libraries. Careful planning and monitoring of these contracts is mandatory, to ensure that quality services are provided in a timely manner and that corners are not cut to save money only in the name of profit. A well prepared Performance Work Statement with sound quality assurance built in is a requirement for making outsourcing a win--win situation for all concerned, especially the customer. If the customer's information needs are being met in a cost-effective manner by a GOCO librarian, then we are well on the way to making this venture a success.

Extending the Library to the Desktop: The Navy Distributed Virtual Library Project

by

Joan C. Buntzen
Librarian of the Navy

Introduction

This session offers two presentations which describe two different approaches towards providing end-user, desktop information access and services. I think we have recognized both at Wright Lab and in the Navy warfare center and laboratory communities that end-users want and absolutely should have better and better desktop information access. Note, however, that we've titled this presentation, *"Extending the Library to the Desktop,"* and not something on the order of "Empowering the End-User."

I think you'll see that at the core of our two efforts is the idea that librarians must be very prominent, if not the leaders, in organizing and carefully managing the transition to electronic information access and services in the downsizing military environment. We have the necessary knowledge, skills, and experience to continuously modernize end-user services, but even more importantly, we're the ones who may have the wisdom to strike the balance needed for careful use of scarce resources during this transitional period from print to electronic, and from traditional, library-centered services to distributed electronic services.

Background and Issues

The Navy Laboratory/Warfare Center Coordinating Group (NLCCG) consists of the commanding officers and technical directors of the Navy's four warfare centers and the Naval Research Laboratory. The Group was established in 1992 when the Navy laboratories were reorganized and realigned into four warfare centers and their subsidiary sites, and the Naval Research Laboratory became the Navy's corporate research laboratory.

The NLCCG is the sponsor for the Navy Distributed Virtual Library (NDVL) Project, which evolved from a proposal I wrote to the Group in March, 1995. The proposal was to re-engineer and modernize scientific and technical information access and services to the 22,000 scientists and engineers across the Navy research, development, test, and evaluation community.

I believed that any large-scale transition to electronic information access and services was not going to come cheaply or quickly for Navy libraries and end-users, because there are over a hundred special, medical and academic libraries, each working independently to exploit the possibilities of electronic information access and services.

Navy librarians are faced with the very same requirements in the electronic environment as they are in the non-electronic: adequate staffing, and staffing with good technical expertise; the requisite infrastructure and connectivity; non-cumbersome acquisition processes; adequate funding for content; and the need for serious top-down recognition, support and commitment for modernizing access and services.

Navy librarians also face the challenge of maintaining parallel systems: managing physical collections and services, and at the same time establishing and maintaining electronic services, plus training and educating users in the various media. Balancing the two worlds of print and electronic, and managing this transition to the intensively electronic, is not understood or appreciated by non-librarians.

The Web is NOT the Library!

In fact, don't you wish you had a dollar for every time key people around you, such as commanding officers, ask why we still need the library now that we have the Web, or can't we just "tap into the Internet," and get all that we need...and for free!

I'm sure there are probably more reasons why the Web is not a cost-free technical, medical or academic library, but here are just a few:

- the majority of what users want on a daily basis (books) are not on the Internet or even online anywhere;
- access to good sources (full-text articles), or to search indexing and abstracting services to find citations is on a cost subscription basis;
- quality is uneven or erratic, even for some of the cost-based sources;
- sources disappear as quickly as they appear; and,
- very importantly, keyword searching in Lycos, Alta Vista, etc., yields a lot of marginal, irrelevant or false hits because everything is searched, not necessarily the most highly relevant. Indexing and subsequent searching by keywords is not equivalent to searching organized and cataloged information.

What's a Virtual Library?

Our focus in the NDVL Project has been on the virtual library concept in order to improve access for the desktop user to highly valued remote sources and library services. A common definition of the virtual library is electronic access to remote sources that will either supplement or substitute for materials held locally by our libraries. The NDVL Project did not focus on the digital library concept in which all materials are in digital text or image, nor on the complexities and costs of access, services, and maintenance for that kind of collection.

Why Virtual Libraries?

Providing and improving electronic access is increasingly critical in the Navy because this may be the only way to regularly serve many remotely located users, and also because:

- more and more information is becoming available electronically;
- this proliferation of sources is confusing for the end-user, and begs for logical selection and organization of at least the commonly needed or core sources;
- libraries, the traditional suppliers and managers of information, are now being downsized and consolidated;
- library budgets for purchasing content and access licenses are static at best;
- users can and want to do some searching for themselves; and
- users want access to more sources, 24 hours a day, and from wherever they're sitting.

What Does it Take?

Building the virtual library obviously requires basic computer and communications infrastructure, but it also requires a great deal of knowledge about information sources. Because the Web is a new market arena for publishers and providers, there are many complexities in choosing the most cost-beneficial subscription options to match needs and preferences. Investigating and analyzing all of the various options is very labor intensive, as are the ensuing acquisition and follow-up. Currently, each Navy library manager works through these challenges on an independent basis. Our libraries are neither realizing the benefits of consortium prices or licenses, nor of acquiring customized products that might be of greater value to our library staffs and end-users.

In addition to the barrier of the cost of content, our libraries are also challenged by the need for processes to distribute the costs among their end-users. Policy on charge-back for services varies considerably among Navy commands, but for the most part, it's the libraries which pay subscription costs upfront, and then must administer cost verification and charge-back processes. This, too, is very labor intensive and burdensome for library staffs.

NDVL Goals

The NDVL was conceived as a project in which librarians partner with end-users to deal with the issues and challenges I've been discussing, and on an inter-command, cooperative basis. This project exploits the virtual library concept for our very distributed and disparate community, so that we might do together what individual libraries acting independently are struggling to do.

More specifically, the Project goals have been:

- get more useful information to the desktop;
- coordinate acquisitions and licensing, i.e., look at the possibilities of cooperative, corporate, or consortia pricing;
- increase proactive and automatic user services;
- assist library staffs to exploit technologies;
- maximize use of the Internet/Web as backbone and ubiquitous search interfaces, thus minimizing end-user training requirements.

NDVL Project Plan

Our approach was a three-phased one: first, perform a user requirements analysis to discover what electronic sources and services users would most like to have; second, buy or develop the necessary software and content, and pilot or test it; and third, scale the software for wider implementation.

NDVL User Requirements Analysis Results

The analysis of user desktop requirements was performed by the Logistics Management Institute (LMI), a federally funded research center, through information gathered at more than twenty focus groups. Users indicated in almost all of those sessions their concern that we recognize that print was still important to their work processes, and that the virtual library must not become a substitute for their physical libraries, or for personal assistance by librarians. In order of importance the requirements turned out to be:

1. Search the local library holdings;
2. Browse journals' tables of contents;
3. Order needed items from the desktop;
4. Locate peers;
5. Search documents produced locally;
6. Locate standards and military specifications;
7. Receive alerts of new publications in areas of interest;
8. Receive notices of new items in the local library.

71

NDVL Prototype

The User Requirements Analysis led to the design and programming of the NDVL Prototype, which is actually:

- a tree of Web pages connecting users to a carefully selected array of valued sources and services;
- middleware that validates each user, checking against a user profile what sources he is authorized to use, and keeps track of the costs he incurs;
- a logical organization of both the cost-based or licensed sources, as well as links to free, complementary sources desired by the end-users.

NDVL Prototype Pilot

The Prototype is being piloted to 120 scientists and engineers at 8 sites around the country from September 1996 through February 1997. There is no cost to the end-users because of cooperative agreements and minimal subscription fees negotiated for the Project.

Lessons Learned...So Far

Since we're just two and a half months into the Pilot period, usage trends and results aren't yet available; a formal report that will also address broader implementation possibilities, and requirements will be produced in the spring of 1997. What I can tell you at this point, though, is that funding was very lean and mean, and covered about 1500 hours of analysis, programming, and Pilot maintenance costs. A few Navy library directors donated countless hours of thinking, advising, and also acquisition support services to the Project.

Lessons learned: a) inter-command efforts such as this need not only top-down resourcing, but also clear top-down support and concern for the information needs of the current work force to get people motivated and excited about the possibilities of cooperative ventures; b) we could do a whole lot more and better, if we could just act like a consortium and negotiate as a unit for sources and licenses; c) no matter how much is offered, users will ask for more, including, "Why can't there be just one interface to all sources that I need with results automatically de-duplicated;" and, d) it's challenging to define a project of this nature when new tools and Web-accessible sources emerge almost every day.

[A series of overheads depicting the NDVL tree of Web pages followed. The overheads showed the NDVL homepage in html frames format; the common search template for eight DIALOG databases with keyword and fielded searching; search results indicating the cost to the user; the OCLC FirstSearch Pool Service interface; the document ordering interface; library catalogs interface, including **look@me** for librarian remote search assistance; peer locator sources; research reports and summaries links, including an SDI service; and tables of contents sources and services.]

Extending the Library to the Desktop: Using GoldenGate at Wright Laboratory Technical Library

by

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Background and Issues

Wright Laboratory Technical Library claims in its mission statement that it is committed to cost-effective delivery of information sources to its customers: the scientists, engineers, and managers of Wright Laboratory and Aeronautical Systems Center at Wright Patterson Air Force Base. We recognize that there are competitors to our services and, therefore, strive to be the supplier of choice to our clients, even to the extent of supplying end-user options as alternatives to our own mediated library searches. At Wright Laboratory we consider end-user access to be the untrained, unassisted use of commercial databases by laboratory personnel.

As part of our collection development criteria we select services which extend the options of our customers and establish the accounts with those services. For example, the Library established a custom gateway with the UnCover Company to enable both end-user searching and document delivery at the desktop. We learned several valuable lessons from this experience which we were able to later apply with GoldenGate. We learned with UnCover how to create a system of accounts to track use and expenses back to organizations. We learned that there is practically no abuse of the accounts to order documents that are not mission related. We learned the special importance which scientists and engineers place on abstracts to judge the relevance of papers. Especially, we learned end-user searching is not for everyone, that a substantial number do not want to be bothered with it, nor should they be.

The Library staff conducted a customer survey in 1990 which made clear that a number of influential scientists and engineers wanted some form of desktop access or end-user search options. Reference Librarians regularly heard similar requests from clients when providing mediated online searches or assisting them with CD ROM products, most frequently in the form of the question "can I do this from my desk?" These comments provided evidence of continued demand for some form of end-user search tool. This continued demand for desktop access highlights three issues to consider:

Should we do it? Can we do it? What is it worth?

73

Should We Do It?

At Wright Laboratory we consider this first item to be a non-issue. As long as we in the library profession dealt only with printed indexes and card catalogs, and were content to allow clients to expend their time finding information sources, we did not trouble ourselves with the question of end-user searching. Of course they did it! And we showed them, from third grade on, how to use *Readers' Guide* and the card catalog. What has remained constant over the last twenty years, even as we changed to electronic reference sources, is our responsibility as librarians to use the tools of our trade and provide the best resources we can to enable people to identify information sources. Electronic sources are tools, and we exercise our professional judgment as we do any other information source we control, in making these tools accessible to end-users through purchase, subscription or licensing.

Can We Do It?

Alternative Solutions

End-user access in pre-electronic days was relatively common and non-controversial. Today it is relatively simple when using public access catalogs or single-license CD ROMs in the library. Extending database access to end-users at their desktops requires a technological solution. Both CD ROM and online technology alternatives exist to accomplish this feat.

The CD ROM alternative at first held out great promise. CD ROM costs are predictable as annual subscriptions which enable unlimited searching at a fixed price. CD ROM products are designed for end users. Their search interfaces are often graphical or menu driven leading users to the content with little training. Unfortunately, prices rise steeply for the multiple user or network licenses required to extend their use outside the library. Additionally, Wright Patterson AFB contained several incompatible networks and network operating systems. The hardware and software costs required to overcome this incompatibility, and the costs for the servers and the number of CD ROM drives needed to mount all the necessary disks, together with the network license fees for the databases, all made this unfeasible. Further consideration of CD ROMs revealed their limitations in coverage. If implemented, the Library would make available only four databases: *INSPEC* from UMI ProQuest, and the DIALOG Ondisc versions of *Aerospace Database, NTIS*, and *Ei Compendex Plus*. These four provided only five to ten years of coverage with quarterly updates.

Online databases, in contrast, provided a greater depth and breadth of coverage. The hundreds of commercially available databases have twenty to thirty years coverage and are updated monthly, weekly, or more frequently depending on the database. Internet access to DIALOG via telnet eliminated the problem of networked CD ROMs, and the library had no responsibility for database maintenance. Of course, there remained the serious barriers of command language searching and unpredictable costs.

Enablers for GoldenGate

Wright Laboratory Technical Library staff began investigating solutions to these problems of end-user desktop access. We talked with DIALOG about its end-user menu products and discussed creating one of our own in conjunction with a DIALOG partner, Applied Research Technology. In the meantime, two other developments which would have an impact on our decision were proceeding independently.

The first development occurred as DIALOG created new pricing plans which Fedlink extended to its membership. Custom Master Plan pricing enables a predictable price for online searching of the most demanded databases. In return for a 15% increase over the previous year's total DIALOG search expense, the Library received a flat rate subscription for unlimited use of the DIALOG databases. DIALOG, of course, is not completely altruistic, and the plan calls for future prices to be based on current usage. To continue in the plan beyond the first year, the library agrees in subsequent years to split the difference between the prepaid subscription price and the value of online use. For example, suppose a fiscal year 1995 DIALOG bill of $87,000. To participate in Custom Pricing, the Library would pay $100,000 in fiscal 1996 (1.15 x $87,000= $100,000). If during the year the library used $150,000 of DIALOG services this use is covered by the previously fixed $100,000. To participate again in fiscal 1997, though, the library must now pay $125,000 (($150,000- 100,000).5 + $100,000). However, if the library decides not to continue in the program it reverts to standard pay-as-you-go pricing.

The second enabler was Defense Technical Information Center's (DTIC) development of GoldenGate software. Wright Laboratory Technical Library is biased toward commercial software solutions, in order to avoid not only initial development charges but also the expense of updating, maintaining, and documenting programs. DTIC was offering a product which apparently provided the functionality we required at minimal cost. The initial outlay was $200 per DTIC gateway account and $50 for each copy of the GoldenGate client.

GoldenGate provides a common graphical interface to search DTIC's own DROLS and WUIS databases, as well as those from commercial sources such as DIALOG, ORBIT, and CD Plus. The client software connects to the server across the Internet using standard protocols, which eliminated any additional hardware expenses for the Library. Security features required for DROLS access required the Library to establish a series of accounts and passwords which in turn map to DIALOG accounts. The result is a system similar to our UnCover accounts which enable the Library to track expenses to each of the technical directorates. When a representative of DTIC arrived at Wright Laboratory Technical Library to brief on GoldenGate development, we knew we had found our solution.

The following series of figures taken from GoldenGate screens illustrate some of its features. The log-on screen (figure 1) shows the ability to connect across the Internet or, at the user's option, via a modem. Most importantly, it shows the need to enter an account and password. At Wright Laboratory each technical directorate has a separate account which is tied to a DIALOG account and password and also to a DROLS account. The Library maintains control over all these accounts and may sever the connection between GoldenGate and DIALOG if necessary. To control password distribution, the Library created "Passports" containing the logon account name and password for a directorate. Each passport is bar coded and circulated using the Library's integrated library system to track password holders. In addition, access to DROLS requires a separate password also controlled by the Library, which DTIC changes quarterly for security reasons. Passport holders must come to the Library in person to receive the new DTIC passwords.
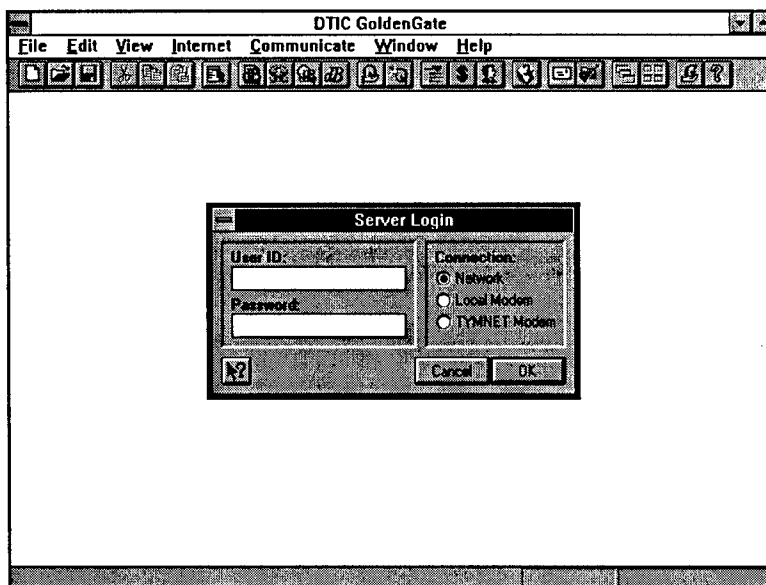
Figure 1. GoldenGate login screen

Once connected to the server, GoldenGate displays a list of available databases (figure 2) for selection. Since this is a Windows interface, one only needs to point and click to select a database to examine it or open it for a search. The databases to be displayed can be controlled in the preferences screen as part of the Edit menu. The full list contains over 80 DIALOG databases whose field structure DTIC could map to a common search command set.
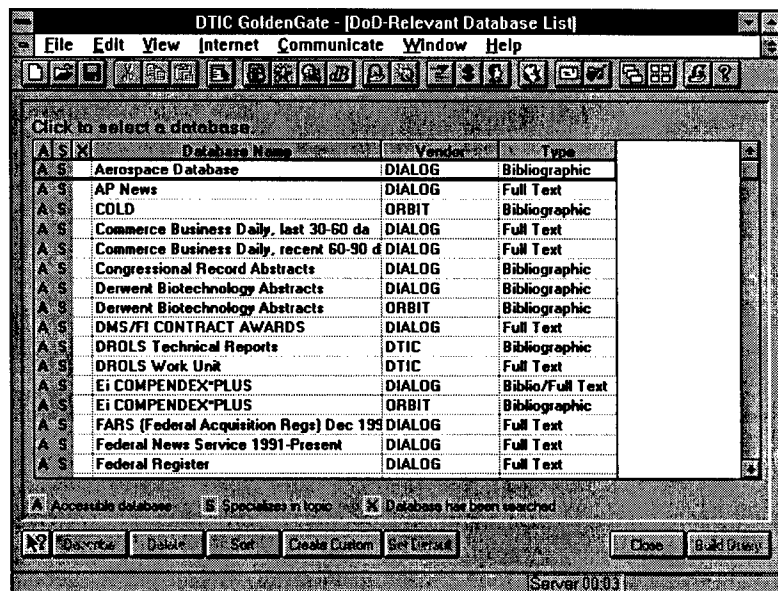
Figure 2. Database selection screen

Opening a database will display the search screen (figure 3) which is common to both DTIC and commercial databases. Each block on the screen accepts words or phrases in either the full recorded (DIALOG's basic index) or limited to specific fields.
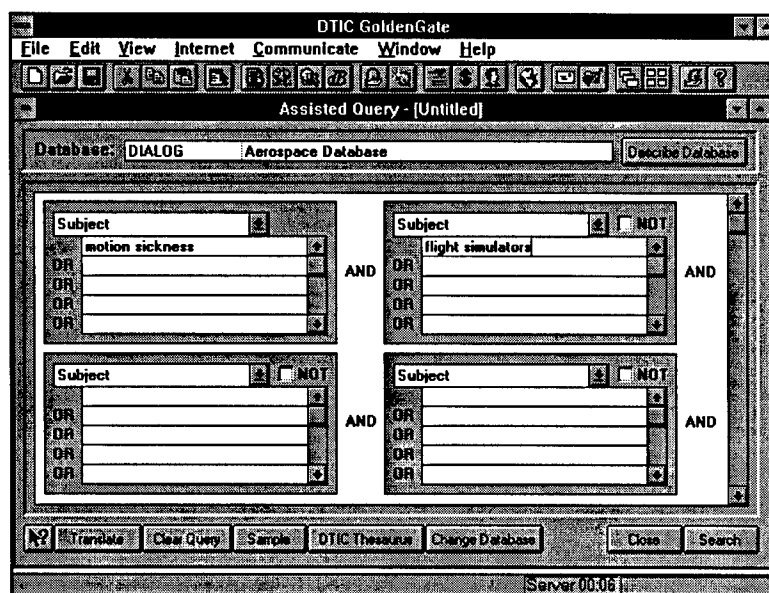
Figure 3. GoldenGate search screen

Following conventional practice, synonyms (Boolean OR relationships) are listed down each block, and relations between sets (AND or NOT) are listed across. After entering the search terms in their proper relationships, the user clicks the Search button in the lower right corner, and GoldenGate translates the request to the specific database search command language. The client software displays the resulting titles in a highlight grid (figure 4) from which one can select a full display (figure 5) for viewing or saving to a file.

78

Figure 4. Highlight grid showing titles

Figure 5. Full display window

What Is It Worth?

In special libraries, more so than in academic or public libraries, librarians are paid to do information gathering, organizing and distributing. It is our job, our profession, and we do it better than anyone as will be demonstrated. This has always been so, even before the advent of electronic sources, but more apparently true since that time when real dollar costs became associated with the time and efficiency of literature searching. This leads to the third issue: what is it worth?
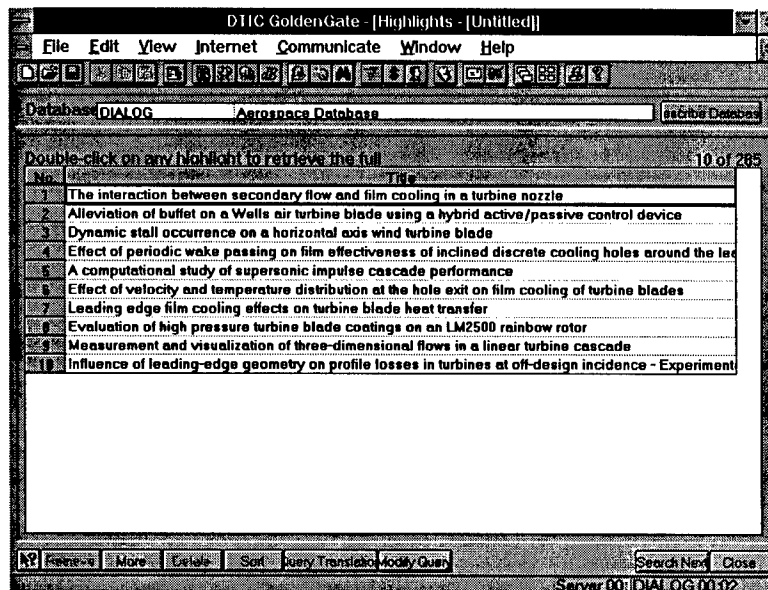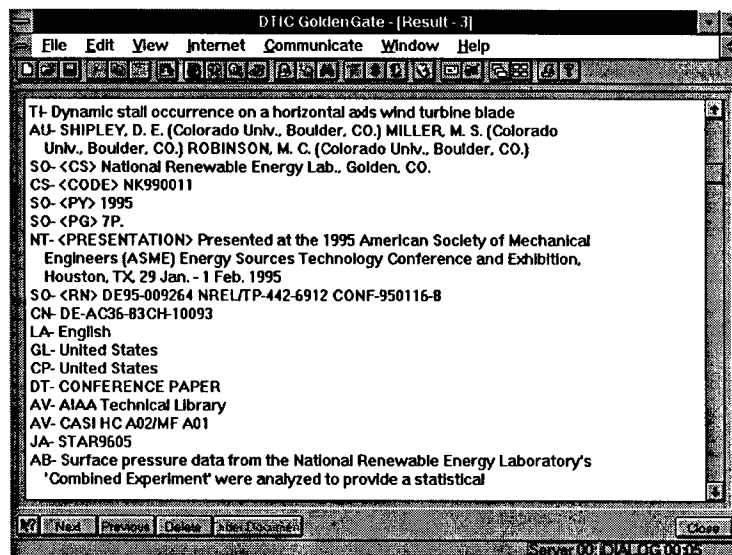
End-user searching, especially extended to the desktop, is an expensive option. At Wright Laboratory, that portion of our budget which pays for online services comes from the technical directorates through charge backs. The customers pay for this option, and their willingness to pay a premium for it is a measure of the value they place on this service.

Cost Controls

Our CD ROM usage led us to estimate confidently that the Library could pay the increased DIALOG charges using funds reprogrammed from CD ROM subscriptions. We implemented GoldenGate service in October 1995, initially limiting its use to within the Library in order to become familiar with the product . We recommended it to in-house end-users in lieu of CD ROM products, to begin weaning them from the familiar CD ROMs, to test the product with real customers, and to generate interest in desktop access. Finally, in January 1996, we released GoldenGate client software to people to use at their desktop. In February 1996, Fedlink sent us the first statements for the fiscal year containing the DIALOG detailed invoices. These statements revealed how greatly costs exceeded our expectations and why that occurred.

Two problems became immediately apparent. First, the default display format in Golden-Gate was an expensive custom format option and second, this situation was exacerbated by the fact that end-users tend to browse large numbers of citations before selecting abstracts. Golden-Gate's default display shows authors and titles, DIALOG format 2. The price per citation ranged from $1.15 to $1.45 in the databases most commonly searched by Wright Laboratory personnel, the same price as a full record including abstracts. The invoice sheets show for each search session the database searched, the time online, and the number of prints or displays by format. Comparing the browsed hits (formats 2 and 6) with abstracts captured (format 5) gives a measure of precision for each search. End-users tended to browse an average of four citations for each one selected for full display. In a few extreme cases, the end-users viewed over 600 records before selecting fewer than ten abstracts. In each case, the price per displayed record is the same.

Immediately upon discovering these problems, the librarians acted to correct them. First, we contacted DTIC and requested a change in the software installation default display format to show titles only. This is equivalent to DIALOG format 6, a free display which had the additional benefit of displaying more of each title. DTIC complied with this request immediately, and

within hours of our request, placed a new client on the server for us to download locally. Second, we began an end-user training program to teach users to search databases rather than simply browse large numbers of citations for a relevant few.

End-users evidently do not think as librarians do in terms of precision and recall while searching databases. Browsing large numbers of citations reassures them that they missed nothing in their search. To address this problem the Library staff developed a one hour training program that is mandatory for release of an end-user account password. The course emphasizes two key points. First, end-user searching is but one option in finding information. Librarians are always available to conduct mediated searches or assist end-users in selecting databases or constructing search strategies. Second, let the computer do the work in searching the database. We emphasize writing out the search beforehand in order to focus on the real topic and relation-ships among concepts instead of merely stringing key words together. Most of our customers are familiar with Boolean logic and immediately grasp the significance of this step. We suggest as a general guide a top range of 30-40 hits as being a well constructed search and stress that it is always possible to modify searches to make them broader by adding synonyms or removing *"and"* statements.

Immediately, costs of end-user searches began to go down to more acceptable levels. This was largely the result of "free" display formats. The ratio of abstracts to titles rose, but not dramatically, and remains about 20%. A comparison with mediated searches in the DIALOG databases shows the relative cost efficiencies. End-users performed 35% of the total searches and incurred 55% of the total usage costs (Table 1).

Table 1. FY96 DIALOG searches at Wright Laboratory Technical Library

Type of Searcher	DIALOG Searches	% Searches	Cost	% Cost	Cost per Search
Librarian	1253	65	$64,772	45	$52
End-Users	686	35	$78,134	55	$114

Conclusions

Having first dispensed with the question of should we offer end-user searching, the Librarians moved quickly to the real problems of how to do it and whether it is worth the expense. GoldenGate software enabled Wright Laboratory Technical Library to fill a customer-expressed desire for desktop end-user searching. The Library adopted a commercial product, GoldenGate, and avoided development costs required to create a user-friendly search client of its own design. Knight-Ridder DIALOG's timely introduction of a flat rate pricing plan for its commercial databases provided a low-risk means to implement end-user searching. The result is desktop access to current commercial and DTIC databases as an effective alternative to net-worked CD ROMs.

End-user searching in electronic databases is a rather inefficient option to locating information, but so was end-user searching of a printed *Readers' Guide* or *Engineering Index*. It is also realistic to recognize that end-users will seek information through whatever means are available to them. At Wright Laboratory we take it as our responsibility to provide quality means, whether print or electronic, through some form of preselection of information sources. We act on the premise that end-user database searching supplements mediated searches, and it is easy to measure its popularity. In fiscal year 1996, there were nearly 700 searches of DIALOG using GoldenGate and over 6,000 connections to UnCover. At the same time, the number of librarian mediated searches also grew slightly.

To answer the question "is it worth it?," perhaps it is best to think in terms of diminishing returns. Given that the number of mediated searches at least remained constant is evidence that these 700 GoldenGate searches probably would not have occurred otherwise. These additional searches were 35% of the total literature searches of the DIALOG databases, and about 25% of the total library searches when including STN and LEXIS-NEXIS. That represents a 33% growth in knowledge not otherwise obtained. This knowledge came at a higher price per unit, but a price willingly borne by the technical directorates who fund the Library's online accounts and who value knowledge over ignorance.

Leading the Marine Corps into the
Next Millennium: The Role of
the New Sciences

by

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"Newton and Clausewitz may be dead, but they are not forgotten." --Dr. Albert Brands

Many of you are probably aware that the last stanza of the Marine's hymn has words to the effect that if Army and the Navy ever look on Heaven's scene, they will see that the streets are guarded by United States Marines. Now, that's about all I can say about Heaven, except I would hope that behind those streets is either a library or a Borders Bookstore. I really enjoy reading, and I think it would be heaven to wind up in a library for the rest of whatever is our existence and beyond.

I'm not exactly sure where the term, "New Science", came from. As far as the Marine Corps is concerned, we began to talk about "twenty-first century science" when we looked at quantum mechanics, and quantum physics, and nonlinear dynamics, and chaos, and complexity theory. But I was told by Air Force Colonel John Boyd (who studied this for a lot longer than most of us): "General, you keep talking about the twenty-first century science. It's really twentieth-century science that we haven't recognized, and we need to." Hence, we didn't want to call it twentieth-century science as we approach the end of this decade and the end of the millennium, so we decided to call it "New Science". As our former Commandant asked us to think about what we needed to do to prepare for the twenty-first century, one of the first pieces of advice our group of senior Marines received was, "cast your net widely". And the gentleman who told us that said, "If you only look at things military, if you only look at military history, you will not get the right answer. And you may very well get it wrong".

Thus, in an effort that went on for over a year, all of the senior generals in the Marine Corps met for a minimum of two days a month. Sometimes we met for as long as five days, for a period of about a year. We brought in sociologists, economists, people who are thinking about technology -- a diverse group, to try to get us to cast that net widely. And we came to some conclusions.

One of the themes that is popular now (it comes from Alvin and Heidi Toffler, futurists who write for the general public) is the idea that humankind has gone through a series of two waves, and is either in a third wave or about to enter the third wave. What they are saying is that when humans first came out of the jungles in a literal sense and learned to farm, we had an Agricultural Age that went for tens of thousands of years. And what was important during that period were the implements of farming, the knowledge of how to plant seeds and grow crops.

People then came from the farms into the villages, and eventually the towns and cities, and began what we know as the Industrial Age. And, of course, the key to power was the capital that was needed, the machinery to produce products, and that's what made nations wealthy and also strong militarily. So, humankind moved from an Agricultural Age into an Industrial Age, and according to the Tofflers, we are about to move into an "Information Age". I don't know that I totally agree with that. But, there is clearly something far more important about information today and probably in the immediate future than there has been in the past.

If you were to pick up the *Washington Post* this Sunday and read it moderately well, you would absorb more knowledge than was available, anywhere, in the lifetime of our fellow citizens during the era of Thomas Jefferson. Someone has calculated that just the storage of information (I'm not talking about new knowledge) doubles every eighteen months, or two years on the outside. So, clearly, information is having a tremendous impact on our society. Whether it's a third wave that's going to make things different than in the past may be open to question, but we certainly have to take it into consideration, and that's one of the things the Marines are examining, and one of the reasons that we're studying the New Sciences.

If you were attuned to a lot of the discussion in the Washington arena, right after Desert Storm, you would have heard discussions about a so-called "military technical revolution". The Director of the Office of Net Assessment in the Pentagon has looked at it and said he thinks the right description is a "revolution in military affairs", concluding that the technology has never been the driving force. We think he's right. Let me give you a couple of examples.

If you would go back to a period in history that I believe replicates very much what we're seeing in our own times, the 1920s and the 1930s, the technology of the time really revolved around the internal combustion engine. And in terms of military power, any nation that had the internal combustion engine had trucks, tanks, and airplanes. The other technology, of course, was the vacuum tube, which gave us the radio and, eventually, radar. Now you would think that if technology was the key, those nations that had the most advanced technology would have been out in front. And most western nations, in fact most nations in the world, had that technology. But, only one country went beyond the technology and began to think, what are the conceptual or the intellectual foundations of what we could do with this technology? Unfortunately, that country was Nazi Germany, and they created the "blitzkrieg". It is widely believed that the Germans had more and better tanks, and more and better airplanes, but the reality is the French

had the best tank. The French had more tanks, as did the British. But it was the ability to bring all of this technology together, in a conceptual framework, that allowed the Germans to overrun Europe.

So it's not the technology, we believe, that is most important, but rather the intellectual underpinnings of our efforts. Let me tell you a story that's a little closer to home. It concerns the Marine Corps. In the same period of the 1920s and the 1930s, the Marine Corps watched what the Navy was doing. We saw that the Navy was orienting more and more toward the Western Pacific. It became clear that if the Navy was going to operate in the Western Pacific they would need advanced naval bases. And so a handful of Marines at Quantico begin to think about this and saw that the Corps might be called upon to seize advanced naval bases out in the Pacific. The wisdom of that time was that you could not conduct amphibious operations in the face of any determined resistance because of the horrible results the British had experienced at Gallipoli. Thus, amphibious operations were ruled out as something that could not be done in the then-modern times.

This small group of Marines, recognizing the problem, sat down and thought their way through it. I didn't say fought; I said "thought" their way through it. They put their minds to it and created a document called "The Tentative Manual for Landing Operations." Now, there were no amphibious ships. There were no amphibious landing craft, no amphibious tractors, no aircraft that were devoted to this. No procedures! The concept came before the technology. We believe that it's a very powerful idea. This nation, for the last forty-five years, has not done that. We have seen the technology, bought the technology, and then tried to figure out what we were going to do with it. This is a very expensive way to approach things.

In this regard, one of the popular quotes in Washington for the last couple of years has been about a British politician who, early in this century when his nation faced a similar problem, is reported to have said to a group of his colleagues, "Gentlemen, we are out of money; therefore, we must think." I would say to you this morning, ladies and gentlemen, we're almost out of money. So, we had better think. And, that's what we're trying to get across with this idea of a revolution in military affairs, that it's much more important to put your intellect to the problem than your dollars. Let your dollars follow your mind.

Steve Rosen is a history professor who asked the question that leads to some of the same conclusions I have just given you: "Is it better to innovate in peacetime or wartime?" You might say wartime because you're clearly focused and more money would be available. In looking at this century, examining particularly the British and American cases, and to a lesser degree the Germans and the Japanese, Rosen determined that it is better to innovate in peacetime. This is because no war in this century, fortunately, even something as long as World War II, has ever been long enough to provide the feedback as to whether an innovation is really working. The enemy will of course try to deceive you, disguise what the results of your particular weapon system is doing to them. So, you had better think your way through to solutions in peacetime.

A second question Rosen asked is, "Where did this innovation that we've seen in the past originate? Did it come from some element of the civilian community or out of the military?" Popular wisdom is that it came out of the civilian community, because we think of some of the military reformers that we had in the United States in the 1970s and 80s, some of the ideas that they put forth. If you went back to the 1920s and 30s, you have folks like Liddell-Hart and JFC Fuller, who did a great deal of thinking and writing about blitzkrieg. Even though Liddell-Hart had a military background, he was, at that point, a historian and a military writer. From these examples, you would think new ideas came out of the civilian community. The reality is, it has generally been junior grade officers, majors and lieutenant colonels working in small groups, who have seen the essence of the problem as they thought about the future security environment. They see the essence of it and begin to write of new ways to approach these problems. Someone who understands what they are talking about popularizes the idea -- usually a civilian -- and it gets a wider audience. So, what Rosen is telling us is that you had better look internally; you had better look to your junior officers; you had better protect them when they turn their intellects on; and you had better try to stimulate what they are doing. The Marine Corps thinks that's the correct approach.

One issue I am particularly concerned about is "information dominance." This term is being used a lot inside the Beltway. The concept is, as we have dominated in the arena of air in the past, we need to dominate information. The analogy is that information is a medium like air, or like water, or like land. But it's a flawed analogy, because air, in a military sense, is finite. The boundary of a theater of action circumscribes and defines the air to be controlled.

Information, on the other hand, is infinite. It is created and destroyed at will. Moreover, information resides at times in places where it cannot be retrieved. To give an example, one I use repeatedly, we as a nation and in a coalition in Desert Shield would have very much desired to know whether Saddam Hussein intended to use weapons of mass destruction -- chemical and biological weapons. I think that idea was in his mind. And what he was thinking on Thursday was probably different than he was thinking on Wednesday, and probably would be different than what he was thinking on Friday. How do you retrieve that kind of information? An impossibility!

This nation has had information dominance in conflict and suffered a terrible tragedy, because of a flawed approach and our arrogance. That was in Mogadishu. We dominated the electromagnetic sphere in Mogadishu, and eighteen soldiers were killed, because Adid didn't need the command and control system that was on cellular telephones and radios and satellite communications. His command and control system was the culture of the tribe. In our arrogance, we said: "They don't have the technology, so clearly we'll be able to dominate". And we did dominate the electromagnetic sphere. It made no difference, because the members of Adid's tribe came to the fight in a way that we don't understand. They came to the sound of gunfire in a way that was organized and, obviously, very effective. So, if these soundbites and these bumper stickers are to masquerade as intellectual activity, we are in big trouble. I can assure you, from the Marine Corps' standpoint, this will not be the case. We are putting our *minds* to the task!

86

Unfortunately, just as some of our citizens and some of our leaders are looking at war in terms of soundbites and bumper stickers (see illustrations 1 and 2), others are thinking of it as what I call "immaculate warfare". None of the friendlies are to be hurt or killed, and we don't injure or kill too many of the enemy. We even begin to think of it as a competition, in sports terms. But war is not a competition, not a sport. It is a terrible, chaotic, bloody business. That is the immutable nature of war. And despite all of our best wishes, our prayers, we can't change it.
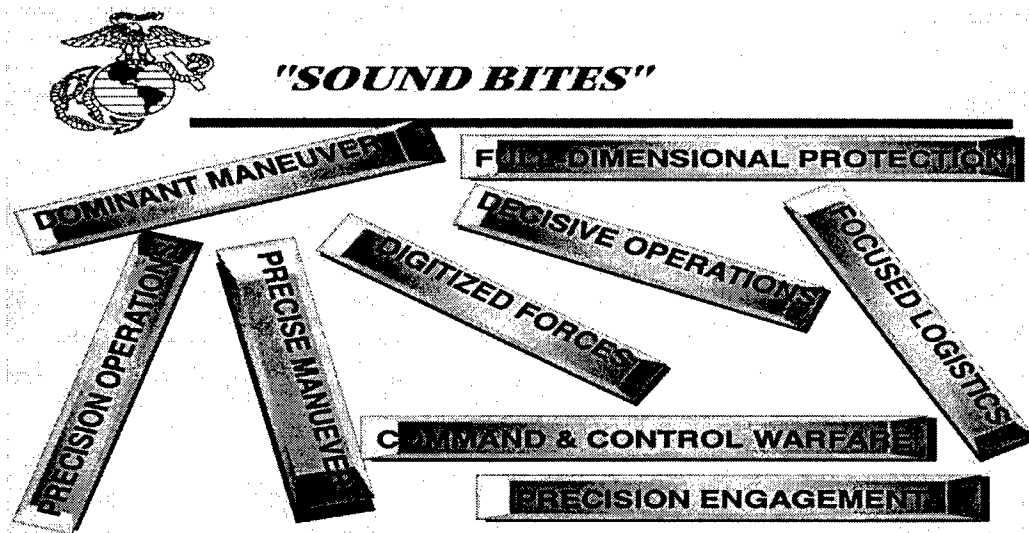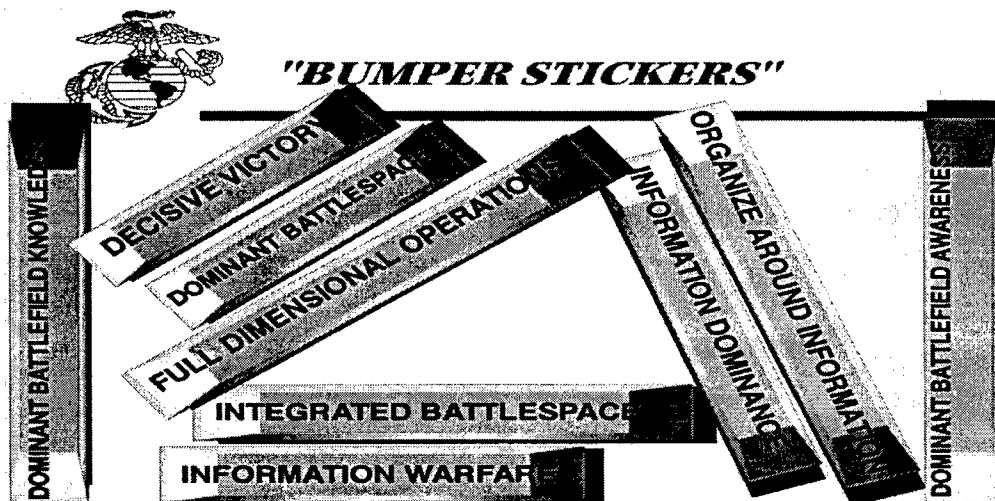

Illustration 1

Illustration 2

Does anyone in this room want us to "play fair" with the lives of our sons and daughters? I don't think so. We've got to understand the real nature of war. The Marine Corps' conclusion is that the keys to the future are to be adaptable, in particular to be able to adapt quicker than any potential enemy. Now, adaptability is not flexibility. Rather, adaptability is the ability literally to change in the face of the enemy, or prior to or during the conflict. Let me give you a couple of examples.

If you were to have come to Quantico in the Summer of 1990, and listened to what we were saying to ourselves and what our Commandant was saying, we truly believed that the future conflict that we would be involved in would be low intensity, something to do with counter-narcotics or terrorism. It would be somewhere in Latin America. Yet, within a few short months, the Marine Corps adapted and created two mechanized divisions, moved them into the desert, put more aircraft and more Marines into one organization than we had ever seen, even in World War II, and fought a mid-intensity, high-technology war. One of the brigades coming out of that conflict, as it sailed across the Indian Ocean, was diverted up to Bangladesh after that terrible typhoon struck, to conduct humanitarian operations, and it did so successfully. That is adaptability!

Some of those same Marines, when they got back to the West Coast, were called upon to help curtail the L.A. riots. Others, a few months later, were called to fight forest fires in northern California. What we've got to do with the taxpayers' dollars is build a force, equip and arm it, so it can adapt to whatever this unknown future might be. We cannot forecast with any certainty what that future will be. So, we've cast our net widely to gain understanding. We think our core competency is understanding the true nature of war and being able to respond to it. It is accepting war for what it is and operating in the chaotic environment that is war's domain.

One of the things that we've come to think might offer some real advantage is, as I say, the so-called New Sciences.

The only person, up to this point, who has ever truly understood and written to the nature of war is the Prussian, Carl Von Clausewitz. He has often been misunderstood over the course of history, but he had an insight that has never been equaled. Many people will tell you that the reason that we were victorious in Desert Storm is because of the high-tech weapons. If they don't refer to high-tech weapons, they talk about the quality of the soldier, sailors, Marines, and airmen that we have recruited in the last ten or fifteen years, or they talk about the great training that we were able to provide. All of these things were important. I'm here to tell you, however, that the reason we were able to do what we did in Desert Storm is that the leadership, my generation, that saw the horrors and the mistakes made in Vietnam, returned to the study of war through Clausewitz. Thus, our leaders, as we began Desert Storm, were able to articulate clear political objectives that could be translated into military objectives that were understandable and achievable. And the real difference in Desert Storm, as opposed to some of the conflicts we've seen since, was that we understood war well enough to recognize how to achieve political order with military means.

When Clausewitz was doing his thinking and his writing, it was in the era when Newtonian Physics was just coming into its own. He spent a lot of his time attending courses dealing with the physics and mathematics of the day, and a lot of his metaphors come from the understanding of Newtonian Physics (e.g., the center of gravity, friction -- things that roll off of our lips very easily when we discuss conflict and war, because they are metaphors). The professional as well as the novice understands the military meaning when we use these metaphors. What has happened, of course, is that there is a new physics based on Quantum Physics, chaos theory and complexity that we need to consider. (By the way, my background is all liberal arts. I was educated as a secondary teacher. Hence, I struggle with this, so let me just try to explain in my own words what we're saying.)

When scientists began to look at the atom and to look at the inside of the atomic structure, the laws of Newtonian Physics did not apply. They didn't work. Think about the nucleus of an atom, and you think about the electrons flying around that nucleus. (By the way, we have no idea of what an atom looks like. That's only a mental construction of what we see from the experimentation.) The question was why does that electron, as it flies around the nucleus, not lose energy, as the heavenly bodies are losing energy and eventually collapse into the nucleus? And since we're all made up of atoms, if that happened we would all be gone in a flash. The answer was, "it just doesn't", which is true. It's an accurate answer, but not a very satisfying answer for scientists. So, they begin to develop theories. What they eventually came to conclude, which every experiment since has proved, is that as those electrons fly around, they exchange energy with electrons in other atoms. And as an electron loses its energy, it lowers its altitude as it orbits. As it gains energy, it increases its altitude. So this energy is moving about throughout the entire universe as waves and particles. As scientists began to study this movement, the question was "are the movements waves or are they particles?" The answer is that they're both at the same time. Now, that doesn't compute, because as we think about something, that something is either/or. It can't be both. But, the reality is that this energy is in two forms at the same time, and you will see either one you want to see, depending on how you set the experiment up. It's called the Heisenberg Principle of Uncertainty. It is telling us that the fundamental laws of nature are laws of uncertainty. We in the Marines think that there are some things that we can learn from such an understanding, just as in the case of metaphors, which I'll come back to.

I could imagine that 150 years ago, after Carl Von Clausewitz completed lecturing to his students, one of the young captains approached him afterwards and said, "Sir, I want to talk to you more about this idea of the center of gravity." I would bet that among the other officers there was some snickering and remarks like: "What are they talking about, center of gravity"? It was a term that, at the time, was important only in science. Clausewitz was using it as a metaphor to help understanding. In a classroom about three months ago, I was standing to the side, and I'd introduced some of these new thoughts. A young Captain said, "Sir, I've been thinking. You never are really completely in a defensive mode or completely offensive mode. Even when you're in the offense, you have a defense. And when you're defending with your patrols, and so

patrols, and so forth, there's an offensive aspect to combat. It's really just kind of like the Heisenberg Principle of Uncertainty: two things at once." He used a metaphor. I can see again some of the captains and majors in the back row snickering: "What are this guy and the General talking about?" So, in the area of metaphors we think there are some very powerful ideas coming out of the New Sciences.

There is another thing I want to talk about that is not a direct outgrowth of this but relates to it. It is called Nonlinearity. We live in a nonlinear world, but at this point we have tools to understand the world only in terms of linearity. Let me tell you the difference between the two. If something is linear, an event or action at this point will produce a proportional outcome at that point. With nonlinear systems, we have no idea. Initial conditions are so important that, even when very sophisticated instruments indicate that we are starting out at the same point, we can have the possibility of dramatically different events downstream. Most activities that humans perform in the universe are nonlinear. Weather is a nonlinear phenomenon. In fact, this is the first place where we discovered that there was an ability to understand nonlinearity.

How does this knowledge of science relate to other areas? John Gaddis, the "dean of diplomatic historians," has asked the question: "Why is it that no political scientist anywhere in the world predicted the most significant political event in the second half of the twentieth century?" The event he is referring to, of course, is the demise of the Soviet Union. Now, there are people who predicted it in some sense, but no political scientist. Gaddis points out that political science was created largely in the 1940s as a discipline that was supposed to use scientific tools in order to predict. What else do you have a science for if you can't predict, if you can't determine what your experiment is going to lead to? And he said, "They have all of these tools, some of them mathematical. Why is it that none predicted the end of the Cold War?" His conclusion was: international relations is a nonlinear phenomenon, and political scientists were employing linear tools. Another professor, Alan Beyerchin, has asked the question, "If Clausewitz had understood the ideas of nonlinearity, would he have written anything different?" He concludes that Clausewitz lacked only the language. His understanding of war and what he wrote about concerning war was given from a nonlinear perspective.

Back in 1914, with one pistol shot in Sarajevo, an assassination of one Archduke led to the most horrible war that the world had ever seen up to that point, with millions upon millions of people killed. Subject to initial conditions, there was no proportionality at all to what took place. We believe that this and all other examples demonstrate that war itself is a nonlinear phenomenon, that international relations are nonlinear phenomena. And if you continue to study them with linear tools, which is the only thing we have in our models, you will never understand them, and you will never get it right. And so we're looking more and more to the New Sciences for nonlinear tools to come out of chaos and complexity theory.

One of the things that has been put forth in complexity theory is the idea of "complex adaptive systems." Let me ask an unusual question: Where is the General in an ant colony? Where is the President? Where is the Congress? Where is the King? To the best of biologists' knowledge there is no hierarchy in ant colonies or bee colonies, except for reproductive purposes. How is it that an ant colony can build elaborate structures, gather food as an organization, and go to war? It is a complex adaptive system. It works on very simple rules. The answer is in the DNA of the ants. For example, in the case of gathering food, scout ants, if they find food, will lay a perfume as they return to the colony. Other ants are programmed to go upstream to the food and bring it back. It is a very simple rule that's in their DNA.

The Santa Fe Institute is the Mecca for the study of complexity, where they have done lots of interesting things. They have a computer program out there called "BOIDS", a contraction of birds and androids. They have written three simple algorithms for the icons that represent birds on the computer. The icon says, "Stay close to other birds." And if you were a bird in the wild, that's a good idea; stay pretty close, and don't get separated. The second says, "Continue to move." Don't ever settle in any one place for very long. And, third, "Don't fly into any stationary object." They are all good rules.

Each one of these icons is following those rules. When they run the computer and you see the screen, it is the most lifelike flocking action you can imagine. These icons move across and, at a distance, you would swear you're seeing a flock of birds. At the same time as this demonstration is being done, the Sante Fe folks put up some Disney animation beside it. The Disney animation, which has tens of thousands of lines of code, is as hokey as can be. When you see the two, it's jerky; it just doesn't look real. What they're saying is that our most complex systems really operate with the simplest rules. In fact, I am beginning to think the real term for this state ought to be simplicity, instead of complexity.

Our societies are complex adaptive systems. Internally, we have complex adaptive systems within us. The metaphors that we, in the military, have used in the past are mechanistic and Newtonian. We talk about fine-tuning our organizations. We talk about operating like clockwork. What you really need to look to is biology and ecology. That is closer to what we are as an organization. Newtonian Physics works great. When I go out and get in my car in a little bit, if it weren't for Newtonian Physics, I wouldn't get from here to Quantico. But there is another whole way of looking at the world that we need to consider. The Marine Corps is working with the Center for Naval Analysis on a study of land warfare as a nonlinear phenomenon. Land warfare is far more complex than is either naval or air war. So, that's where we're concentrating some of our early studies.

As we and the scientists have studied it, we've begun to believe that land combat is a complex adaptive system for these reasons. There is nonlinear interaction. Any combat force, whether it's a squad with ten to thirteen soldiers or Marines, obviously has interacting parts. And obviously, an Army made up of tens of thousands or hundreds of thousands individuals has interacting parts. You cannot say, simply because every soldier is a good soldier, or every Marine is a good Marine and is well-trained, that the organization itself is going to be good. The sum may or may not be greater than its parts.

Ground units are organized in a hierarchy, but there's no master oracle. There has got to be a commanding general someplace, but unlike the chess master he does not pick up and move pieces in accordance with some plan that he might have. In reality, combat and military units are more like soccer. Each one of those players out there is moving on his own. There may be a game plan. But the coach doesn't say, "Jones, go two meters to right and cut back three to the left." Instead, everybody is moving, hence the possibility of them doing something that either contributes to or harms the overall effort is obviously there. So, there can be no master oracle in combat units. You may have local actions, and as you look at them they seem very chaotic. But overall, there's an organization.

One of the most powerful tools that came out of Newtonian Physics was thermodynamics. The second law of thermodynamics talks about moving to entropy. You have two possibilities: complete stasis, with something that's frozen, or something is as chaotic as it can possibly be, and the movement between. Let me illustrate by supposing that you buy a new deck of cards. Normally, they're arranged by suit, by the numbering sequence, and you could take a new deck of cards, and you could identify what card number ten is. You're not predicting, you just know what card number ten is because the new deck is in a prescribed order. Shuffle it one time, and you begin to lose that complete static order. You could make some pretty good guesses, since you've only shuffled the deck once, that a three will follow a two, or a four will follow a three, etc. Throw the deck up in the air, and let the cards all fall face down. There is no ability to determine what the last card is if you pick up the next to last. That is as chaotic and as close to entropy as you can get. What we're saying here is that the richest things in terms of innovation and creation are those that move from stasis to near chaos. When you're on the edge of chaos, that is where life is, that is where you find the richest innovation in the world. Military conflicts, by their nature, proceed far from this equilibrium, this stasis, to chaos. You have to continually adapt to the environment, or you'll never survive. There's continual feedback from the low level to the top; this is what any kind of collected dynamics produces. Clausewitz clearly understood this.

We are a reductionist society. The scientific method is to tear things apart, with the idea of studying small pieces and reassembling them. What we're learning, as we get into the Theories of Complexity, is that there are some things you cannot tear apart and reassemble, because in the very act of tearing them apart, you cannot correctly reassemble them. This is one thing, in my observation, the Pentagon has often forgotten. It generally thinks in terms of only what we will do and completely neglects what the enemy will do. Authorities talk about attaining dominant

battlefield awareness, with all of our sensor systems and satellites, where we will see everything and know everything. And obviously, we win, because we know everything. Well, there are a couple things wrong with the idea.

In a way, it is like saying that if I look at a chessboard and know where all the pieces are, but I never played chess, I'm going to win. It's clearly a flawed concept. One of the most difficult things we had to find out in Desert Storm was what Iraqi tanks had been hit. It sounds easy: fly over in an airplane, or get a satellite to look down. In many cases, all the Iraqis did was take a bucket of oily rags, light them off, and set them between the tracks, and you saw black smoke pouring up from this tank. Our problem is we give no capability, no credit for any intellectual activity on the part of the enemy. We keep thinking this thing through on one side, but there are always two sides.

We start to think about warfare as being like billiards--a cause and effect relationship. Hit one, hit the other, and you know what the effect is going to be. That's not reality. Consider the cloud that's been observed on Jupiter for some 400 years. It's been basically this huge monstrous storm going on. Obviously, the molecules move in and out of that storm continually, yet the storm appears to remain constant. This is a complex adaptive system. All of those molecules are interacting with each other beyond count, and for 400 years this complex adaptive system has remained in motion. It's like a river. You can never step into the same river twice, because the molecules have all changed, and things have moved downstream.

I find it interesting that the most powerful minds this country has produced in this century all say that images are what enabled them to create the most powerful theories, not the mathematics. They had a mental image of what it is that they were thinking about, and then they applied the mathematics to that image. Richard Feynman is one who writes very persuasively about this.

How might we change from the old metaphors to the new as we think about complexity? There are many examples. In the case of military operations, we've begun to think that the word "operations" itself is not accurate. It assumes that, somehow, we are going to control the battle. We use terms such as "battle management". Again, an illustration: war is like a mountain stream. It has its own dynamics. It will continue to flow and have the eddies and all of the things that make it ever-changeable and uncertain. To think that you can control a battle is for a canoeist to think he can control the stream. What the canoeist is hoping to do is keep the canoe upright, avoid obstacles, and avoid hitting any of the banks. So what we're saying is, once a war begins, it will have its own dynamics that cannot be controlled. The best you can hope to do is have some limited measure of control of your forces within the dynamics of that war.

We are even using genetic algorithms to actually "breed" better tanks. What you do is you bring your experts in, and they tell you the most important attributes of a particular weapon. You write these attributes into code and enter them into the computer. One says speed is more important than armor. Another says, no, it's the size of the main gun. Another one says, no, it's the ability to negotiate terrain. You enter all of those things in. You run the computer. You compete the algorithms against each other, with the expectation that the computer will breed a better solution than the human mind can. So we think we can literally breed tactics before a war. And there is the possibility, even during the conflict, as you're being opposed by an enemy, to "breed" new tactics, that you then have your forces apply against the enemy.

These are some of the possibilities the Marine Corps is thinking about. And we are just beginning in our effort to prepare for the next millennium.

U.S. Government Documents
in an Electronic Age:
Changing the Rules?

by

Wayne Kelley
Superintendent of Documents
U.S. Government Printing Office

Good afternoon. It's a great pleasure to be here today with a group of professional librarians who perform such an important service for our military. I'm going to talk a little bit about the need for legislation and some things that are going to be happening at the Congressional level.

A lot of people are talking today about the approaching twenty-first century. President Clinton has said that it will be an age dominated by information and technology, and I know those are subjects that you have been discussing at this conference. Alvin Toffler, the futurist who is a favorite of House Speaker, Newt Gingrich, has predicted a third-wave information era, in which knowledge will replace property, capital, and labor as the primary sources of wealth.

We are bombarded by metaphors, these days, such as the need to build a bridge to the twenty-first century. This particular metaphor worries me, particularly because I cross a bridge over the Potomac twice every working day, and I know how crowded these bridges can get. Washington actually has four bridges over the Potomac, and one of them is a drawbridge. I sure hope we are not going to be building a drawbridge into the future, one that can be raised to leave behind those without access to information or the technology needed to use it.

This is not an idle concern. People speak of information "haves" and "have-nots", and we have always had citizens for whom access to information was lacking. Education, language skills, poverty have been barriers. But now we face the prospect of limited access to federal government information for even the educated and the affluent. Why? Because the laws and policies which govern access to federal government information are breaking down. Technology is out-pacing policy.

In the print world of the twentieth century, government agencies focused attention on carrying out their missions. Publications and other collections of information were predominantly the by-products of their work. But, today, an important transition is underway. There is growing recognition of the value, the power, and the practical uses of information. Federal information is no longer only a by-product. Indeed, in some cases it may be the reason for the government activity. It provides revenue. It presents an opportunity to steer the course of events: to create, to illuminate, and to influence. And technology is accelerating this change.

Robert Gellman was, for many years, the chief counsel of a House subcommittee dealing with information issues. In an article for the *Syracuse Law Review*, he observed, "Computerization makes our government information more valuable and raises the stakes in the information policy debate." Human nature being basically human (Mr. Gellman continued), "Agencies, government officials, and legislatures naturally want to control the information in their domain. Information may be closely held to avoid embarrassment, to evade oversight, to establish a function and create jobs in an agency, to develop a constituency of users, or to develop a source of revenue." [1]

We are seeing it all. The techniques include special exemptions or privileges granted in statutes, exploitation of loopholes in the current law, ignoring the law, and charging for information. Information created at public expense is being turned over to private sector companies for publication under special deals kept secret at closed meetings. Copyright-like restrictions are being applied to prevent the re-use of government information. Special software is being added to CD-ROMs to prevent use at more than one workstation without costly license fees for networking. Now, this is serious business. Mr. Gellman warns us that, "Political control over government information is inconsistent with American democracy."

Let me give you an example of the changes that are going on. The Bureau of the Census, in preparing for Census 2000, has done a lot of outreach and consultation with interested groups. Preliminary census plans call for eliminating paper documents. The Census Bureau contemplates using electronic media and depending on user fees and private sector publishers to pay for the cost of distribution. Census recognizes the potential for public access problems. A draft plan, dated February 28 of this year [1996], says that, "a fully reimbursable user-specified program may price data products out of the reach of ordinary citizens or data users that have only limited resources." This sounds very much like a toll bridge to Census 2000. And that reference to ordinary citizens sounds very much like the average American, not just those living below the poverty level.

We don't need to wait for the twenty-first century to see clearly some of the challenges of the Information Era. Today, federal agencies are putting thousands of electronic documents on their servers connected to the Internet. These electronic publications are not catalogued. Their existence is often unknown unless somebody with a computer finds them. They may be erased at

any time, without notice. In the originating organizations, a change in funding or a lack of interest can lead to the information being erased, and I feel that we have a real risk of government information becoming one huge "Etch-A-Sketch." In the Cyber-World, an electronic publisher may exert control far beyond the creation of an initial distribution of a document. It is possible to give prominence to some data files and to hide others, or to delay access. It is possible to alter the original record any time, changing history with a keystroke. Much of this information flows over the highly-publicized Internet. While the promise of the Internet is great, so are the potential perils. A technology guru recently called the Internet "a petri-dish for dirty tricks."

Americans love technology. And it's no wonder, because we're good at it. But we are susceptible to over-rating what it can do. Indeed, we may succumb to what I call "technomania." Technomania is a state of rapture, in which self-induced visions of miraculous results blind us to the downside realities. We should be cautious in betting our information future on hopes for dramatic technological change. Not all breakthroughs produce the unambigious positive results we saw with the discovery of penicillin.

The Internet is doing, and will do, many very positive things. It seems almost all of them have been mentioned recently, either by Al Gore or Newt Gingrich. But it is not the solution to the National Deficit or disappointing SAT scores. Yes, it can make more information available, but it may make it tougher to find the information you need. It can save the government some money, but it can also transfer that cost to your library or its patrons. It can deliver information instantly, or it can keep you online for hours. It is only a tool. It is not a policy. And policy requires legislation. The current government information environment is changing so rapidly, it is impossible to describe. Perhaps it is easier to summarize this way. As far as government information policy goes, we have a new set of rules. And the first rule is this: There are no rules.

We will see legislation in the upcoming 105th Congress to reform the 101-year old Law which guarantees free public access to federal government information through the Depository Library Program, which has as partners some 1400 libraries nationwide. The same Law, Title 44 of the U.S. Code, provides the public an opportunity to buy a wide range of government information at low cost from the Superintendent of Document Sales Program. The draft bills I have seen to date, and one has actually been introduced in the House, would destroy both the Depository Library Program and the Sales Program, the main public sources for federal information for more than a century. Information which has been in the public domain, and available in local libraries since the founding of our nation, would come under the control of the bureaucracy, which gathers the information at taxpayers' expense. Now, I would hope that librarians, educators, public interest groups and information users will make themselves heard on what happens to the billions of dollars worth of information gathered each year by the Federal Government.

Everyone acknowledges that information is important. Divisions begin to appear, however, when you ask why. Some value information because of what it can do for them. Others see information as having intrinsic value -- important for its own sake, having many owners. Both points of view can and should be represented in the new Federal Information Policy. The government spends taxpayer dollars to create information for a specific purpose, but once it serves that initial purpose, it still has value. It is valuable to anyone who wants it or needs it. It is valuable to citizens in a democratic society as a record of the activities of their government. In crafting legislation, it is worth remembering the purpose of government. Government makes the rules to decide who gets what of value in a society. All legislation should be debated in the context of the winners and the losers when anything worthwhile is at stake.

Thus, any rewriting of Title 44 should balance interests and strike an equitable balance among the things of value in our society, particularly the right of American citizens to have access to information produced by their government: accurate information, maintained permanently, in formats people can use. What good will it do to cross that information bridge to the twenty-first century if we don't take with us some of the basic historical principles of our democratic society? The first of these is that the public has a right to free access to government information. Second, that information created or compiled by government employees or at government expense should remain in the public domain, with its use or re-use guaranteed against restrictions. Third, that the government has an obligation to guarantee the authenticity, the integrity, and the preservation of its information. And, fourth, that the government has an obligation to disseminate and provide broad public access to its information.

I would hope we still have agreement on these principles. They have served us well for 200 years, and they should apply to the twenty-first century as well.

Notes

1. Robert Gellman, "Twin Evils: Government Copyright and Copyright-like Controls over Government Information," *Syracuse Law Review*, 45 (1995), 999-1072.

The Federal Depository Library
Program in Transition

by

Jay Young
Director, Library Programs Service
U.S. Government Printing Office

I really appreciate the opportunity to be here today to talk to a group of people whose services provide such a huge chunk of government information, which is our business at the Government Printing Office, and certainly within the Federal Depository Library Program. I want to talk about this program, and particularly the transition that we are involved in right now of moving to a more electronic environment. And I'm sure that every one of you is involved in this same type of transition in your own shop.

The Traditional Program

The Federal Depository Library Program has been in existence for over a hundred years. We have 1,381 libraries in the program. As you know, most of the designations of depository libraries are made by members of Congress and under other provisions of Chapter 19 of Title 44 of the U.S. Code, which is our enabling legislation. In the program, 54% of the libraries are academic libraries (including many of the major universities in the country); 21% are public libraries; 11% are law school libraries; 6%, or 80, are federal libraries. And the remainder are state (mainly the courts) and a few special libraries. Of the 80 federal libraries, we have 17 that are military. Can I see a show of hands of how many of those are represented here? That's great. We do have people here who are knowledgeable about the program.

In the program we have 53 libraries that are classified as "regionals." A regional is one which, Title 44 says, shall retain government publications permanently. In the electronic environment we have begun to term that "permanent access." The interesting thing now with electronic information is to recognize that the responsibility for retaining government publications, which has rested with these regional libraries since before the turn of the century, is shifting to the government, because these documents are no longer tangible.

The regional libraries are holding millions of documents that they have been receiving since before 1900. And one observation that I make whenever I talk to library groups is to say that we are not hearing any clamoring from them to do anything to reduce those collections. In other words, these fifty libraries think well enough of paper, that I'm not hearing anybody saying, "Let's go from fifty to one massive collection. Let's scan it all, or OCR it, and put it into

one place, or ten places." So far, the regionals are willing to continue to hold that paper because it is valuable to their users, and it is also valuable to their status in the library world too.

We receive about $27 million each fiscal year for depository distribution and for cataloging and indexing of government documents. In the past, that funding has been used primarily for procurement of printed or microfiche products. Microfiche has been over sixty percent of the program. We started back in about 1982, when we began to have funding problems. Even though an agency would print something on paper, we would take that document and convert it to microfiche and distribute it to depository libraries. Microfiche has been more cost-effective, and it also takes up a lot less space in the libraries. So far, it has been reasonably well accepted.

We distribute approximately 60,000 titles a year. The law that we work under says that if an agency comes through GPO to get a document printed, our appropriation pays for the copies to go to the depository libraries. The law says that if the agency doesn't come through the Government Printing Office, it is supposed to pay for those copies and provide them to us to distribute. Now, that doesn't work very well, and it results in a phenomenon that the depository libraries are totally familiar with: "fugitive documents."

A More Electronic Program

We are in the process of moving our program electronic. The first key event that took place was the passing of the GPO Access Act in June of 1994. The act provided that the Government Printing Office create an online service, a storage facility, and a locator service. The online service is "GPO Access," and we have begun with the *Federal Register* and the *Congressional Record*. We are now beginning to put up volumes of the *Code of Federal Regulations*; they will be coming out on GPO Access as they are produced in sequence by the Office of Federal Register. The first ones are up there, and we are very proud of that. We also have *GAO Reports* and the *Monthly Catalog of U.S. Government Publications*, more than 70 databases that are up under GPO Access at our web-site now.

When we began GPO Access in June of 1994, we initially charged for the *Federal Register* and the *Congressional Record*, as a subscription. However, the nature of the Internet was a free environment, and it was turning out that our costs to run the administrative processes in order to charge were greater than the amount of money that we were taking in from sales. So in December 1995, we went free with GPO Access. And today, we have about three million downloads a month, not just looks, but actual downloads. So our site is being used.

Last year, just before December, we were receiving a great push coming mainly from the House of Representatives, to move the depository program and government information solely electronic. It was assumed that there could be great cost savings by everything becoming electronic. Fortunately, the Senate became involved, and as the Senate is supposed to do, it

deliberated more. Instead of a two-year transition as proposed by the House, the Senate asked for a study. The title of the resulting publication is: *A Study to Identify Measures Necessary For a Successful Transition to a More Electronic Federal Depository Library Program.* It is a big book, and it took a tremendous amount of work to produce. I have two copies with me that I'll be happy to give out.

The study was done with the involvement of the depository community, government agencies, and the library associations. As a result of the study, Congress was convinced that a five to seven-year time-frame for moving to a primarily electronic program was much more realistic. Consequently, the five-to-seven-year strategic plan that we came forward with for the Depository Library Program is incorporated in this document. To have moved to a two-year transition would have meant that we would have to take virtually every document that came through and scan it to put it up electronically. Most of you know how well scanning works: it doesn't work very well. The expense of trying to scan would probably have been greater than what our cost was for disseminating in paper. Hence we were very pleased with the way that turned out.

Out of this study came a group of definitions that were needed so that we could all be using similar terms. I would like to go over those definitions if I may. There is a copy in the handout that you received. First we tried to define "government information," and we define that here in terms of the depository program. Government information is defined as that information, regardless of form or format, which is created or compiled by employees of a component of the government, at government expense, or is required by law, except that which is required for official use only, is for strictly administrative or operational purposes and having no public interest or educational value, or is classified. Thus we have assumed that, essentially, everything that has public interest and educational value needs to be in our program.

We had to get away from using the term "publication" or "document," because you can't apply that to electronic information. So we came up with the term, "government information product". That means a government publication or other discrete set of information, either conveyed in a tangible, physical format, including electronic media such as a CD-ROM, or disseminated via a government electronic information service. There is another new term we coined -- "government electronic information service." That means, the system or method by which a component of the government, or its authorized agent, disseminates government information products to the public via a telecommunications network. So, a government electronic information service means your web site. It means GPO Access. It means Fed World. It means the site upon which government products reside and those within the scope of the program remain available for current and future no-fee public access. These are the definitions that we've settled on that we are using in the program now to try to make sure that we can all be talking the same language.

We are addressing our dissemination of electronic information through the Depository Library Program in four ways. First, we are pointing and linking to the products at agency sites, when the agency provides free access. This is going well and is an area we would like your help. Second, if an agency must charge for its online dissemination, then we are considering that we can pay that agency to make it available free to depository libraries. We have not actually done that yet, but that is a direction that the study suggested. Third, we are looking at riding agency requisitions and paying for depository products, even when they were not produced or procured through GPO. And then the fourth mechanism is to obtain from agencies the electronic source files for information products that the agencies do not wish to disseminate through their own electronic services. We would then take those electronic source files and make them available via GPO Access.

This fourth mechanism is not going very well, hence there is no standardization. As Wayne says, there are no rules. When you try to take a source file from a federal agency, you do not know what you're going to get; you don't know what format it's in; you don't know whether it's going to fit. Every time we try to take from an agency a file to do something with, it takes a tremendous amount of work to make it usable, because there are no standards being utilized.

I'd like to speak a little bit about what our program can do for your agencies as a service. First, we can distribute tangible products to depository libraries at no cost to an agency if your products are produced through GPO. We will pay for those copies and distribute them to depository libraries. As I mentioned, we can disseminate agency products via GPO Access, providing that we can figure out some way to get it in the format that we can use it. And we would pay for that. It's at no cost to an agency. All of the GPO Access cost is now being borne by the Depository Library Appropriation. That is how we are able to make it free, by making it part of the depository program.

We intend to provide cataloging and locator services, as services to the agencies. We want to catalog information products in a standard library format. We'll enter them into the national bibliographic utility, OCLC, and from there records will get into individual library online catalogs nationwide. Bibliographic control is a major challenge in terms of electronic products. I think we're all dealing with that. I would be very interested in what each one of you here is doing. What is your library trying to do with cataloging electronic information products that your particular office is producing? Are you keeping up with it? Are you trying to do it? This is something that we need help with.

We're providing what we call "pathway services" to enable users to locate and connect to information at agency sites. There is a handout in the folder that talks about the services that we are providing, and I have to say that what we have done here on our GPO Access Site is largely attributable to Maggie Farrell. She was with us for a year, and she developed the concepts and ideas, and put these pathway services into place. We have the *Monthly Catalog* up online. It identifies any type of government information product, regardless of format. We also have the capability on GPO Access to show you the depository library in your area that has the document you are seeking.

We just recently put up the Publications Reference File, which is a list of our sales products. That's only been in place about three weeks now. It lists primarily the tangible products that we sell. We have a "browse titles" function, the current awareness tool that lists and links to government information products available on federal servers, arranged alphabetically by agencies. "Browse titles" is an area where we would really like your help. In the package that I gave you is what we call an "Internet Information Product Notification Form." We are going to be asking that librarians around the U.S., as they identify electronic products that are on a Government website, fill out the interactive form on GPO Access and provide us with information about that product. We will then catalog it. This may be as close as we're going to have to a mechanism to track what's happening out there involving information products that are on various electronic sites.

We also have "browse topics," which categorizes government and military Internet sites under approximately 170 subjects. This is another area where we are going to be asking for volunteers. We'd like for librarians to take a particular topic and make that topic theirs, and handle it for us. If you're interested in being responsible for a topic, please let us know.

Another tool that Maggie developed is called "Search the Web", or "Pathway Indexer". It contains a simple search form which will enable users to query a database of information collected on a regular basis from selected official government sites. We use the Harvest software, and it gathers and indexes from .gov, .mil, and other authorized sites. We also have "Pathway GILS", which is the government information locator system where we have taken and put up a record about each federal government agency. There is, therefore, one central point where one can go. It is essentially an online Government Organization Manual that is up on our website.

These are some of the things that we've done in terms of locator services. We really want to ask your help, and anybody's help, in coordinating with agencies to provide demographic control of government information products. We consider this our role. With the *Monthly Catalog*, it was pretty easy; documents came through the Government Printing Office to us, and we cataloged them. With electronic information, it doesn't work that way, so we're going to need lots of help.

The next area in which we feel that we can provide services to agencies is permanent access. We intend to coordinate with agencies, with the National Archives and Records Administration, and with depository libraries, to assure that both tangible and online electronic information products are maintained permanently for use by the agencies and the public. This is a massive challenge. But we feel that it falls within our purview, because just as the regional libraries have maintained copies and maintained permanent access to tangible products, we are extending that responsibility to electronic products.

We have a project ongoing right now that may help in the area of standardization. We're expecting to conduct an assessment of standards for the creation, dissemination, and permanent accessibility of government electronic information products. This is something that we are proposing to do with the National Commission on Libraries and Information Science (NCLIS), whereby we would survey agencies to determine what standards are they using. NCLIS is handling this for us on a contract basis. And they are working with the Office of Management and Budget to assure that there will be support there from the executive branch.

We want to work to store, maintain, and provide distributed permanent access to electronic government information products. The government is probably not going to be able to handle permanent access to electronic products on its own, just as it hasn't with paper documents. This has been handled by the regional libraries. So we're looking at a distributed system. We're looking at the possibility of partnerships with agencies that house their own information and maintain it permanently. We're looking at partnerships with the major research libraries. The idea is: I will hold this, if you will hold that and I don't have to. We proposed to establish agreements with universities, which would agree to hold collections that fall within their particular area of interest. (For instance, I would intend to ask Richard to hold Navy information, permanently.) If you have an interest in this, please contact us.

Finally, our depository libraries currently maintain tangible government information products for public use. One might say, "Why do we need depository libraries in an electronic environment?" We feel that libraries in each district throughout the country, which can help the people and serve as intermediaries, will be even more necessary in the electronic environment than they are in the paper. There is going to be a continuing and expanded role for libraries and librarianship in an electronic environment. As I said, we haven't had any mass exodus of libraries wanting to do away with their appointment as depositories, and we don't expect that. It's our job to provide those libraries with services that make them want to remain depositories. And that's what we are working on. Obviously, the libraries provide a local capability for the public to access government online information, allowing agencies to reach a wider audience.

Government Initiatives on the Internet

by

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Introduction

Currently there are 12.8 million Internet hosts. Of that number, 3.4% are military sites and 2.8% are other government sites. [1] Although this is not a significant portion of the Internet, it is a reversal of domains from just a few years ago since the Internet was created by the military and expanded by educational institutions. It is notable that the Internet, which was created by the government, is now largely used for commercial purposes. But it is government information which can have a significant impact upon the general public.

We often take government information for granted. We are fortunate that our democratic society promotes open access to our governments. It is not until information is no longer available that we realize how much government information is essential in our lives. For instance, weather data, demographic information such as census figures, economic information such as the Consumer Price Index, and business information are all provided by the United States government. Can you imagine providing reference service without the *Statistical Abstract*? Now imagine all of this wonderful information available online, to each home and library, delivered instantly at little or no charge. Also imagine the possibility of citizens communicating with government agencies, and filing electronic government forms and receiving benefits online. The federal government no longer becomes an amorphous, isolated bureaucracy but a responsive government for its citizens.

I realize that this is a dream, but already in the short time the Internet has been in existence there have been improvements in how government information is disseminated and accessed. Although I cannot statistically measure my perception, it is my impression that government Internet sites have much more content on average than commercial sites. We are just beginning to see the possibilities. This afternoon, we will look at some of the current innovations and some projects which foretell the future of electronic government information.

Finding Aids

One of the major difficulties with the Internet is finding information there. The Internet is a loose collection of networks lacking central authority and publishing standards. While this certainly has it benefits, one of the drawbacks is the lack of cataloging and indexing tools. Indexes such as *Yahoo!* and *Alta Vista* help; these are computer-generated indexes which basically search keywords on the Net. After doing a search on the Internet, the user is often faced with a long and unfruitful set of files.

There are several government projects which are improving access to government information. Many of us are familiar with Internet indexes, and two which have been developed for just government sites are "GovBot" and the "Pathway Indexer". Both are built upon the same structure as other indexes but are limited to government Internet sites so users are searching only a portion of the Internet.

GovBot was developed as a collaboration of many federal agencies, primarily led by the National Performance Review and the President's Office. GovBot <http://pardoo.sc.umass.edu/GovBot/> is an index which indexes selected Web, ftp, and gopher sites. Although the focus of GovBot is federal Internet sites, some state government sites are included.

The Pathway Indexer was developed by the Government Printing Office (GPO) and is still under development. This index is limited to federal government Internet sites and also includes some educational sites that have a formal partnership with the government such as the agriculture site at Cornell University <http://gather.access.gpo.gov/Harvest/brokers/Pathway/query.html>.

These indexes are built upon computer files and keywords, so they are still limited in their success. Recently the Department of Commerce submitted a proposal to build an "Advanced Search Facility Project". [2] This project is different from the indexes mentioned above, in that it indexes content rather than keywords. The Advanced Search Facility will also search GILS records and more logical relevancy ranking, and it holds much promise in being a more sophisticated index which will return more relevant results than current indexes.

In addition to indexes, several federal agencies are organizing Internet sites by keywords and topics. The National Technical Information Service (NTIS) has a collection of government sites organized by science and technology terms <http://www.ntis.gov>. GPO has a list of terms as well <http://www.access.gpo.gov/su_docs/dpos/pathbrws.html>. What is unique about these aids is that they organize sites according to the vocabulary of their clientele. These are valuable finding aids for browsing the Internet, while the indexes are excellent for searching for specific keywords.

Another collection of resources is located at the White House site. Called "Briefing Rooms," these finding aids focus primarily on statistics; the compilers also include data sets which may not be readily accessible through the Web. <http://www.whitehouse.gov/fsbr/>. The Briefing Rooms are especially good for browsing for government statistics.

Many of you are already familiar with the Government Information Locator Service. GILS has been mandated by the federal government and is expanding to state and international governments. [3] There are two primary sites for GILS: GPO and the U.S. Geological Survey. GPO has several types of GILS, including "pointer records," which are main records for federal agencies <http://www.access.gpo.gov/su_docs/gils/gils.html>. The USGS site has several documents on GILS and is a good place to learn specifics about GILS<http://www.usgs.gov/gils/index.html>. One of the most interesting sites for GILS information is the Defense Technical Information Center (DTIC)<http://www.dtic.dla.mil/defenselink/locator/>. DTIC not only has GILS records for the military but has also implemented a strategy to build and track Internet sites through the GILS system. This development facilitates DTIC's ability to be informed about new Internet sites, and the process is completely automated. This is an excellent example of how an agency can use technology to streamline work flow.

Cataloging

Finding aids are excellent tools but usually do not provide the level of detail for information that most librarians desire. While cataloging may not be considered an "innovation" or new idea, it is a demonstration of using current bibliographic tools and adapting them to the electronic environment. Two projects are involved in cataloging electronic government information, and both appear to be very successful.

The Government Printing Office has always cataloged government publications, but now they are going one step further and including electronic government publications as part of their regular cataloging duties. GPO has also placed its current editions of the *Monthly Catalog* or "MoCat" on the Web, which further promotes access to government information. In the sample search I have today, visualize this as your online public catalog, and you can see the possibilities of integrating the Web with your catalog. In the MARC record, GPO has included the URL in the 856 field, and a programming script makes this URL a link so that individuals can go directly from the catalog to the Internet resource <http://www.access.gpo.gov/su_docs/dpos/adpos400.html>.

Another project is the Electronic Archive at Cornell University, a demonstration of cataloging and a partnership between a government agency and a university. Cornell is cataloging select publications from the Department of Labor as well as archiving the publications and making them available to the public <http://www.ilr.cornell.edu/library/e_archive/>.

Encryption

Secure transactions are essential to the success of the Internet. As commerce and legal services move online, the public needs to be assured that financial and personal transactions maintain their integrity. The U.S. Post Office, which has ensured secure personal transactions since its inception, is also concerned. It is currently developing a method for securing and verifying electronic transmissions. The Post Office is implementing an "electronic postmark", which will date and time stamp email, encrypt the message, and authenticate the original message. The Post Office will even send a hard copy and will confirm delivery of both the hard and electronic copies.

The IRS has unfortunately eliminated its "cyberfile" program, which enabled citizens to file their own forms electronically. [4] This transaction also depends upon secure transmission, as well as the ability of the sender to encrypt documents and of the recipient to decode them. However, the IRS is still committed to the idea and will continue to work on a method of electronic filing of tax returns.

Services

An interesting development in government agencies is the compilation of services across agencies and branches of government. The Internet facilitates agencies working together to provide common services. The Business Advisor, developed under the leadership of the National Performance Review (NPR), is a good example of how many agencies with similar goals can work together to provide a seamless interface to their services <http://www.business.gov>. The Business Advisor pulls together a variety of resources and databases under a single umbrella, easing the search for federal information related to business. Individuals often do not understand the branches of government or the responsibilities of various agencies. By combining common services together, citizens are able to find pertinent information faster without bureaucratic hassle.

The White House is also developing several projects based upon the combined services concept. Federal Services on the White House web site pulls together a variety of resources into one location, regardless of agency. <http://www.whitehouse.gov/WH/Services/>.

WINGS is a U.S. Postal Service project which facilitates communication with the federal government. However, the services are categorized a bit differently. The services are arranged by major life changes such as birth, moving, retirement, and death. The philosophy of this arrangement is that it is at such times that citizens need to contact the government. For instance, with the birth of a child, one must request a social security number from the Social Security Administration. During moving, one must contact the post office for a change of address. WINGS is also the prototype of a proposed kiosk system which would place kiosks with these services in local malls, libraries, and post offices around the nation <http://www.wings.usps.gov>.

Among the strengths of the Internet is that it facilitates access to information which previously was limited by physical location. The Library of Congress (LC) is demonstrating that it is possible to provide access to local collections. With its digitizing project, the LC is making various historical collections available to researchers and students across the nation. Out West, we especially appreciate these services; because of the youth of our libraries and universities, few of our library collections contain early American resources. By digitizing key American documents, early photographs, and manuscripts, the Library of Congress is providing a new and enriched service to citizens throughout the United States <http://lcweb2.loc.gov/ammem/ammemhome.html>

New or Improved Access

Many of you are familiar with the Securities and Exchange Commission's EDGAR, a database of corporate filings from public companies that is used by investors and businesses. EDGAR received a lot of publicity about a year ago when the database, after a free trial, was due to become a commercial service. But many individuals and businesses lobbied for EDGAR to continue to be free and open for all citizens, and they were successful. EDGAR is a demonstration of improved access to public information, and I hope that as other federal services threaten to be fee access or sold off to private companies, the general public will lobby for open access to government information <http://www.sec.gov/edgarhp.htm>.

A relatively new database is the Patents Database developed by the U.S. Patent Office in cooperation with CNIDER, a private company. Patent research has been limited to patent depository libraries, the patent office, and information brokers. This database provides a new method for inventors to research patents <http://patents.cnider.org/access.access.html>.

Current Supreme Court Decisions has been accessible through several Internet servers, such as Cornell University and the state of Maryland's Sailor. But only recently have the historical decisions, which go back to 1937, been made available through a collaborative effort of NTIS and the Air Force FLIGHT system. This database will also be available on the Government Printing Office's Web site, and it is hoped that the complete run of Decisions will be electronic within a year <http://www.fedworld.gov/supcourt/index.html>.

The government, especially the military, is a prized purchaser for goods and services. Businesses seek to win government contracts; yet to locate information about RFPs and to understand the complexity of government contracting and purchasing can be a nightmare. That is why an innovative Internet site that would facilitate the contracting process would be well received within the business community. The military has done just that. With the ACQWeb by the Office of the Undersecretary of Defense for Acquisitions and Technology, companies have a one-stop center to locate information on military contracts. The ACQWeb is the first place a contractor should look if seeking a military contract. Other agencies, such as GSA and the U.S. Postal Service, are also beginning to develop such services <http://www.adq.osd.mil/>.

Partnerships

While the federal government has created some dynamic services on the Internet, it is clear that federal agencies lack the finances and expertise to do every project they would like. Partnerships are one solution to this problem. By partnering with an educational institution or with a private company or organization, the federal government can improve its services.

Census information is being made available through a unique partnership between the Census Bureau, the University of California, Berkeley, and the Lawrence Berkeley National Laboratory (LBL). LBL has created a CD-ROM jukebox system for the 1990 census and has developed a common search interface for all of the CDs. Not only does this facilitate searching the various CDs, but it also provides 24 hour access to census information <http://parep2.lbl.gov/cdrom/lookup>.

The University of Illinois at Chicago has partnered with the U.S. State Department to provide access to foreign affairs documents and resources. This partnership allows the State Department to distribute public information while maintaining the security of its networks. Moreover, the University of Illinois has an interest in archiving the electronic files that may no longer be needed by the State Department. This partnership has been a successful application for both parties <http://dosfan.lib.uic.edu/index.html>.

Another successful partnership is between the U.S. Department of Agriculture and Cornell University. This partnership was developed back in the days of gopher! Cornell provides storage space for USDA data and publications. Not only does this support agriculture research, but Cornell University is a perfect partner since it has a strong agriculture education program. Cornell has a vested interest in preserving and providing access to agriculture information <http://www.ilr.cornell.edu/library/e_archive>.

Really Cool Stuff

The Internet would be boring if was simply a reproduction of printed materials. The Internet and other electronic applications make possible new approaches within the federal government. For instance, virtual reality is being used for training military pilots. This not only is cost efficient, but it is safer for pilots learning new skills. The military is also using virtual reality in developing new planes and machines. By developing 3D models online, the military is able to judge prototypes without the high expense of mockup models.

Another virtual reality application is the Virtual Office, which is under development by a coalition of federal agencies called the Federal Webmasters. The Virtual Office brings resources and software together for telecommuting and for collaboration between offices that are geographically dispersed. By using collaborative engineering software, individuals are able to work on joint projects with the same effectiveness as being physically located in one office. I expect we will see continued development in this area as new applications for the workplace are developed <http://skydive.ncsa.uiuc.edu/>.

Conclusion

Clearly, there is still much work ahead to make electronic government information as easy to locate and use as printed information. But it is encouraging to see many agencies using the Internet in new and dramatic ways. I would like to show you one last site, the White House. The current administration and many leaders in Congress have promoted the Internet to government agencies and the general public. This is not an endorsement of current political leaders but a reality check. I doubt that Vice President Gore or Representative Gringrich are writing code. Innovations are being developed by ordinary government employees who believe that it is important to have access to government information and that access should not be impeded by technology. They believe that technology is a tool which can enhance access to our government. I commend you as military and federal librarians for continuing to promote and provide access to government information. For the real innovation in government will be ordinary citizens communicating with the federal government in an open, electronic environment.

Notes

1. Andrew Kantor and Michael Neubarth, "Off the Chart: The Internet 1996," *Internet World*, December 1996, p. 46.

2. "Advanced Search Facility," *Commerce Business Daily*, August 8, 1996.

3. "Management of Information Resources," *Federal Register*, 59, no. 141 (July 25, 1994): 37906.

4. "IRC Scraps Cyberfile," *Wall Street Journal*, September 12, 1996, p. A2.

Government Documents:
Questions & Answers

<u>Question</u>:

This question is directed to Wayne Kelley as Superintendent of Documents. Would you take a couple of minutes to elaborate upon a principal theme of your talk, about the absence of rules? What can be done to restore the rules?

<u>Mr. Kelley</u>:

That wasn't a planted question. One of the problems right now is that most of the laws governing access to government information are a hundred years old, so they don't take into consideration electronic information sources at all. The laws need to be updated to tell agency heads and government officials that the laws in place for access to the authenticity of information in print should be extended to include electronic documents. This is important, because a lot of agencies remove print documents and substitute electronic if there is no requirement that the information be made available to the American public, and that it be authentic and official. This is a major gap.

Another thing is happening right now, and as librarians and as citizens all of us need to be concerned about this. The need for updating the laws has become clear, and there are bills being introduced now. And, at this stage, they are bills written by politicians for politicians. That is pretty unusual, unless you are talking about a Congressional pay raise. We're talking about an important principle of the American government, and that is that the public has a right to know what the government is doing and have access to the information about the government. But, at this stage, what's happening is that it's unlike another bill, say Medicare, where various citizen groups would be interested, or even oil, or even agriculture, or so forth, where the people involved in a certain area would be key in writing the bills. So far, right now, most bills have been crafted by people in the Executive Branch or the Legislative Branch who are political. Politicians see things through a certain prism of life. They are not librarians. They are not college professors. They are not historians. They are not small business people. They are politicians. The art of politics is the collection and exercise of power.

Think back to what the President has said about the twenty-first century. Information and technology are going to be crucial. Think about what Toffler says. Information will substitute for some of the most powerful economic forces in the country. So, at the very time we are crossing this bridge into the twenty-first century, the structure of that bridge should not be designed only by politicians. Information is power.

One of the bills that has been introduced would abolish the Depository Library Program, and Jay has described how that Program is structured. The Government Printing Office is made aware, under Law, of all information passing through an agency. We don't control it, we don't have anything to do with the contents. But we are notified, and we can ride that print order. With the Depository Program we have an appropriation to make sure that that information is captured and made available to the American public. Under this particular change in the law, our appropriation would disappear, and every agency would control its own information. Now, believe me, if you're talking about soft campaign money, you have never seen anything like what could happen in this country in the next decade if every agency, without any controls whatsoever, decided what to print, whom to send it to, or what to do in terms of electronic information, all without any requirement to make that information public.

As these laws begin to take shape in the upcoming Congress, I know the American Library Association is concerned. I know that there are public interest groups that are concerned. But information doesn't have a constituency in the United States the way Medicare or rice subsidies for crops do. And, consequently, I think that American citizens need to be alert to what's happening. You as citizens, and other groups of citizens, should make sure that the laws that are written for the next hundred years take into consideration the needs of the American public.

Jay mentioned that two years ago, in the Appropriations Committee in the House, they just cut our appropriation in half and said: Do it electronically -- there must be savings there. The Senate took a different position, fortunately, and we still have our appropriation. But, think about it: $27 million. The U.S. Government spends $30 million to subsidize tobacco sales in commissaries around the country, military commissaries. But, they are willing to cut $27 million out, so that the depository libraries in every community in this country will not be able to serve clients when they come in and ask for information about the American government. I am not imputing evil motives here. What I am saying is that we expect people to act in their own best interest. And as long as these bills are politicians' bills written for politicians and government, so long as the control of information is subject to rules made up without the participation of a wider group of people, I think we have a real danger. So, I think that in the next year or two we are going to have an opportunity to craft the information policies for the next hundred years. I was a little concerned when I heard that the bill that I referred to in the House was introduced on about the last day of the session. I was told that it would be coming up in February, and there would be no hearings on it. That worries me a little bit. So, I think that there are a number of things that people who care about information can do in the coming months, and we will all have to work through organizations to do them.

Question:

Mr. Kelley, I'm concerned about the electronic dissemination of the data, because in some cases, if you look at the Web, it's here today and gone tomorrow. From the long-term preservation point of view, what assurance can we have that some of this data that is put up will be there if we need it, say in a year or so?

113

<u>Mr. Kelley</u>:

Today, there is no assurance. When the laws are rewritten to include electronics, permanent access to information should be required. Jay and his people in the Depository Library Program are seeking to do that now. But we're having to do it voluntarily. We're saying to agencies, if they can no longer afford to keep up a database that we feel is one of value to the American public, to let us know, and we will store that database and make it accessible. But, there is no requirement that they do that now. Jay, do you want to elaborate on that?

<u>Mr. Young</u>:

I would just hope that librarians within these agencies can have some influence to see that the agencies work either to maintain that information themselves, work with us to maintain it, or work with NARA to maintain it. We can try at our level to find a way to maintain permanent access, and that's where we're looking at distributed partnerships. But, I think it's also going to be the responsibility of the agencies. Perhaps you people within those agencies can have considerable influence.

<u>Mr. Kelley</u>:

Not only is there a concern about preserving the information, but it is almost certain that it will disappear. We've been told by the Department of Energy, which has been putting a large number of titles, 15,000 a year, into the Depository Program in microfiche, that in the future the information will only be available electronically. So, we got the tapes from the DoE, and they were very straightforward. But we discovered that to store them in the image formats that we're talking about would probably require the purchase of a new server costing somewhere around $60,000 every three months. Now, if you look at what some of the agencies are doing, they are doing some interesting things. But when their budgets begin to run out, watch out for the "Etch-A-Sketch."

FEDLINK Update

by

Susan Tarr
Executive Director, Federal Library and Information Center Committee (FLICC)
and
Director, Federal Library and Information Network (FEDLINK)

The print edition of the tabulations of the Federal Library and Information Center survey came out from the National Center for Education Statistics (NCES). That was the end result of a lot of time spent by the FLICC Survey Working Group, NCES, and the Census Bureau to work out some problems with responses and try to identify inconsistencies and establish which areas of the survey responses would be tabulated. That is also available on the Education Department Gopher at *gopher.ed.gov*. But, if you filled out a survey, you should receive a copy of the tabulation.

I want to draw your attention to two publications that will be coming out. One of them we are actually reviewing tomorrow. It is an extended analysis of the responses, trying to focus on the health of federal libraries. The FLICC Survey Working Group identified areas of the survey that they felt indicated whether the responding libraries were healthy or not. Then NCES hired a consultant to develop charts that analyzed those factors. Tomorrow the Working Group is going to review the draft version of that analysis, and we are hoping it will be out early in 1997. The other publication is a directory of contact points in libraries that participated in the survey. I just saw the draft of that yesterday, and it too will be out early in 1997. So, you can look forward to these various publications. For those of you who participated in the survey, thank you very much.

I did a brief review for the Army librarians of the Army results of that survey. You can break it down by military service, and it is interesting then to compare your military service to the others, and to federal libraries as a whole, in terms of size, service, other factors.

In trying to achieve the vision that FLICC established for federal libraries and information centers for the year 2000, we have been working to develop ways of strengthening your infrastructure. The Personnel Working Group finalized a paper that they had put together in 1993, to describe to OPM what kinds of qualifications are needed by professional librarians. They convinced us this year that, even though it's three years old, it would be useful to publish that paper. Consequently, we did publish it this summer as *Qualification Needs for Federal Librarians*, and it is available from our office. Because it is three years old, we decided that we were not going to do a general distribution of it, but it is available for free by calling our office. So, you are welcome to have it.

Another thing that we have done to try to help you with infrastructure issues is to develop a workshop on writing position descriptions. We were fortunate to get Annette Gohlke to teach the course for us. She did so in late October and will be doing another session of it in February. We have had rave reviews on that instruction, and I invite any of you who can get to Washington D.C. again to participate in the February edition of that program. We did videotape the first session; if you are unable to get to the actual program, we'll be glad to loan that videotape to you.

By the way, we are working with the National Library of Education to get our videotape library available through normal inter-library loans; it does not necessarily reflect the most professional taping, but at least the tapes give you the substance of the program. Since we are not a library, it has been very difficult for us to maintain the sharing of these videotapes, and the National Library of Education has agreed to catalog them and make them available to you through the OCLC Inter-Library Loan System. This service should be announced in the near future.

We have reinstituted an annual symposium, one that had been done historically before I got to FEDLINK-- a symposium on the information professional. This year, we focused on how one makes constructive liaisons with computer specialists in your agency or organization. We had an excellent keynote address by Jose-Marie Griffiths, who is the Chief Information Officer at the University of Michigan, along with a lot of pointers from various people in the field as to how you talk to computer specialists and how you get them on your side and help your work. It was quite an informative program, and we summarized it in an article in the November *Tech Notes*. I have a few extra issues of that *Tech Notes* out on the registration table, if you didn't get one.

Another area that we focused on in order to reach the Vision 2000 was building skills and knowledge of your staff. I have been participating in RONDAC, the Regional OCLC Network Advisory Council meetings, where we've been discussing OCLC's draft five-year plan, which they expect to finalize next year. We were trying to find commonalities among all of the networks, and the one thing everybody agreed on was that their biggest challenge for the next five years was keeping skilled staff and keeping staff technically skilled in all of the areas that are both going to continue and to emerge; the latter we don't even know about yet in terms of the technologies. I assume that this area is among your biggest challenges, as well.

We have done a lot of FEDLINK training, but we've also done quite a few symposiums on electronic serials and on copyright and licensing. Patti Fields did a week-long Cataloging Institute to try to refresh cataloging skills, and establish them in some cases. We have also reinstituted the National Library and Information Center tours for those who are local.

In the area of information technology, we've been fortunate to have Alta Linthicum (National Defense University) and her Working Group focusing on that area. They are going to be initiating a survey, in order to develop a database of libraries and their automated systems. You might use this database to identify people who have the same system you are using, in case you would like to develop a user group; or who have a system that you might be considering purchasing, to try to get feedback; or who could provide assistance if you are writing statements of work if you're trying to purchase a system. Another matter that they're focusing on is the information technology update, which we will be doing in January, highlighting intranets and security issues.

We have been starting our planning for 1997 and the future. We were able, with end-of-year money, to hire a consultant to help us develop a five-year business plan for FEDLINK. We are trying to do that by having the consultant work with a variety of our members, to try to find out what you need from us and what we can best do for you. In fact, tomorrow the consultants will be meeting some of the people here from the Military Librarians Workshop to get a better sense of what military librarians need.

I also wanted to invite all of you to give your ideas and opinions to me or my staff, either here or later. Some of us will be staying around for the reception, but we're also available via e-mail. At the end of fiscal '96 we introduced subscription pricing for on-line database services, which allowed people who had some money to buy 12-month subscriptions to some of their database services and help them get ahead for '97. We will be offering that again in fiscal '97 for '98 and, in fact, when we recompete the database services Basic Ordering Agreement (BOA) this spring, we'll be encouraging other database services to offer good subscription prices. So, if you have money at the end of one fiscal year, you can cover yourself for the next fiscal year, or most of it.

Now I'm going to turn it over to Patti Fields.

FEDLINK:
Technical Processing Services and
Basic Ordering Agreements

by

Patti P. Fields
Network Program Specialist
FEDLINK

Good afternoon. While my colleagues are setting up, let me buy just a minute and tell you how thrilled I was to be invited. My father is a graduate of the Naval Academy in the Class of '41, and I'm going to see the library for the first time, immediately after this session. I'm looking forward to the tours.

FEDLINK Technical Processing is our newest service. It is in the category of Library Support Services, and, from a cataloging perspective, it is restricted to the following categories: 1) original cataloging; 2) copy cataloging; 3) retrospective conversion; and 4) physical processing. If you know nothing about these services, a good place to begin would be to go back to your *FEDLINK Tech Notes*, the August 1996 issue, Volume 14, No. 8. We introduced the service at that point. We have a technical processing package that we are calling *The Kit*, that is probably within a week of going to the printer. We hope to have it over to our publication section on Monday. It is mammoth and full of details, and anyone who expresses an interest in this service will receive *The Kit*.

The Army had been using OCLC Tech-Pro for many years on a separate contract. Other networks were offering OCLC Tech-Pro, and FEDLINK wasn't allowed to because it was a competitive service. If we did want to offer it, we needed to do a full and open competition and have contractors, and so on. So, about two years, at the urging of our members, we began writing an RFP for technical processing services. I was the person writing it, and I am a cataloguer. It was probably the most difficult task I have ever had in my life, to write something that would meet everybody's needs, no matter what kind of library you are in, to hand it to a vendor, and ask a vendor who has never seen the work to offer a price. As it happened, I think there was a lot of trust on the part of the vendors. I think we wrote a very quality-oriented statement of work. We are lucky enough to have started three pilots at the end of the year, and we'll be making it available to you this year.

At this point, I think it would be very appropriate to mention two people in the room who made it happen last year. Sitting over behind me is Pearce Grove, who urged and urged and urged and urged for us to get it out last year. And, so we did. And I will also say that at least three times, when I felt completely derailed, I walked into Susan's offices and said, "I don't think I can do this." But she urged me forward, and so we did get it done, and we did get it out at the end of the last fiscal year.

We had several underlying assumptions. We wanted national level cataloging standards, and we wanted them to be broadly applicable. We wanted you to be able to update the OCLC database with your holdings to further resource sharing. We wanted all MARC format capabilities. We thought it would be a good idea to make physical processing an option, whereby the vendors would send your materials to you shelf-ready, assuming you needed standardized processing. And we wanted it to cover both new acquisitions and also your projects, your arrearages, special kinds of formats that you don't have capabilities with and would like to outsource.

Other, financial, underlying assumptions were that it would be a fixed-price, deliverables-based, contract per-item pricing, so that you could establish a fund with FEDLINK, a Technical Processing Account, and order your records and your physical processing up front. Your funding would still be applied to that work, even if the processing were not done until the following fiscal year. The work is performed off-site, and the fiscal year of the funding is the year the work was ordered.

We then established some Basic Ordering Agreements (BOAs). I am told that I prepared the longest Statement of Work in the history of the Library of Congress, and that's the truth. We did conduct a formal competitive procurement, and here are our five vendors. Four of them are in Washington D.C., and one, of course, is in Ohio: CapCon Network, Costabile Associates, Library Systems and Services, OCLC, and Telesec. If you're interested in looking at the BOA, because perhaps you'd like to go out on your own for the same kind of procurement, or you'd like to see what our terms were, in your packet is the FTP address to download the BOA. It is in many parts, and the documents are long.

These are the prices the vendors offered, sight unseen. Hence they are inflated prices. What we'd observed in the individual competitions is that the prices are lower, lower then the stated Section B prices, sometimes very significantly. We asked the vendors to offer on an easy book, moderately difficult book, and hard book. That's what the easy and the hard mean. I think cataloguers know what is easy and what is hard. Your problem shelves are comprised of the latter category.

On the last page of your handout are the six FEDLINK steps that you would take if you thought you wanted to use these services. There are two bits of paperwork required, and some of you in the room may have already begun this, because your FY '97 registration package included the necessary forms. The first thing you would need to do, if you've not already registered for this service with a TZ Account, would be to amend your Inter-Agency Agreement for the TZ service, and then to fill out the TZ Intent Form in your registration package. Send those to FEDLINK. In response to the TZ Intent Form, we will send you *The Kit* I mentioned at the outset. It includes the information you need to give to the vendors, so that the vendor can offer quotations on your particular job. As a result of your package, FEDLINK will issue a Request for Quotation to our vendors, and they will respond with quotations on your job. I say we evaluate the offers and select a vendor, but that depends very much on what your evaluation criteria are. You have three options: lowest price; lowest price, technically capable; and, in contracting terms, the best value option, which is really a weighted criteria option. Upon completion of FEDLINK sending a delivery order to the successful vendor, you and the vendor will start the project.

My e-mail address: *pfie@loc.gov*. Other points of contact on this service are the Fiscal Hotline, of course, related to your IAG Amendment and receipt of your TZ Intent Form, and the Library of Congress Contract and Logistics Office. We will, at the end of our three presentations, have time for questions; so I will sit down now, and turn this over to David Pachter.

FEDLINK:
OCLC Telecommunications

by

David M. Pachter
Network Program Specialist
FEDLINK

What I'm going to do very quickly is provide a synopsis of what you're going to need in the next three to five years to access OCLC services. The need for the capacity to change to delivering full content to users is going to include full text, images, video, and sound. This means that OCLC is going to have to move from their rather antiquated protocols to a more conducive atmosphere or environment to move multiple types of electronic records and information. There will be more and more consortia requesting group purchase services. Technical services will be totally redesigned, and a lot depends upon the electronic environment itself-- Microsoft, Netscape, and so forth. Moreover, OCLC will eliminate proprietorial options. Those of you on dedicated lines right now with OCLC are still going to have a dedicated service of some sort, but it's going to change.

OCLC is going to move to a more open network, standardize on using the TCP/IP protocols, use frame relay to be phased in, and convert TLPs to X.25 or to TCP/IP frame relays. Dial access is going to change from your normal dial access to an IP type of access, using most likely a PPP connection. Intranet/Internet access will continue.

Let me do a quick explanation of what PPP and frame relay are. Most people probably have heard of PPP, " point-to-point protocol," which allows a dial access Internet user to be seen as a dedicated line, so that you can use Worldwide Web technology. Frame relay technology is fast-packed technology, utilizing shared circuitry over a public network, such as MCI or Sprint; it is scaleable much faster than the 9600 dedicated lines you are using right now.

This is a graph of the current telecommunications options--dial access, Internet, multi-drop, and TLP. Of these, the one that will remain is the Internet. The dial access has tremendous restraints, and multi-drop has been around so long that it is actually the original access. Multi-drop does not allow for any other type of electronic movement, other than the OCLC protocols right now--no graphics, no sound, nothing. So, there will be a change.

In 1992, almost 92% of OCLC access was by dedicated line. Dial access was 7%, and TLP, 1%. There was no Internet access. Now, in 1996, dedicated line use is down to 68% of OCLC access, while dial access is 5%, Internet 11%, and TLP 15%, with 1% constituting other access.

Microsoft, the "big dog" in the market, is moving totally to 32-bit technology, so Windows 95 and Windows NT-capable hardware are a necessity. Windows 95 and Windows NT will merge within the next 12 months, approximately. And DOS is history. Hence, DOS-only capable machines may not even be able to access a lot of the OCLC systems and product lines. Third-party add-ins are available. It's very obvious that this movement is there; we have no choice. Users will need Pentium and higher computers, more memory, more storage, and more integration of multi-media. Hardware continues to evolve, and optional functions and features, such as sound cards, are being integrated into standard computers. There is just no choice. As for the timeline on this is, right now we're talking Pentium or 16 MB of memory, and a 1 GB hard-drive. We're looking to 1998 to the Pentium Pro, with 24 MB of memory, and a 2 GB hard-drive. This is what OCLC tells us. Past that, no one knows. I don't care what they say about 2000; nobody knows after next year.

OCLC feels that it has to keep up with the technology. It can't lag too far behind Microsoft, and it has to develop library solutions and let Microsoft (or whoever else is doing it) provide the proper support for printers, telecommunications, and so forth. There are shared software components, and they want to move toward an OCLC Library Suite. There are changes that are needed to remove the restrictions that have been there to restrict access or specific features and services. They need to develop a road map to the future for technology. At some point in time, when you call for support, they might have to say: " We can't help you." You are going to need to bring your systems up to the quality that OCLC requires; there is just no choice in the matter.

The day Microsoft ends support for a product, OCLC wants to be close to that date for their own support being dropped. This is their desktop applications road map. It's out there right now, and again, this chart is in the packet. You can see that they expect to stop supporting DOS by the end of 1998. This doesn't mean that we at FEDLINK will stop supporting it. So, if you have problems, we'll be able to help you. However, it's going to reach a point when DOS access just may not be there. If you're looking down the line within the next three years, unless you have Windows-type access, you're going to have a problem.

FEDLINK:
Teaching the Internet to Librarians

by

Erik Delfino
Network Program Specialist
FEDLINK

I just came back from Moscow, where I filled in at the last minute on a program to help teach the staff of the Russian Parliament how to use the Internet. I was trying to do a demonstration like this live, given the worst possible circumstances. They didn't speak English, and I didn't speak Russian. We had a number of translators. The people there are wonderful, they are very sophisticated, and their computers are all new, because they didn't have any before 1991. So everything they bought, they bought in the last two years, and their computers are great. But their telecommunications infrastructure is about twenty years behind ours. So, our Internet connection went up, and went down, and went up. And, when it was down, I stopped referring to it as "Netscape," and started calling it "Nyetscape." The Russians actually laughed at that; it was my only joke that actually translated well. They actually are using Windows with a Russian language overlay, and it's interesting to see.

We have put up a home page, which became available around the time of ALA in July, and we've been adding to it ever since. A couple of things are on there that I hope will be useful, especially to those of you in the field. I'm always very sensitive, as we all are at FEDLINK, to those of you who are not in the Washington D.C. area and the things that you need. One of the first things we put on here was a catalog of all the FEDLINK services we have. The 102 vendors we have, including the five new tech-processing vendors and the Copyright Clearance Center, all have a description sheet here. If the vendor has a home page of its own, you can go through the directory and see the description of services and connect to the vendor's home page if you need more information. There is a description of the vendor, and there is the contact information: an e-mail address for the vendor, if we have it, and a connection to its website if it has one. In 1997 we are going to produce this Directory of our vendors only electronically, so that we can keep it updated faster and so that you can get access to it more quickly.

The other thing that we are always putting there are the publications that we are doing. We are trying to keep all of the publications that we send out to you in paper available to you electronically, as well. That includes the *Tech Notes Newsletter*, the *FLICC Newsletter*, meeting announcements, information alerts, etc. As a matter of fact, the issue of *Tech Notes* that Patti mentioned, which discusses talks about the Technical Processing Vendors, is available electronically. Right now we are in the middle of a contract that we put at the end of 1996 to convert some of our older publications; hence there should be a lot more content in the next couple of months as the contractor finishes the conversion to HTML.

The other part of the program is, of course, our Internet training program. We have a class for new users and three classes of progressive complexity. Using the Worldwide Web is a basic introduction. The second class is using the Netscape software, and the third class is using some of the search engines that are out there to find information on the Worldwide Web and correlate that with the kind of reference work that you are doing in your libraries. The catalog of the classes, both the OCLC classes and the Internet classes, is available on-line. Plus, starting a couple weeks ago, you can register for classes on-line. There is a form you can fill out: include your FEDLINK ID, which class you want, and some other information.

One of the things I'd be interested to find out is, either here, or if you want to send electronic mail, what else can we do to help those of you who are in the field in terms of education. We are trying to do as many classes in the field as we can, either regionally or at specific library sites. I've got a couple of Internet training classes pending in the next couple of months out in the field. But also we need to know from you what is it that you need to know. What kinds of information you need about Internet, OCLC, etc.? We also are starting a couple of new classes this year, including a class on HTML coding of documents. We have been getting a lot of requests for that.

We also started a series of special web-searching classes on some specific topics -- government information, cataloging resources, and acquisitions resources -- that are available on the Worldwide Web. We have gotten a lot of good feedback on them. The address for the home page is on that handout.

We have four different listserves that we run right now -- for catalogers, reference librarians, acquisitions people, and also just a general list. I encourage you to use these, and also the newest one, FEDLIB, that we've turned into a discussion group. It is actually moderated by your elected officials, the members of the FEDLINK Advisory Council. The Advisory Council wants more input from you, as well, and they are trying to use this as an outreach tool. They are taking a turn, once a month for the next year, of rotating through moderating that list as a discussion group.

Service Reports:
Air Force Libraries

by

Barbara D. Wrinkle
Director
Air Force Library and Information System

Charles Darwin once stated: "It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change." When the history books look back at 1996 and its effect on Air Force libraries, the chapter will be titled, "THE YEAR OF CHANGE." Our library staffs have coped with these changes despite the tempests swirling around them.

This year, we have seen the retirement of the Air Force Library Director, Annette Gohlke, after 30-plus years of outstanding federal service. I was selected as the new Director, and Margie Buchanan, MAJCOM librarian at Air Education and Training Command (AETC) , was selected as my Assistant Director. Darlene Price from Ramstein AB GE replaced Margie at AETC. Alice Roy left the Air Combat Command librarian position to become the Acquisitions Librarian at the Air Force Academy. I know that with the combined efforts of our command librarians and the staff members at our Air Force libraries, our libraries will continue to provide excellent customer service for years to come.

The most significant project we have tackled in 1996 is the issue of outsourcing and privatization of Air Force libraries, particularly our general libraries. Just last year, the Air Force Chief of Staff directed that all commercial activities on Air Force bases be looked at for outsourcing and privatization. This effort aims for cost-effectiveness and efficiency. To "motivate" installation commanders, the Chief of Staff will allow any civilian authorizations reduced by conversion to contract to count towards directed reductions of APF positions on their personnel documents. Another strong incentive for outsourcing and privatization was the creation of a funding "wedge" to support contract actions. As a result, our general libraries were listed as the first candidates for outsourcing. A number of our general libraries have begun the cost comparison study or the direct conversion process. Our libraries at Eglin and Maxwell Air Force Base are very near completion.

To help our general libraries, we formed a task force to develop a document that functions as a standardized template that outlines the library Performance Work Statement, Operations, Processes, and Quality Assurance Surveillance Plans. The initial draft was completed in April, and since April the document has been in coordination with contracting officials as well as legal officials. It is almost out of coordination, and we expect it to be released to the field next month.

This year, the Air Force Library Steering Committee modified the Air Force Library and Information System instructions, AFI 34-113. Major changes to the AFI include clarification of the role of Air Force libraries in the global information network; the use of electronic research; the applicability of the American Library Association Bill of Rights, the Privacy Act, and the Intellectual Freedom Manual; outsourcing; and an inactivation schedule for libraries. Also the instructions will be renumbered AFI 34-213 upon publication.

We have been working on several standardization projects for our libraries this year. In April, we began installing turnkey CD-ROM LANs in 60 libraries around the world. The contract includes all the necessary CD-ROM Server equipment, installed cabling, 3 Pentium-based multimedia computers, networking software, connection of up to seven additional "library-owned" workstations to the network, installation of the system, training of library staff members, and technical support. We centrally fund the LAN licenses for ProQuest, Newsbank, SIRS Researcher, and Air University Library Index to Military Periodicals. This winter, we are adding a CD-ROM containing Computer-Based Training on 54 different software packages including Windows 95 and Office 95. We will be expanding the systems in 1998. Eventually we will have 87 libraries with the standard system.

We have also established core collections for our libraries that will provide our customers with the standard reference materials they need to accomplish their mission and support education requirements. Our first standardization project was to establish a standard of 50 periodical and newspaper titles; now we are working on the core reference collection. To support the Air Force mission, we have centrally purchased collections of the Air War College Suggested Readings along with materials dealing with Information Warfare. This year, we also had one of our document delivery vendors create a booklet containing all the recommended periodical articles for the Air Force Air Command and Staff College writing assignments. Some of the articles dated back to the 1940s.

This year we expanded our centrally funded document delivery contracts. We expanded from two to five vendors and expanded the usage of document delivery. Our customers are very pleased with the results, and we will continue to utilize document delivery as a method of providing information "just-in-time" rather than "just-in-case." We also expanded our use of OCLC's Firstsearch system. We are currently using an average of 7,000 - 8,000 searches per month, an increase of 350% over last year.

Another standardization project we are working on is a Functional Process Review. We asked our library directors to document how things are done, ranging from checking out a book to registering a customer to answering a reference question. We are currently summarizing our librarians' responses in flowchart format with the help of our new library intern. When the flowcharting is completed, we will be able to analyze how things are done and identify the "best-in-class" in the Air Force. Our goal is to publish standard operating instructions for processes.

The results of our central purchasing program for FY96 were, in one word, phenomenal. The goal of our central procurement is to save 25% more than individual libraries can save through GSA, BPA, or FEDLINK contracts. In FY96, we achieved an average savings of 48.6% above individual library prices, equating to a documented savings of over 3 million dollars. These numbers nearly doubled the savings level achieved in FY95.

We had a first this year that I would not recommend to anyone -- the Langley Library was destroyed by fire on 7 July 96. The Library was co-located with the Linen Exchange operation. Someone entered the building through the Linen Exchange, removed ceiling panels and stuffed linens throughout the ceiling area including the library facility. Everything was destroyed. The base is establishing another library in a temporary facility. Replacement core reference materials are being purchased by the base and the HQ AFSVA Library Branch. Books and equipment from closing Army libraries at Van Hill VA and Fort Benjamin Harrison IN will be used to develop a basic library collection. Everyone has been very generous in offering assistance to the library; however, please do not send any materials before checking with the Librarian, Jeannette Hoel.

We established a List Server for Air Force libraries; however, it is currently only available to Air Force libraries since it is used to track Air Force libraries' financial data. Expansions to the network are planned for next year.

More change and more opportunities lie ahead for Air Force libraries in 1997. This next year, we will be:

• continuing the installation of our CD-ROM LAN networks and expansion of the system to include remote access via the Base LANs and the Internet;

• determining the feasibility of creating a standard Air Force Integrated Library System contract for use by all AF libraries;

• continuing to achieve optimal savings through the central purchasing program; and

• monitoring all outsourcing and privatization efforts in AF libraries.

As Fritz Dressler once said, "Predicting the future is easy. It's trying to figure out what's going on now that's hard."

127

Service Reports:
Army Libraries

by

Barbara Christine
Chief, Library Program
U.S. Army Community and Family Support Center

The Proponency Office of Policy Oversight for the total Army Library Program, which is the Office of the Director of Information Systems for Command, Control, Communications and Computers, better known as the DISC4, is divesting itself of the responsibility. We feel it is their loss and the Army's loss if no other Army staff office is willing to accept the oversight. Without central proponency, we become autonomous libraries, with little hope of coordinated efforts at partnerships, consolidations, and cooperative ventures, especially outside of our own entities. There is interest at high levels in finding a home for us and, even as we speak, this matter is being worked. So, stay tuned. This time, next year.

Janet Scheitl will cover inter-library cooperation, so I'll only mention briefly that a new DOD group has been formed, composed of administrative chiefs of the various service general libraries. This is an OSD Initiative to improve quality of life for soldiers and families. Their stated purpose is to act as an advocate for our programs and provide leverage wherever they can. And they have already helped. A couple of the initiatives will be to look at the MWER process, which is the military review of university programs that offer degree-granting programs on the installations.

The Army Library Institute in 1997 will be hosted by Fort Huachuca in Tucson, Arizona. The anticipated dates are 4-8 August. It's going to be a dynamite program, so be sure you're there.

The General Library Program has a home page on the Internet. You can find information on how to become an Army librarian. We get that kind of call all the time in the office. It also contains addresses of all Army general libraries, acquisition information for publishers related to our central purchases, related Army regulations, etc. The web site address is http:\\www.armymwr.com.

Approximately $3 million of reference material, including ProQuest and First-Search, and paperback book kits were centrally purchased in FY '96 for Army general libraries and isolated soldier units. The kits are an unqualified success, especially in Bosnia, as are the reference materials in our libraries. Library multi-media workstations, also centrally purchased, will be on their way in the next few weeks.

The U.S. Army Medical Command's Library Program Home Page recently became available. The Home Page includes annotated links to a wide variety of biomedical and research sites, electronic journals and publications, a virtual reference desk, and library-oriented web sites. Hyperlinks are also available to the National Library of Medicine's "Greatful Med" site, and to the Information Access Company's Health Reference Center web site. Look for an announcement next week on the Army Library listserve about the web site address.

The Corps of Engineers Libraries are currently in the process of moving from their centralized integrated Corps of Engineers Library Information System (COELIS) system to a new, more cost-effective system. The new system will be a corporate union list, supplemented with local cataloging and circulation modules.

Several library consolidations have been accomplished this past year. Two in Chicago merged, as did two in San Francisco. The Corps formed a new partnership between Buffalo District and Detroit, in which Buffalo library staff will provide all library services to Detroit, which had closed its library. Two new librarians have joined the Corps program, Beth Knapke in Kansas City and Lee Porter in Washington, D.C.

The U.S. Army Training and Doctrine Command (TRADOC)Library and Information Network purchased Pentium computers for its general libraries this fiscal year. Hopefully, we are going to get some automation out there for them. On October 1, TRALINET Center was downsized, again. The office is now down to three people: the command librarian, a systems integrator, and an administrative librarian. Earlier, the TRADOC Commanding General mandated a 15% detriment in FY '97 across TRADOC, including Headquarters. Installation commanders offered up general libraries for closure, nine out of fifteen. Headquarters/ TRADOC accepted seven to be closed. Right now, Fort Lee General Library has ceased circulation, preparing for closure on 1 December this year. That's not to say that the other six are going to close. Hopefully, the commanders informed the communities, let them know what's going on, and really took a look at what they're trying to do to see if there are quality library services somewhere in the area.

On the positive side, TRALINET has been allocated two library interns for FY '97. TRALINET has worked hard to make the new version of Joint Union List of Indexed Periodicals (JULIP) a reality. JULIP will have ILL Interface this year. The CARL Library, at the U.S. Army Command and General Staff College, Fort Leavenworth, Kansas, has digitized the CGSC Military Review Magazine, and has begun digitization of the College's Master of Military Arts & Science theses, and the School for Advanced Military Study's monographs.

On the downside, they lost funding for the Army tactical and operations research libraries, to the tune of approximately $487,000.

Most Army Material Command (AMC) libraries now have web sites. Group purchase of FirstSearch was made for technical libraries, and the general libraries are covered through the central buy at U.S. Army Community and Family Support Center. The Vint Hill Farms General Library collections will be given to the Air Force at Langley Air Base, whose library burned to the ground a few months back. AMC Libraries contracted out are Seneca and Sierra Army Depots. The White Sands Technical Library and the General Library are being consolidated under the Education Office.

Forces Command (FORSCOM) libraries have received quality of life money for automation systems to the tune of about $491,000. Libraries benefitting are Forts Drum, Polk, Stewart, Irwin, and McPherson. Libraries contracted out in whole in FORSCOM are Forts Irwin, Hamilton, and Riley. Partial contracts are found at Fort Hood, whose support staff is contract, with the professional staff retained. They are very happy with this situation. At FORSCOM, a headquarters study of the "importance performance analysis tool" for measuring a library's effectiveness in terms of importance and performance is being worked at McPherson Library, with implication for FORSCOM-wide use. See Chuck Ralston for more information on this.

U.S. Army Pacific (USARPAC), our Hawaii, Alaska, and Japan region, has adopted the assessment criteria established by Malcolm Baldridge Quality Awards, to assist all functions. This is a change in the way work will be performed. And, there are seven evaluation criteria to measure the success. See Rich Hanusey for more information on this.

DOD General Libraries in Hawaii are partnering to create a Hawaii-wide customer register and central database of all holdings. This is not just a union list, but an actual interactive database accessed by all DOD personnel. The Air Force has mounted their collection onto the Army file server, and the Marines and the Navy are reviewing the process.

The Pentagon Library has a new director, Kathy Ernest. Lee Porter, who I mentioned earlier as the systems librarian, is transferring or is soon to transfer to the Corps of Engineers, filling the position formally held by Lois Perry. The Library has purchased a new ILS System, VTLS Virtua, which, it is hoped, will be implemented in the Spring of 1997.

All U.S. Army Europe (USAREUR) main libraries are up and running on their patron-oriented automated library system. Jim Dorian, the Program Manager of the Command Reference Library and the USAREUR, also plans to centrally network CD-Rom reference databases, from the Heidelberg office.

Mike Morrison, former Command Librarian in Korea, is now at National Defense University (NDU). So, Korea is "commandless", but is working on filling this position. I understood, just recently, that the Army Center for Military History will fall under the Army War College in FY98.

Service Reports:
Navy Libraries

by

Joan C. Buntzen
Librarian of The Navy

First is the news from Marge Homeyard, Manager of the Navy General Library Program Office. Two really big items this year are the following:

1) The 1997 Fleet Recreation initiative is well under way. The initiative provides $10,100,000 to complete the outfit of all US ships and submarines with Library Multimedia Resource Centers (LMRC's). Ship library personnel are being presented with punch lists of equipment and materials that include Pentium PCs, laptops, file servers, printers, CD towers, scanners, TV/VCRs, camcorders, projection systems, and also reference, general interest and entertainment CD's, videos, and books on tape. The General Library Program Office is administering this initiative and coordinating equipment delivery to Navy vessels--a highly complicated process.

2) The Marine Corps Headquarters MWR Support Activity just approved purchase of an integrated library system for all 18 Marine Corps commands that have general libraries. Formulating the statement of work has begun.

In other news, 6 Navy shore general libraries closed due to BRAC, and 40 ship libraries were disestablished due to decommissionings. But there is a new activity at Winter Harbor, and 17 commissioned ships, so the grand totals are now 95 Navy shore libraries, 27 Marine Corps, 312 ship and submarine LMRC's, and about 315 remote site reading collections.

The Navy general program sustained a $1,000,000 hit in FY96 funds for library material support, but local activity support on average remained at steady state. Marine Corps central program and local activities remained at steady state, but some libraries will see an increase in local support for FY97 as a result of MWR plus-up funds.

There were major renovations at the PaxRiver and Twenty Nine Palms facilities; the Fallon and Keflavik libraries moved into larger quarters; and Marine Corps Base Camp Pendleton relocated its San Mateo branch to a shopping complex.

This year, in an effort to promote fleet/shore library cooperation, the Program Office is holding East and West Coast workshops for 1996. Over 70 people attended the November workshop at Naval Station, Norfolk, and 50 to 60 are anticipated for the December workshop in San Diego. Participation by fleet and overseas personnel has been the best ever.

And, finally, we await the Navy Audit Service report of its findings. It has been auditing the General Library Program for several months. The draft report is due to be sent out for comment sometime around Thanksgiving. The auditors visited quite a number of shore libraries. I have been told that the auditors looked closely at the geographic proximity of Navy general libraries to public libraries--to see whether the public libraries could provide service to Navy clientele as part of their present range of services or through agreements. The auditors are also looking at electronic access as a substitute or adjunct to physical library facilities and services.

On the special, medical, and academic library side of the house:

We had a few closures, but we also had some nice renovations, and relocations too. Among the renovations: Naval Hospital, Guam; Naval Hospital, Beaufort; Naval Air Warfare Center, Aircraft Division, Patuxent River (which includes both the general and technical libraries under one roof); and the Naval Observatory. The Navy Department Library had extensive work done, and the Naval Surface Warfare Center Indian Head moved to a different building. The library of the Office of General Counsel will move from Crystal City to the Navy Yard in April 1997.

The Armed Forces Staff College has reached the 100% design stage in planning for the Joint Center for Operational Excellence. The first two floors of the building will house the library, the third floor will be war gaming, and the current library will be remodeled and used as a distance learning center. The new library will expand from about 16,000 to almost 41,000 square feet.

Among the closures: Naval Undersea Warfare Center New London (much of that library was consolidated in the Center's Newport Library); Space and Naval Warfare Systems Command (much of that collection was absorbed into other local Navy libraries or by NRaD in San Diego); and the Naval Surface Warfare Center White Oak (its holdings were distributed among other Warfare Centers, private, and academic institutions). The Naval Medical Research Institute will be closing, but some functions and people will be consolidated with the Experimental Diving Unit in Panama City, which will certainly impact the library there. Most of these closures were associated with past BRACs.

There is lots of activity to report in the automation arena, and some highlights include the following. Both the War College and the Marine Corps University brought up Horizon over the last 6 months. The Postgraduate School migrated from NOTIS to STILAS. Naval Air Warfare Center Weapons Division migrated from CLSI to STILAS. NRL upgraded its STILAS

installation to the STILAS Web interface. Surface Warfare Center Dahlgren is upgrading its BiblioTech installation to a Windows-based client/server version and is looking forward to the BiblioTech Web interface. NRaD is in the process of preparing to migrate from Datalib to Virtua. Undersea Warfare Center Newport is in the implementation phase of STILAS. The Navy Department Library's OPAC is now accessible through BiblioFile's Web interface. The Armed Forces Staff College will be embarking on the conversion of its classified catalog to machine-readable form using the Athena system. The Naval Hospital, Portsmouth will be migrating to the Georgetown LIS, and in early 1997 their OPAC will be Web-accessible.

The NRL Library launched its TORPEDO (The Optical Retrieval Project: Electronic Documents Online), 160+ Elsevier journals full-text for the years 1995-1996 , as well as *Physical Review Letters* and *Physical Review E,* which were already available full-text. All the journals are available from the Library's home page, which is known as InfoWeb. The Library's InfoNet, a very comprehensive campus-wide information system, will be completely migrated to the Web during FY97.

Related to the automation area, on Wednesday evening we Navy librarians had what some are calling "the mother of all Navy meetings." Discussion was sparked by the *U.S. Naval Institute Proceedings* article summarizing a Naval Postgraduate School thesis calling for a grand Naval Service Digital Library concept and strategy. The authors had stated that of all the services, Navy has made the least progress in developing the digital library. Of course, there is a lot going on in Navy, and certainly there has been progress, as well as leading edge and ongoing effort. We all felt a great sense of frustration that our efforts aren't better known and recognized. Many of us felt that although we all have our vision statements and planning documents, we certainly don't have a unified concept and set of strategies. Consequently, we're going to organize a meeting after the holidays to get together and brain-storm, and white-board: what could the strategies and possible models be for achieving first-class electronic access and library services for the Navy?

It's interesting to note that in reorganizations that took place in several commands, the libraries were relocated to technical organizations, rather than support staff. Two Navy librarians have left their posts as librarians, but stayed within their commands, one to become a security manager, the other to become an information management engineer to work on planning strategies for digital information. I've received word that several commands now have chief information officers, but haven't heard that any librarians have gotten that job.

We're well along in producing a 1996 Joint Union List of Periodicals. The second edition will include the holdings of the 43 TRALINET libraries and now 20 Navy and Marine Corps special, medical and academic libraries. The second edition will be especially nifty: it will be on CD-ROM, and include an ILL function hot key which will generate a message template for download or transfer to email. The database is completed, and ONI is in the process of replicating the CDs for distribution.

Now, on a personal note, I'd like to thank the many Navy librarians who have been so kind and generous in supporting my work this past year. I recognize that people are working harder and longer hours than ever, and that when they contribute time to cooperative projects or to the common good it's usually coming from their personal energy banks! It's not only challenging to work alone as I do (and as I know quite a few of you do also), it can also be a little depressing-- not having other professionals close by to exchange ideas with or to get constructive reality checks from. It's also challenging to be a librarian and not be located in a library and to have to scrounge around for information support services such as literature searches, interlibrary loan, publication purchasing, and also for technical support for computers and connectivity. I know now what it feels like to be an unfunded end-user. So, it's great to be part of a network of great librarians who give so much, and who thankfully don't wait to be asked. In particular, I want to thank a few librarians by name for their extraordinary generosity this year: Jean Hort, Bob Schnare, Marilyn Schwartz, Rebecca Slingerland, Katharine Wallace, and Kathy Wright.

Finally, I'd like to take this opportunity, and, on behalf of all Navy and Marine Corps librarians to thank Dr. Werking and the Nimitz Library staff for their very, very hard work. It has been a **great** workshop bursting with excellent content and brimming with good fellowship! We all deeply appreciate the hours and hours you all have dedicated to hosting the Workshop and planning the program. THANK YOU.

DOD Interlibrary Cooperation:
a Philosophical Outlook

by

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DOD interlibrary cooperation is imperative if libraries are to provide for the information needs of the Department of Defense as military operations get leaner and meaner. This presentation assumes the following.

a. Military forces will increasingly move toward **greater interoperability, regionalization,** and **joint efforts** to provide common needs, especially base operations.

b. **Information is vital to the operation of the military.**

c. Political and economic forces as well as practical concerns will push the regionalization and cooperation mentioned above. This includes **instantaneous, seamless and transparent exchange of information.**

d. The area of consideration will not be local, but **global.**

e. **Information that converts to knowledge will be key to success.**

f. **Technological advancements** allow the exchange of information faster and easier.

g. Libraries are on the battlefield in the **Information War.** Therefore, libraries play a significant role in helping DOD win this kind of war.

h. Winning the war **assumes libraries are electronic with connectivity to each other within DOD.** This means Defense libraries are actively sharing the "unique" resources developed in the conduct of Defense business.

Therefore, cooperation among defense libraries will be critical if libraries across Defense are to light up and link to each other.

Outside of the Department of Defense, technology is demanding interlibrary cooperation on a scale never before seen. Consider Internet and computer technologies. There is no reason libraries cannot be technologically connected across DOD, as assumed above, offering an array of diverse and rich information used in the conduct of defense business. This transference of information should be seamless and transparent to the end user. That is our challenge as library leaders today and tomorrow.

To execute this change on the scale that's needed, a revolution in our thinking and our basic philosophy upon which we build military librarianship must occur. It will take fundamental rethinking and reengineering to meet the demands for information that DOD will have in the future. Here are four areas we need to rethink and reengineer.

1. **The Information.** Focus upon the specific information DOD needs to conduct its work. That's simple enough, or is it.? Can somebody else supply this information? If not, what is unique about it? Who should have access to it? How do we protect the integrity of the information? We should be asking ourselves these questions daily and acting upon what we believe to be the answers by visioning and strategically planning for the outcome.

2. **The Customer.** Focus upon the user of the information. Ask who uses the information and why. Consider that, within DOD, we all serve the same customer regardless of the term applied to the user. Does it matter if it's a sailor, or an airman, or a soldier, or a civilian? They all do business within the Defense community. In focusing on the customer we have to meet current information needs, anticipate future needs, and make sure that we have what it takes to satisfy the need.

3. **The Technology.** Watch the technology being developed and updated. Are we current with state-of-the-art technologies? What training do we need to be current? What demonstrations and applications have we seen of the technology that might be useful within our library? Constantly be assessing technologies and getting them into your libraries. Believe me, the patrons are up-to-date in using technology. They expect it of us. We can't simply do the great technological hand wave. That's where we cite technology as the answer to everything and omit the details. How will technology be implemented and used? How do we get around its limitations?

4. **The Library Itself.** Honestly ask ourselves what comprises a library. Do we need to redefine the term? Database creators are calling the databases they develop "libraries." Are they? How can the role of the library expand? What can we do as information professionals within the library to enhance information and its use? I think we are overlooking a

136

niche that's out there. This is the niche for somebody to teach the customer how to usefully employ information in order to generate knowledge. Consider whether or not that is a role we can step into and develop in the future.

Within this philosophical framework, we work toward interlibrary cooperation. We've been working on this one for decades. What does it mean? It means:

1. **Sharing information sources;**

2. **Sharing reference expertise;**

3. **Interlibrary loan;**

4. Periodic meetings and brain-storming sessions of different libraries about **common problems;**

5. **Training** each other; and

6. **A broad spectrum** of things.

What interlibrary cooperation is not. This is easier to define; it also helps to formulate a concept in your own mind of what interlibrary cooperation is by narrowing the scope of the term.

1. Interlibrary cooperation is **not** the same thing **for all libraries.**

2. Cooperation **is within us**. It's already a part of our professional lives. We need to expand that concept.

3. One path is **not for all.** For instance, maybe not all libraries need seamless and transparent delivery of information in real-time. Maybe the information can be delivered more slowly.

4. Intercooperation **isn't easy.** In an age of exploding information and downsizing staffs and monies, we get bogged down in daily realities so that visioning and planning for an end-state that clearly maximizes the technology and the source of information as it interfaces with the customer becomes unimportant. Fights for current survival replace fights for future applications.

5. Intercooperation **isn't isolationism**. Libraries need to consider their long-term responsibility to other libraries, especially when they are the sole source of certain kinds of information.

6. Intercooperation **isn't rice-bowling** it. We have a tendency to think and act upon the belief: Army versus Navy versus Air Force. Let's not even mention the Marine Corps and the Coast Guard. We have to move out of that box to create a "we" concept so that Defense wins and not just a particular branch of the service. "We" have to exchange information better and meet the needs of the future more clearly.

7. Finally, intercooperation **isn't one library doing the work for hundreds of others**. In other words, a singular effort by one library cannot do it for the rest of us. No singular library can contain all the unique information utilized daily by the Department of Defense. This means we have to do our part in putting together an information web that delivers unique information to users across DOD.

Why do cooperation at all? It's hard to implement and complex to solve, so why should we even try?

1. We need to **de-program leadership**. Too often, military leaders believe the hype about current technologies. Won't the Internet replace libraries? Why do they need more than one library if they automate one and distribute information across a wide spectrum? Our role becomes a challenge.

2. It's an **economic reality**. We have fewer people and less money. We have to get information access in cheaper and more automated modes. We all can't afford to have archivists or cataloguers or preservationists on staff. **Commercial activities or the contracting out** of libraries forces us to maintain our edge with an eye to the bottom line.

3. It's a **technological solution** whose time has come again and again.

4. The **information explosion** shows no sign of easing. More and more data and information are generated now than ever before. We have to combat that.

5. We need to **combat misinformation** about technologies and information. It isn't as easy as a key stroke. As leaders, we have to tell decision-makers that.

6. Our programs **need the visibility**. Our programs need to demonstrate their relevance in the information age. Leaders believe much of the media hype about technology today because they simply don't know better. It's our job to keep them properly informed so they understand what it is libraries do and what they can be built to do down the road.

7. We need to use interlibrary cooperation to **demystify librarianship**. Libraries aren't dead places. Librarians aren't grannies in sensible shoes and sporting a bun. We aren't merely books sitting on a shelf and we certainly don't just check books in and out. What we are is this: a group of professionals typing to capture information that supports their business and provides it in a seamless and transparent electronic medium. Wow! How state of the art!

8. We need to **change** our **image**. Too many military leaders view libraries as one of the following logical equations:

> a. a library = a library = a library or,
> b. I love to read. Therefore, I love libraries or,
> c. libraries = books.

This is pre-computer age thinking. We need to help military leaders change that logical sequence. We have to get them past the books and to online information. How do we do this? One leader at a time on a one-to-one basis with a smart librarian who can teach information technology basics.

9. The **failure of the Information Warfare to protect** is daunting. Information warfare is the future face of war. It assumes that the next war will be technologically based and that information will be the essence of it. It concerns itself with information in a different way than librarians view it. Information warfare concentrates on telecommunications. This means the telephone systems and other voice transmissions. It also concerns itself with the electronic transference of information, especially financial information of the banking industry. It doesn't really address information as librarians use it. So, information warfare fails to include our kind of information in their scenarios. We need to rectify this.

10. **Long Distance Learning has failed to embrace libraries** into the concept of distributive education. Many futurists within the Training and Doctrine Command believe distance learning will take away the need for the Army to have libraries. How tragic that they don't get it. Education is moving away from the schoolhouses for distribution among many locations and many students, who will ensure they have the right information at the right time to learn something in a valid and meaningful way.

Finally, we need to look at current interlibrary cooperation. Three efforts come immediately to mind. These are the **DOD Library Forum**, the **Defense Library Steering Group**, and this group, the **Military Librarians Workshop**.

The DOD Library Forum was established by Carolyn Becraft, the Deputy Assistant Secretary of Defense for Personnel Support, Families, and Education. The group is looking at general libraries within the services with an eye toward what they can do to make them better programs.

The second group is the Defense Librarians' Steering Group. This group is an unofficial body that has formed to help libraries with common problems. For instance, we are discussing the possibility of a vision for Defense libraries among many other things.

Lastly, the Military Librarians Workshop has brought Defense libraries together for decades to network, share solutions, and overcome problems. They are our biggest and best example of interlibrary cooperation within the Defense community. Now, we need to take it several steps farther to envision and realize a strong, library community within DOD that has digitized and made available its unique information sources for a seamless and transparent delivery system.

Some Concluding Thoughts

by

Richard Hume Werking
Librarian
U.S. Naval Academy

As I'm sure you all noticed when you entered the hotel the other day to kick off this Military Librarians Workshop, the building is undergoing considerable renovation. And when you visited the Naval Academy yesterday, you saw that the terrace in front of the Library was being completely torn up. Are these changes? To some extent, they certainly are. On the other hand, much of the work, at the Naval Academy and at the hotel, is restoration on behalf of functional continuity. Where does continuity leave off and change begin?

During the session on outsourcing, I had a number of thoughts, as I'm sure you did. One that occurred to me was the following. In this political season, why not contract out the President and Vice President of the United States and both Houses of Congress? After all it's really very inconvenient to have to wait up to four years to get a new President, by which time the skills that got the current President into office may no longer be up to the job. Why not, instead, elect a contractor who will wheel in different Presidents, senators, congressmen, and congresswomen as different situations arise and as issues change?

On the other hand, it's important to remember that intelligent outsourcing is something that libraries have been doing for quite a long time. Since the early 1970s OCLC has been doing things on our behalf that we no longer have to do in-house. And, of course, the Library of Congress has been selling cataloging to libraries since the beginning of this century. Both of these examples have been used in the outsourcing literature. One point that I have not seen in that literature is the following. In some ways the most fundamental outsourcing involving libraries began in the late fifteenth century, with the advent of printing. Before that, the librarians/monks had created, on-site, much of the recorded information that they housed in their libraries. Afterwards, libraries acquired finished information packages, in much greater numbers than they had been able to create in-house. That's what we have been placing in our library collections for centuries, and we seem to have done very well by this arrangement.

Two other observations. In his keynote address, Walt Crawford talked to us about a combination of change and continuity. Some of his themes echoed points that he made in the book he wrote with Michael Gorman--*Future Libraries: Dreams, Madness and Reality*, published by the American Library Association last year, the reading of which led me to invite Walt to this conference. On page 12 there is a very interesting section entitled, "Honor the Past and Create the Future," and I would like to read you several sentences from this section:

141

We do not advocate clinging to old things because they are old. Nor do we advocate discarding old things because they are old. The library of tomorrow must be one that retains not only the best of the past, but also a sense of the history of libraries and of human communication [something that many of our speakers have talked about--human communication]. Without that, the library will be purely reactive, a thing of the moment, sometimes useful and sometimes not, but never central to human society. With the sense of history, and the knowledge of enduring values, and the continuity of our mission, the library can never be destroyed. Along with this sense of time future being contained in time past, there must be the acceptance of the challenge of innovation. It is neither the easiest of prescriptions, nor the most fashionable, but libraries need to combine the past and the future in a rational, clear-headed, unsentimental manner.

The final thought I want to share with you is to emphasize one of the points made by my friend Keith Swigger. On pages 9 and 10 of his finished camera-ready copy for the *Proceedings* (speakers, please take note), Keith writes:

> What resources are scarce in the information age? First, attention. As Herbert Simon said, "The resource that information consumes is attention." What will it mean to say we learn to share attention? ....The answer has to do with time management. Time is the dimension in which attention exists. We can measure it only in duration. Time is thus the currency of attention. If information consumes the resource of attention, we pay for that resource with our time.

One of our most pressing challenges as librarians is how we manage our time. Some of my colleagues at the Nimitz Library have heard me talk about this challenge. As I wrote in *College and Research Libraries* this past May, all librarians, all of us, are managers of information resources on behalf of our patrons. And all of us--not just the director, not just the associate directors, not just the heads of departments, but all librarians--are managers of our time, as well. And those of us who brought you this year's Military Librarians Workshop are respectful of the fact that, as Keith says, attention is a finite resource. We acknowledge that you, the audience, and most especially you " late stayers" who have remained until now, have chosen to spend your attention at this workshop. We thank you for that attention.

Now I would like to turn this high-tech sound device, the MLW bell, over to Carolyn Ray and her colleagues at Wright-Patterson Air Force Base, so that they can tell us about next year's MLW program. Thus we will honor the past and create the future ourselves.

Change and Continuity in Librarianship: Approaching the Twenty-first Century

CONFERENCE SCHEDULE

40th Annual
Military Librarians Workshop

19-22 November 1996
Annapolis, Maryland

40TH MILITARY LIBRARIANS WORKSHOP
S C H E D U L E

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19 - 22 NOVEMBER 1996
Annapolis, Maryland

All events take place at Wyndham Garden Hotel, except for the
Nimitz Library tours and reception at the Naval Academy
on Thursday evening

TUESDAY 19 NOVEMBER

4-5:30 p.m.   MLW Executive Board Meeting, Selby Room

7-9 p.m.   No-Host Mixer, Severn Room

WEDNESDAY 20 NOVEMBER

8:15-8:30 a.m.   Welcome and Introductions
                         Richard Werking, Nimitz Library

- Keynote Address:
    "Millennial Librarianship: Maintaining the Mix and Avoiding the Hype"
        Walt Crawford, Research Libraries Group
    Q & A with the Audience

9:40-10 a.m.   Break

10-11:30 a.m.	• "Education for an Ancient Profession in the Twenty-first Century"
	Keith Swigger, Graduate School of Library and Information Studies,
	Texas Woman's University
	• Response/elaboration from panelists:
	Stephanie Havron, Air University Library
	Chester Pletzke, Uniformed Services University of the Health Sciences
	Q & A with the Audience

11:30-1:30 p.m. Lunch (on your own)

1:30-2:45 p.m.   • "Outsourcing"
                 Barbara Winters, Wright State University
                 Arnold Hirshon, Leigh University
                 • "Contracting Out"
                 Barbara Wrinkle, Department of the Air Force

2:45-3 p.m.   Break

3-4 p.m.   • Response/elaboration from panelists:
                 Michael Marshall, Navy Laboratory/Center Coordinating Group
                 Carol McMillin, U.S. Army Corps of Engineers
                 Q & A with the Audience

4-5 p.m.   Poster Session, Rhode Room

5-6 p.m.   Cash Bar, Rhode Room

THURSDAY 21 NOVEMBER

7-8:15 a.m.   Continental Breakfast

8:15-9:30 a.m.   • "Extending the Library to the Desktop: The Navy Distributed
                         Virtual Library Project"
                              Joan C. Buntzen, Librarian of the Navy
                    • "Extending the Library to the Desktop: Using GoldenGate at
                         Wright Laboratory Technical Library"
                              Thomas Rohmiller, Technical Library, Wright-Patterson AFB
                    Q & A with the Audience

9:30-9:45 a.m.   Break

9:45-11 a.m.   • "The New Sciences"
                              Lieutenant General Paul Van Riper, USMC, Commanding
                                   General, Marine Corps Combat Development Command

11 a.m.-1 p.m.   Lunch (on your own)

1-2:40 p.m.   • "U.S. Government Documents in an Electronic Age: Changing the Rules?"
                              Wayne Kelley, Superintendent of Documents
                    • "The Federal Depository Library Program in Transition"
                              JayYoung, Director, Library Programs Service, U.S. Government
                                   Printing Office
                    • "Government Initiatives on the Internet"
                              Maggie Farrell, Montana State University
                    Q & A with the Audience

2:40-3 p.m.   Break

3-4 p.m.   • "FEDLINK Update"
                              Susan Tarr, Director, FEDLINK
                                   with Patti Fields, David Pachter, and Erik Delfino
                    Q & A with the Audience

4:15 p.m.	Buses start leaving for Naval Academy
4:30 p.m.	Tours of Nimitz Library begin
5-7 p.m.	Reception/Cash Bar at Naval Academy Museum

FRIDAY 22 NOVEMBER

7-8:30 a.m.	Continental Breakfast
8:30-9:45 a.m.	• Reports from the Services
9:45-10 a.m.	Break
10-11:30 a.m.	• "DoD Interlibrary Cooperation" Janet Scheitle, TRALINET, Fort Monroe Q & A with the Audience
11:30 a.m.-noon	Closing Ceremony
1-2:30 p.m.	MLD Executive Board Meeting, Selby Room

ABOUT THE SPEAKERS

JOAN C. BUNTZEN

For many years before becoming Librarian of the Navy in 1993, Joan C. Buntzen was Director of Technical Libraries at the Naval Ocean Systems Center, San Diego, California. As Librarian of the Navy, she is an advisor to the special, medical, and academic libraries throughout the Department of the Navy and Marine Corps.

BARBARA CHRISTINE

Barbara Christine is the Director of the Army General Library Program, U.S. Army Community and Family Support Center (CFSC). She has held several other professional positions in Army libraries, most recently as Chief, Acquisitions Librarian, CFSC, providing central procurement to all general libraries.

WALT CRAWFORD

Walt Crawford is a senior analyst in the Access Services Group of the Research Libraries Group, Inc. (RLG), and was principal designer for Eureka, RLG's patron-oriented search service. He has been at the Research Libraries Group since 1979 and was previously a programmer/ analyst in the University of California, Berkeley, Library from 1968 to 1979. During 1992-93 Mr. Crawford served as president of the Library and Information Technology Association (LITA), a division of the American Library Association. He was the 1995 recipient of the LITA/*Library Hi-Tech* Award for Outstanding Communication for Continuing Education in Library and Information Science. His most recent book (with Michael Gorman) is *Future Libraries: Dreams, Madness, & Reality* (Chicago: American Library Association, 1995).

ERIK DELFINO

Erik Delfino is a Network Program Specialist with the FLICC program at LC, where he is project manager for FEDLINK's Web site and other Internet services, as well as the coordinator of the FEDLINK Internet Training Program for federal librarians. He also serves as an OCLC instructor, programmer, and network administrator.

MAGGIE FARRELL

Maggie Farrell has been Associate Dean of Libraries at Montana State University since July 1996. She spent the previous year at the U.S. Government Printing Office (GPO) in Washington, D.C. There she assisted in the development of GPO's Pathway Services, which includes an index to and a subject listing of government Internet sites. Before Ms. Farrell's year at GPO, she worked as a federal depository librarian at the University of Nevada, Las Vegas, and was an ALA/USIA Library Fellow to Canada.

PATTI P. FIELDS

Patti P. Fields, FEDLINK Network Program Specialist, has been with FLICC/FEDLINK since 1988. In 1995 she wrote and implemented the first FEDLINK contract for Technical Processing Services, which furnishes all types of federal libraries with off-site cataloging, retrospective conversion, and physical processing.

STEPHANIE HAVRON

Stephanie Havron is Assistant Electronic Services Librarian at Air University Library, Maxwell AFB, Alabama. A member of Beta Phi Mu Honor Society, she is a 1995 graduate of the University of Alabama School of Library and Information Studies.

ARNOLD HIRSHON

Since 1995, Arnold Hirshon has been Vice-Provost for Information Resources at Lehigh University, responsible for the institution's libraries, computing, telecommunications, and media services. While he was University Librarian at Wright State University between 1990 and 1995, the library outsourced all of its cataloging. In 1991-1992, Mr. Hirshon served as President of the Association of Library Collections and Technical Services. Among his many publications is "Running with the Red Queen: Breaking New Habits to Survive in the Virtual World," *Advances in Librarianship* (Orlando: Academic Press, 1996).

WAYNE P. KELLEY

Wayne P. Kelley was named Superintendent of Documents of the Government Printing Office in 1991. Until his retirement in 1997, he was the nation's eighteenth Superintendent of Documents, a post created by Congress in 1895. The former publisher of *Congressional Quarterly*, Mr. Kelley is a journalist with more than thirty years of newspaper and magazine experience.

MICHAEL L. MARSHALL

Michael L. Marshall, who holds an M.S. in Physics as well as a J.D. in Law, has been Executive Secretary and staff specialist in laboratory management, Navy Laboratory/Center Coordinating Group (NLCCG) since 1992. This group is charged with oversight and coordination of the Navy's warfare centers and corporate research laboratory.

CAROL MCMILLIN

Carol McMillin has been the U.S. Army Corps of Engineers (USACE) Library Program Manager since 1993. She was previously affiliated with the USACE Waterways Experiment Station Research Library for 18 years. As Program Manager, she is responsible for the management and leadership of 43 technical/legal libraries within the USACE.

DAVID M. PACHTER

David M. Pachter is a Network Program Specialist with FEDLINK. He is the FEDLINK Contracting Officer's Technical Representative (COTR) for the Books Procurement Program and is a participant in the serials and electronic materials procurement programs.

CHESTER PLETZKE

Chester Pletzke has been Director of the Learning Resource Center, Uniformed Services University of the Health Sciences, since 1978, fostering its growth and development from its infancy to its current high-tech position. Mr. Pletzke also teaches at the University as an Associate Professor, and he has published several specialty papers on computers and multimedia technology.

THOMAS ROHMILLER

Thomas Rohmiller has more than twenty years' experience in academic and special libraries. He is currently Library Team Coordinator at Wright Laboratory Technical Information Branch, Wright-Patterson AFB, Ohio. He was instrumental in establishing base-wide network access to electronic editions of commercial publications and creating end-user search accounts with UnCover and K-R DIALOG using GoldenGate.

JANET M. SCHEITLE

Since 1985 Janet M. Scheitle has been on the staff of TRADOC Library and Information Network Centers (TRALINET), U.S. Army Training and Doctrine Command, and since 1993 she has served as its Director. TRALINET provides guidance and direction as well as central funding support to a membership consisting of 42 library systems, including academic, technical, and general libraries. Ms. Scheitle's previous professional experience includes positions at the Army War College and the Army Military History Institute.

KEITH SWIGGER

Keith Swigger has been Dean of the School of Library and Information Studies at Texas Woman's University since 1992. He has chaired the Professional Education Committee of the Association of College and Research Libraries, and last year he co-chaired TWU's University Technology Committee, which developed the University's technology management and infrastructure plan. Among Dr. Swigger's many publications is "Plato in the Library Science Curriculum" (with Frank Turner), *Journal of Education for Library and Information Science* (1986). Among his many formal presentations was his commencement address at TWU in December 1995, "Managing the Extended Life."

SUSAN TARR

Susan Tarr has served as Executive Director of the Federal Library and Information Center Committee (FLICC), and as Director of the Federal Library and Information Network (FEDLINK) since 1994. From 1986-94 she was Chief, Cataloging Distribution Service, at the Library of Congress. In her present position, Ms. Tarr is responsible for promoting better use of federal library and information center resources and facilities through professional development, promotion of services, and coordination of available resources. FLICC is also responsible for making recommendations on federal library and information policies, programs, and procedures to federal agencies and to others concerned with libraries and information centers.

PAUL K. VAN RIPER, LIEUTENANT GENERAL, USMC

Lieutenant General Paul K. Van Riper has served as Commanding General, Marine Corps Combat Development Command, in Quantico, Virginia, since July 1995. His distinguished career in the Marine Corps includes the following assignments, among many others: combat duty in Vietnam (where he was wounded in action); student in the College of Naval Command and Staff at the Naval War College; Military Observer with the United Nations Truce Supervision Organization in Palestine, serving in Egypt, Israel, and Lebanon; student at the Army War College; Director of the Command and Staff College at Quantico; the first President of the Marine Corps University, Marine Air-Ground Training and Education Center; Assistant Chief of Staff, Command, Control, Communications, and Computers; and Director of Intelligence from 1993 until assuming his current post.

RICHARD HUME WERKING

Richard Werking has been Librarian, Associate Dean for Information and Professor of History at the U.S. Naval Academy since 1991. He has held other professional library positions at Lawrence University, the University of Mississippi, and Trinity University, and he has worked for the U.S. Civil Service Commission and as a summer employee at the U.S. Department of State. His military service was with the U.S. Army and the Indiana National Guard.

BARBARA WINTERS

Barbara Winters is Associate University Librarian for Central Services at Wright State University, Dayton, Ohio. She has 22 years of library experience, including 17 in technical and automated service operations. In 1993 she won the American Library Association's Esther Piercy Award, given annually to a librarian who has shown significant contributions and leadership in areas relating to collections and technical services. Ms. Winters is the co-author, with Arnold Hirshon, of *Outsourcing Library Technical Services: A How-To-Do-It Manual for Librarians* (New York: Neal-Schuman, 1996).

BARBARA D. WRINKLE

Barbara D. Wrinkle has served as Director of the Air Force Library and Information Systems (AFLIS) since January 1996 and was Assistant Director of AFLIS from 1992 to 1996. Prior to 1992 she held a number of increasingly responsible positions in academic and base libraries, and she served as Assistant Command Librarian, HQ USAFE Library Division. Ms. Wrinkle is the appointed representative for the Department of the Air Force on the Federal Library and Information Center Committee (FLICC).

JAY YOUNG

Jay Young, a senior-level career executive at the U.S. Government Printing Office(GPO), has served as Director of the Library Programs Service since June 1993. He joined GPO in 1970. Mr. Young served in the U.S. Army from 1961-69, rising to the rank of major. During a tour in Vietnam he established the first military television station in a combat zone.